

# *Session 10: Assessment & Reflections*

## **Overview**

This *Review & Feedback* session serves two purposes. First, students have the chance to observe their peers' near-final activity, and learn how to review and provide critical and substantive feedback to colleagues. Second, students learn about how they will be graded by the instructors for the final presentation and paper. Students revisit the major ideas from the course, as a means to identify the key elements of the assessment tool. Students are introduced to the assessment tool – an observation instrument, which students will then use to observe their peers present their activity to the public. Instructors of the course may also consider using this observation instrument to assess how students communicate their scientific knowledge to the public and thus apply their understanding of the key concepts in this course.

## **Session Objectives**

In this session, students:

- Review the major ideas on learning and teaching from this course.
- Use an assessment tool to observe classmates present their activity and provide peer feedback.
- Reflect on how students communicate their scientific knowledge using peer feedback.

## Session at a Glance

Task	Description	Estimated time (in minutes)
Quick Write	Students reflect on and write about how they would know if their activity is successful.	15
Discussion: <i>Major Ideas from the Course</i>	Students discuss what information would be helpful for them to let them know their activity and presentation are successful. Students are introduced to an Observation Instrument as an assessment and reflection tool.	35
Activity: <i>Peer Observations</i>	Students add examples to the Observation Instrument and then use the tool as they take turns observing one another present their activities.	60
Break and Cleanup		15
Discussion: <i>Debrief Peer Observations</i>	Partners debrief their peer observations with one another; students do a whole group debrief commenting on their experience observing one another and gathering observation data.	35
Homework	Readings & tasks are assigned including students prepare written feedback to their peers.	10
	<b>TOTAL: 2 hrs 50 minutes</b>	170

## Materials Needed

### For the class:

- PowerPoint slides for Session 10: Assessment & Reflections
- Data/digital projector
- External speakers

### For each participant

- 2 copies of *Observation Instrument*
- 1 clipboard

## Preparation of Materials

1. Duplicate handouts, 2 per student:
  - Observation Instrument
  
2. Instruct students to have their materials ready in order to present in the museum gallery during this session.

## Session Details

### *Quick Write*

**1. Participants do Quick Write.** Students write for three minutes on the following questions:

- How do you know if your activity is successful?

**2. Whole group share.** Facilitate a brief discussion of the students' responses to the quick write using the Discussion Map below. Make a list of their ideas.

- Ask participants to share their ideas.
- Listen to their responses.
- Ask for agreements, disagreements, and alternative opinions & views.

### *Discussion: Major ideas from the course*

**1. Small group discussions.** Building on the quick write discussion, ask students to discuss the following questions in small table groups:

- What information would you want an observer to collect about your activity and presentation to help you determine whether your activity and presentation was successful?
- How can you use this information to improve your activity and communication skills?

**2. Whole group discussion.** Invite students to share their discussions. List their ideas on the whiteboard. Use the Discussion Map as a suggested guide to facilitate this discussion.

Discussion Map:

- Ask a broad question
- Listen to responses and thinking
- Challenge learners to provide evidence or explanations
- Encourage alternative opinions or ideas
- Connect back to the main topic
- Help to organize and summarize the ideas

Key ideas to address:

- Presenter asks questions.
- Learners ask questions.

- Learners are doing the activity.
- Learners are talking with one another and with the presenter.
- Learners are sharing their ideas.
- Presenter invites learners to participate.
- Presenter shares information, but does not dominate the conversation.
- Presenter and learners make connections to learners' prior knowledge.
- Presenter asks learners for their experiences and understanding.

**3. Challenge students to think about observable actions.** Set up the students to think about aspects and design of an observation instrument in the next task by challenging them to think about what an observer would look or listen for in order to determine success of their activity.

**4. Connecting with the major ideas in the course.** Display the "About learning" column of the table of major ideas explored in this course regarding learning and teaching. Lead a brief discussion about how each of these ideas about learning relate to ideas about teaching. Then display the "About teaching" column.

About learning	About teaching
Learning is <i>an active process</i> .	Engage learners in actively doing something to make sense of the ideas
Learning <i>builds on prior knowledge</i> .	Access and connect with learners' prior knowledge
Learning occurs <i>in a complex social environment</i> and is a social activity.	Encourage learners to participate in the conversation

**5. Focus on presenters' actions related to major ideas about teaching.** Ask students to describe what sorts of things a presenter might do that would show an observer that they were focusing on the three major ideas listed in the "About teaching" column. Ask the students the following series of questions interspersed with opportunities for them to briefly share their ideas: what would a presenter be doing if they were a) connecting to learners' prior knowledge, b) encouraging learners to participate in the conversation, and c) engaging learners in actively doing something? Depending on what the students say, some key ideas to address include:

- Engage learners in actively doing something
  - o Presenter invites learners to participate.
  - o Learners are doing the activity.
- Connect to learners' prior knowledge

- Presenter asks learners for their experiences and understanding.
- Presenter and learners make connections to learners' prior knowledge.
- Encourage learners to participate in the conversation
  - Presenter asks questions.
  - Learners ask questions.
  - Learners are talking with one another and with the presenter.
  - Learners are sharing their ideas.
  - Presenter shares information, but does not dominate the conversation.

### *Discussion: Observation instrument*

**1. Getting feedback for improvement.** Let students know that getting feedback from peers and instructors is a critical way for improving their communication skills. As they have already discussed, feedback gives them information about their understanding and performance so they know how they are doing and consider how they may want to make improvements.

**2. Assessment as information for self-reflection.** Display the statement about assessment and self-reflection.

- Assessment is commonly thought of as the means to find out whether individuals have learned something—that is, whether they can demonstrate they have learned the information, concepts, skills, procedures, etc., targeted by an educational effort (National Research Council, 2009).
- Reflection is a way of helping practitioners understand better what they know and do as they develop their knowledge and skills through reconsidering what they learn in practice (Loughran, 2002).

Let students know that assessments may typically include tests and written papers. In this course, there have been different types of assessments to provide students feedback on their performance and understanding of the concepts. These assessments include their Activity Design Starter, Activity Write-up, and informal observations of their presentations. Self-reflection is something that practitioners in many professions from medicine to teaching do, as a means to learn about how they do their work, whether their performance is in alignment with their goals and understanding, and make improvements to what they do. Students should use the assessments as information for them to reflect on how they understand the concepts in this course.

**3. Assessment for reflection in this session.** Let students know that in this session, we introduce another type of assessment, an observation instrument, which is intended to provide them information about how they are applying concepts in this course in their presentations.

**4. Introduce observation instruments.** Let students know that an observation instrument is simply a “worksheet” with pre-determined questions and categories of information that guides the observer as she or he watches behavior.

**5. Analogy to animal behavior research.** Ask students if they are familiar with animal behavior research. Ask them to consider how scientists investigate behavior such as mating, feeding, and social group interactions among dolphins, birds, and other animals. Scientists identify categories of behaviors and record the amount of time individuals spend doing each type of behavior. This allows them to quantify and analyze something that is otherwise difficult to compare between individuals or groups. Our observation instrument is designed with a similar goal in mind: to look objectively at complex behaviors and interactions.

**6. Distribute observation instrument.** Distribute the observation instrument. Let students know that this observation instrument is based on the ideas on learning and teaching that have been discussed in this class. Inform them that there are two sides to the instrument. Give students some quiet time to review the instrument, and then allow them to ask questions about the categories and how to use the instrument.

**7. Three major categories.** Share with students that there are three major categories in the observation instrument that relate to the three major ideas in this course. The categories of information that the instrument aims to collect are similar to the list they generated in the previous discussion, but are more specific to the contents of the course.

- Connect to learners’ prior knowledge
  - Educator asks learners to talk about their prior experiences &/or demonstrate what they know.
  - Educator asks learners to connect the ideas.
  - Educator asks learners to connect their ideas with what someone else said.
- Encourage learners to participate in the conversation and interact with one another.
  - Educator repeats or re-voices what learners say.
  - Educator asks learners to elaborate on and explain their own or someone else’s reasoning and thinking.
  - Educator prompts learners to talk with one another.
  - Educator uses wait time.
- Engage learners in actively doing something to make sense of the ideas.
  - Educator models how to engage.

- Educator prompts learners to engage.
- Educator prompts learners to work with each other.
- Educator offers learners time to explore the object and activity on their own.

## *Activity: Peer observations*

### **Introduce task**

**1. The task.** Explain to students that their task for this session is to work with their partner to observe one pair of classmates as they present their activity. They will use the observation instrument to collect information about the way their classmates communicate, and then use that information to answer questions and provide written feedback to their classmates. They will be graded on the quality of the feedback they provide to their classmates.

**2. Using the instrument requires practice.** Explain to students that using observation instruments to observe behavior requires comfort and familiarity with the categories, as well as takes time and practice.

**3. Generate examples for peer observers.** To help peer observers with the observations and feedback, student partners generate examples for each category based on facilitation of their activities. They will then give the instrument with the written examples to their peer observers to use during the observation.

**4. Assign peer observers.** To ensure that each team of students is observed, assign the peer observers.

**5. Swap instruments.** Student partners give instrument with written examples to their peer observers.

### **Activity on the floor**

**1. Set up.** Let students know that it is time to use the instrument to observe one another.

**2. The presentations.** Remind students that half the class will present first while the other half of the class will observe them using the observation instrument. After about 20 minutes, the groups will switch.

