TAing by Questioning
Learning Objectives

After this workshop you will be able to:

- Appreciate that understanding students’ thinking is necessary in order to address their conceptual difficulties
- Recognize how TA questions can positively impact student learning
- Describe several types of useful questions
- Apply this knowledge to generate questions for a specific teaching circumstance
Module Overview

- The Tutorial Environment
- Introduction to teaching by Questioning
- Analysis of TA Transcripts
- A bit of a breather
- Summary of Questioning Techniques
- Practice Exercise
These students are discussing the following question:

- Which, if either, has more acceleration: a car cruising steadily at 60 mph or a rocket drifting steadily at 6000 mph?

As you watch, imagine what you might do if you were their TA.
Green 2-5
Large-Group Discussion:

Green Group Review

- What is your gut response as you watch these students? What would you do if you were standing there?

- Wouldn’t it be quicker to just tell them the answer?
Why Not Just Tell Them The Answer?
Moving from Passive to Active

- To increase student learning we want to shift into an interactive and collaborative mode
- From Teacher-Centered to Learner-Centered
- TAs can help by keeping focus on the students and using good Questioning
- Let’s look at an example…
Small-Group Learning Activity: (6 min)

Blue Group Tutorial

- Read the question that the students are working on (in a box on your worksheet)
- Discuss with your group: what are the main goals of this tutorial?
- Peek ahead to the discussion questions on page 5 and keep them in mind as we watch the video

Activity adopted from Maryland Tutorials in Sensemaking, A. Elby et al, Physics Department, University of Maryland
Blue 5-4
Blue Group Tutorial Analysis

☐ Take a few minutes to discuss the questions on your worksheet and jot down a few words for each one

Activity adopted from Maryland Tutorials in Sensemaking, A. Elby et al, Physics Department, University of Maryland
Large-Group Discussion:

Blue Group Tutorial Analysis

- What did the TA do to keep the focus on the students and their reasoning?
- The TA passed up several obvious opportunities to commend or correct the students. Where do you see this happening? Why do you think he does this?
- What could he have done better?
- How do the students seem at the end of the clip?

Activity adopted from Maryland Tutorials in Sensemaking, A. Elby et al, Physics Department, University of Maryland
Small-Group Learning Activity: (6 min)

Green Group Tutorial II

- Read the question that the students are working on (in a box on your worksheet)
- Discuss briefly with your group: what is the point of this exercise?

Activity adopted from Maryland Tutorials in Sensemaking, A. Elby et al, Physics Department, University of Maryland
Green 2-6
Green Group Analysis

☐ Take a few minutes to discuss the questions on your worksheet and jot down a few words for each one

Activity adopted from Maryland Tutorials in Sensemaking, A. Elby et al, Physics Department, University of Maryland
Green Group Analysis

- It’s often a good idea to leave students to discuss an issue on their own. Do you think this was the case here? (line 20) Why or why not?
- Where does this TA succeed at probing the students’ reasoning? Where does he fail?
- How is the students’ understanding at the end of this interaction? How is their confidence?
- What could he have done better?

Activity adopted from Maryland Tutorials in Sensemaking, A. Elby et al, Physics Department, University of Maryland
Large-Group Discussion:

Green Group Analysis

- What are some key differences in the style of these TAs?

Activity adopted from Maryland Tutorials in Sensemaking, A. Elby et al, Physics Department, University of Maryland
After the break:

- A Taxonomy of Questions
- Questioning Practice
Three Types of Questions
(for answering Questions)

1. Questions of Clarification
   - Where are we?
Three Types of Questions
(for answering Questions)

1. Questions of Clarification
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2. Backward – Thinking Questions
   - How did we get here?
Three Types of Questions
(for answering Questions)

1. Questions of Clarification
   - Where are we?

2. Backward – Thinking Questions
   - How did we get here?

3. Forward – Thinking Questions
   - Where are we heading?
The Mystical Fourth Type of Question!
(for answering Questions)

4. Questions to encourage the use of Problem-Solving Methodology

- Which step of the problem-solving method / lab instructions are you working on?
- Did you successfully complete the earlier steps?
Small-Group Exercise:

Practice Questioning

☐ Read the question that the students are working on (in a box on your worksheet)

☐ Imagine that you are another TA in the room, and watch the following video.

☐ What questions could we ask to help move these students towards a better understanding?
Orange 3 - 6
Small-Group Exercise: (5 min)

Practice Questioning

- Review the transcript individually
- Imagine you are given a chance to contribute: Discuss with your group to think of questions that you could ask
- Try to come up with as many different types of questions as you can
Practice Questioning

- What did you come up with?
Key Guidelines for Questioning

- **One** question at a time
  - avoid yes / no
- **Wait** for a response
  - 5 – 10 seconds
- **Paraphrase or** follow-up question
Body Language

- Look at the person or class directly
- Listen attentively
- Be complimentary
  - find and reinforce the logical reasoning behind answers (even the wrong ones)
- Relax :-)
Individual Activity: (5 min)

Summarizing your Learning

☐ How can listening help your teaching?

☐ How does teaching by questioning help students learn?

☐ What new tips or types of questions did you learn?
Review: Learning Objectives

Learners will be able to:

- Appreciate that understanding students’ thinking is necessary in order to address their conceptual difficulties
- Recognize how TA questions can positively impact student learning
- Describe several types of useful questions
- Apply this knowledge to generate questions for a specific teaching circumstance
Feedback:

On a 3 x 5 index card please write down:

- One thing I should **Stop** doing
  (either specific to the workshop or in my general teaching style)

- One thing I should **Start** doing

- One thing I should **Continue** doing.
References

This module was developed with materials from: