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## WORKSHOP: ASSESSING LEARNING OBJECTIVES

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**CASNR**  
**WINTER INTERSESSION**  
**JANUARY 4, 2013**

**WORKSHOP:**  
**ASSESSING LEARNING OBJECTIVES**

**Dr. Beth Lewis**

**University of Nebraska-Lincoln**

**College of Education and Human Sciences**

**Dept. of Teaching, Learning, & Teacher Education**

# AGENDA

- **Introductions**
- **Learning goals**
- **Assessment**
  - **Standards & rubrics**
- **Learning theory**
- **Inquiry & learner-centered instruction**
- **Using evidence of student learning**

# I. INTRODUCTIONS

- Dr. Beth Lewis
  - Assistant professor, science education (TLTE)
  - Former geologist & high school science teacher
- Small group activity
- ***First, individual writing (5 minutes)***
  1. Describe an assessment that you use effectively in your classes (i.e., provides you with an accurate picture of student understanding)
  2. A specific assessment concern/problem you want to resolve in the near future
  3. ***Share with your group (5 minutes)***
  4. **Summarize your group's ideas in two lists (5 minutes)**

# TALKING POINT: EDUCATIVE ASSESSMENT

- **Educative assessment systems are (Wiggins, 1998, p.12):**
  - “designed to teach -- to improve performance (of student and teacher) and evoke exemplary pedagogy...”
  - built upon “meaningful performance tasks that are credible and realistic (authentic), hence engaging to students .”
- **An educative assessment makes for a productive learning opportunity...two for one**
  - Example: Tiffany Heng-Moss has entomology students in course/labs construct their own insect collection
- **Discuss in your group (5 minutes):**
  - When have you used an educative assessment in your classes?

## II. LEARNING GOALS & ASSESSMENT

- A learning goal should be specific and measurable
- Instruction should be aligned with learning goal
  - “Opportunity to learn”
- Assessment standards (see NRC handout)
  - Students should understand your expectations
    - Deliberate attempts to make task more difficult to figure out violate assessment standards
- Use clear product descriptors & rubrics

# RUBRICS

- Are not just a list of criteria and distribution of points
- Each criteria should have a unique description of the quality of each level...provides feedback to students on what they did well and what needs improvement
- Translation of rubric to grade

Criteria	Exemplary (4)	Proficient (3)	Partially Meets Standard (2)	Not Yet (1)	Missing (0)
<b>Spelling &amp; Grammar</b>	<i>Correct</i> grammar, spelling, & punctuation	<i>Some</i> grammar, spelling, and/or punctuation errors	<i>Multiple</i> grammar, spelling, and/or punctuation errors	<i>Consistent poor</i> grammar, spelling, and/or punctuation	Nothing to assess.

# ACTIVITY: LEARNING GOAL

- Handout:
  - Wiggins & McTighe (2006) template
  - Learning goal example
- Write a clear learning goal for one of your classes (5 minutes):
  - "Students will be able to...." (process)
  - "Students will understand..." (content)
- Share your objective with your group and provide feedback on the clarity of each other's objectives (5 minutes)

# **ACTIVITY: LEARNING GOAL (CON'T)**

## **Individual write (8 minutes)....describe:**

- one way you could determine if students were making progress toward this goal
- at the end of your instruction how you could determine if students had a deep understanding of your learning goal....share with your group

Q: Would you grade either of these assessments?

- Why or why not?

Q: How would you ensure that students had the opportunity to learn these concepts?

**Discuss with your group (5 minutes)**

# III. LEARNING THEORY & LEARNER-CENTERED INSTRUCTION

Handout: 5E & assessment / Degrees of learner-centered activities

- Social constructivist learning theory
  - In practice: students need opportunities to co-construct meaning from learning activities
  - 5E instructional model (Bybee)
    - based upon the learning cycle (Lawson)

# INQUIRY-BASED INSTRUCTIONAL MODEL

## Inquiry-based instruction: e.g., the 5E model

- Engage: hook (also a good opportunity to access prior knowledge)
- Explore: students doing science
- Explain I: students making meaning through oral and written discourse
- Explain II: teacher provides any necessary clarification of concepts and terms
- Elaborate: students apply understanding to new situation/context
- Evaluate: throughout, formative & summative

# DEGREES OF LEARNER-CENTERED ACTIVITIES

<b>Level:</b>	<b>Problem</b>	<b>Equipment</b>	<b>Procedure</b>	<b>Answer</b>
<b>Common Name</b>				
<b>0: Verification</b>	Given	Given	Given	Given
<b>1: Guided inquiry</b>	Given	Given	Given	Open
<b>2a: Open guided inquiry</b>	Given	Given	Open	Open
<b>2b: Open guided inquiry</b>	Given	Open	Open	Open
<b>3: Open inquiry</b>	Open	Open	Open	Open

From: Hackling, 2005

# IV. USING EVIDENCE OF STUDENT LEARNING

- Types of evidence:
  - **Whole group measures** on assignments (i.e., grades)
  - Strategically select a **sub-sample of student work** to analyse, by a particular lens or *rationale...*
    - gender (e.g., male/female students), *because we are trying to recruit more women into science...*
    - performance level (e.g., top, middle, and bottom third)
    - degree (i.e., majors/non-majors)
  - Informally **interview and/or survey** students for what helped them learn

# ...TO MAKE CLAIMS & REFLECT UPON INSTRUCTION

- Analyse for effective instruction...
  - which concepts students learned
  - which concepts student struggled with, and potentially retained misconceptions
- Reflect upon your instruction....
  - What positive claims can you make about student learning in your classes? (*...and what instruction you would keep the same*)
  - How could you adjust your instruction to better support student learning?

**Set a goal for your instruction & assessment with the learning goal you wrote today**

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