


1



## Assessing to Improve Instruction

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2


## Goals

- Examine what constitutes new learning?
- Examine assessment from the perspective of learning.
- How assessment can inform teaching and learning?

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3

## What is learning? How do you know that learning has taken place?



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4

## Perspective




Fish is Fish  
Lan, Edward

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5

## Knowledge

- Inert knowledge – disconnected pieces of knowledge
- Robust knowledge- knowledge that can be used as a tool. Learning with understanding.
- Transfer



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6

## Research from National Research Council

- How People Learn
  - Brain, Mind, Experience and School
  - (John Bransford, Ann L. Brown and Rodney Cocking, editors)
  - National Academy Press (1999)
  - Updated version (2000)

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7

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## The design of Learning Environments

8

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## Learner Centered

- Focus on learner (knowledge, skills, attitudes and beliefs learners bring to the Educational Setting.)

9

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## LEARNER CENTERED - Formative assessment for teaching

- Diagnose the structure of a student's knowledge
  - What does the student understand about the concept that you are trying to teach?
  - What does the student know and is able to do?

10

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## How do we assess the learner?

- Observations- give students tasks, problems observe what they do?
- Interviews - ask questions. "What are you thinking about?" "Why did you do it that way?"
- Conversations – Discuss as a group – about a problem or issue
- Reflections - Write down reflections on concepts or problems. Have students justify their reasoning processes.

11

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## Why assess the learner?

- You should design instruction so that it builds on what the student already knows.
- You should address misconceptions students might have about a concept.

Learner's knowledge

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knowledge that student should acquire

12

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- "Without carefully considering the knowledge that student's bring to the learning situation. It is difficult to predict what they will understand about the new information that is presented to them." P. 124 (Bransford et.al.)

13

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## Knowledge Centered Environment

- It is the kind of information and activities that help student develop an understanding of disciplines.
- Curricula
- Content




14

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## ASSESSMENT-CENTERED ENVIRONMENTS

- “The key principals of assessment are that they should provide opportunities for feedback and revision and what is assessed must be congruent with learning goals.”

(Bransford et al, 1999, p.128)



15

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## Types of assessment

Formative assessment: must be used to design and revise instruction.

Summative assessment: Tell you what the students learned

16

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## Assessment

- Figure out what you are assessing and choose appropriate format
- What is your purpose?
  - Knowledge?
  - Process?
  - Develop product?

Does your assessment give you information about what you are looking for?

17

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## Assessment should drive instruction

How is the learner making sense of what I am trying to teach?


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What content should I teach?  
Is my teaching strategies effective?  
How can my lesson build on what the student already knows?

What has my students learned?

18

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- Thank you!
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