**3. Peer observations.** Half the student teams present while the other half observe. After about 20-30 minutes, have the teams switch. The student teams may be ready to switch at different times, as visitors and activities

may vary. It may be necessary to tell the teams individually when it is time to switch.

### *Discussion: Debrief peer observations*

**1. Partners debrief the peer observations.** After all student teams have presented and observed their peers, and students have cleaned up and packed away their activities, give partners a chance to debrief with one another and begin thinking about and preparing their written feedback to their classmates.

**2. Quick verbal feedback in class.** Tell students to find the peers they observed and provide feedback on the activity and facilitation based on their observation notes. Remind students that they will still need to provide feedback in writing, but this is an opportunity to get and give immediate comments.

**3. Written feedback for homework.** Let students know that they will finish the written feedback for homework and submit it to their peers electronically.

**4. Whole group debrief peer observations.** Give students a chance to comment on their experience observing one another and gathering observation data. Use the following prompts to guide the conversation:

- What did they notice about the activities and the way their classmates presented?
- What can they apply in their own presentations from what they noticed?

### *Homework*

**1. Written feedback.** Remind that each team will need to prepare one written feedback to the team of students they observed. They should use the observation data they collected to provide thoughtful responses to the feedback questions. Instructors may choose the method for students to send feedback to each other and the instructor in a manner that is most convenient and consistent with the way in which students have been submitting homework and communicating with the instructor. These options may include:

- Students email the team and cc the instructors
- Students submit the feedback to the instructors who distribute it to the teams
- If using web-based course interface, such as Blackboard, Sakai, or bSpace, place the feedback in the student drop box.

## Peer Observation Instrument

### How does the educator access & connect with learners' prior knowledge?

EDUCATOR MOVES	EXAMPLE	FREQUENCY
<b>REFLECT.</b> Educator asks learners to talk about their prior experiences &/or demonstrate what they know.	Have you ever seen anything like this before?	
<b>CONNECT.</b> Educator asks learners to connect the ideas.	How do you think ___ is related to what we talked about or did earlier?	
<b>CONNECT OTHERS.</b> Educator asks learners to connect their ideas with what someone else said.	What do you think about what she said?	

### How does educator facilitate a conversation?

EDUCATOR MOVES	EXAMPLE	FREQUENCY
<b>REVOICE.</b> Educator repeats or re-voices what learners say.	Oh, so you're saying ... (with space for student to follow up)	
<b>ELABORATE.</b> Educator asks learners to elaborate on and explain their own or someone else's reasoning and thinking.	What makes you think that? Say more about that.	
<b>APPLY.</b> Educator asks learners to apply their own reasoning and thinking to someone else's reasoning.	Do you agree or disagree, and why?	
<b>WITH OTHERS.</b> Educator prompts learners to talk with one another.	Turn to the person next to you and explain to them what you think.	
<b>WAIT TIME.</b> Educator uses wait time.	Take your time...We'll wait.	

### How does educator encourage learners to engage with the objects in the interaction?

EDUCATOR MOVES	EXAMPLE	FREQUENCY
<b>MODEL.</b> Educator models how to engage.	Let me show you how this works.	
<b>ENGAGE.</b> Educator prompts learners to engage.	Now, it's your turn.	
<b>WORK TOGETHER.</b> Educator prompts learners to work with each other.	Try this out with your friend.	
<b>EXPLORE.</b> Educator offers learners time to explore the object and activity on their own.	Work on this with your mom, & I will be back to see how you are doing.	

## *Peer Observation – Written Feedback*

1. **PRIOR KNOWLEDGE.** To what extent did the facilitators connect learners' prior knowledge to the activity? Please explain your answer. Why might it be important to connect to visitors' prior knowledge?
2. **CONVERSATION.** How did the facilitators promote discussions with their learners? What was the pattern of talk you observed the facilitators doing? Please provide examples. [educator monologue, IRE/IRF, reflective discourse] Why does it matter what the pattern of talk is?
3. **FACILITATION & ENGAGEMENT.** How did the facilitators encourage learners to engage with the objects and activity?
4. **OVERALL.** What particular aspects of the activity made it effective?
5. **LEARNING CYCLE.** What parts of the Learning Cycle were evident? Please describe. [Invitation -> Exploration -> Concept Invention -> Application -> Reflection]
6. **LEARNING.** Did you see evidence that the facilitators were helping visitors build an understanding of the science concepts? If yes, what did you see? If no, what suggestions do you have for the facilitators? What do you think the visitors took away from the interaction?