On The Role Of Assessment In College Teaching And Learning

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Invited Seminar
The Richard Stockton College of New Jersey

October 17, 2011
Overview

- Considerations and assumptions regarding assessment for improving teaching and learning
- Issues raised by faculty regarding assessment
- Formative and summative assessment and their links in college assessment
- What needs to be assessed and what might those assessments look like
- Use of assessment information to improve teaching and learning
Considerations And Assumptions

□ Old Proverb

*Simply weighing the pig doesn’t make it fatter*

□ Ingredients for “fattening the pig”

- Assessment must go hand-in-hand with the goal of improving college teaching and student learning.
- Assessment must measure the “right things the right way.”
- Assessment information must be used in practice—not just in rhetoric—to realize improvement.
- Administrators, faculty and students need to learn how to build and use assessment information for improvement.
Issues Raised By Faculty Regarding Learning Assessment

- Intrudes on academic culture
  - Why do more assessment when I assess student learning in my courses?
  - I am the expert and I know what to assess and how to assess it for my course purposes.
  - We don’t teach a course on what’s being assessed.
  - Other assessments—be it from within or outside my university—are not sensitive to my curriculum.

- College learning outcomes are too multifaceted and complex to be assessed.

- Assessment comes as an additional load at a time of budget/staff cuts and increasing teaching loads with no compensation in time or incentives.

- Assessment isn’t rewarded at the time of promotion and tenure decisions.
Roles Of Formative And Summative Assessment

- Formative assessment—assessment used to improve teaching and learning
  - In classrooms
  - In departments and schools
  - In universities
- Summative assessment—assessment used to benchmark performance with external indicators (for our purposes)
  - In classrooms (instructor constructed exams)
  - In disciplines/majors (e.g., Physics Concept Inventory)
  - In general education (Collegiate Learning Assessment)
  - In university and beyond
- College/University Assessment Programs—Typically formative or a mix
What Needs To Be Assessed?

Intelligence

- General
- Fluid
- Crystallized

General Reasoning

- Verbal
- Quantitative
- Spatial

Example: Graduate Record Examination

Broad Abilities

- Reasoning
- Critical Thinking
- Problem Solving
- Decision Making
- Communicating

In Broad Domains

(Disciplinary—Humanities, Social Sciences, Sciences—
And Responsibility—Personal, Social, Moral, and Civic)

Example: Collegiate Learning Assessment

Knowledge, Understanding and Reasoning

In Major Fields and Professions (American Literature, Business)

Example: ETS’ Major Field Tests

Source: Shavelson (2010)
Directions: Use the painting to answer the question below.

Title: “The First Thanksgiving 1621”  
By: J.L.G. Ferris  
Date Painted: 1932

Question:
The painting, “The First Thanksgiving 1621,” helps historians understand the relationship between the Wampanoag Indians and the Puritan settlers in 1621.
Do you agree or disagree?

Briefly support your answer:

______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

“Clickers” and Peer Teaching in Introductory Physics

Formative Assessment: Application In Biology

**Example 1**

**Artificial Sweeteners**

**Scenario:** You are an advisor to State Senator Nathan Dulce, who is running for reelection against County Commissioner Pat Sauer. Prior to the election, a bill is proposed in the state senate that would ban aspartame, an artificial sweetener, from being added to any soft drink or food product. Senator Dulce is opposed to the bill.

Pat Sauer made two arguments in favor of the bill during a recent TV interview: First, Sauer said that because of the strong correlation between the number of people who consume aspartame and headaches, "banning aspartame would improve the health of the state's citizens." Second, he said that "aspartame should be replaced with sucralose."

**Documents:**
- Private investigator memo regarding Sauer's connection to the company that produces Splenda® sweetener
- Local newspaper article opposing aspartame
- Data from the Department of Health about headaches and aspartame
- Research brief discussing the advantages of sucralose for diabetics
- Chart used by Sauer linking aspartame and headaches
- Abstracts of research about aspartame and headaches

**Task:** Senator Dulce wants to make sure he votes appropriately on the aspartame bill, so he has asked you to analyze the strengths and/or limitations of each of Sauer's two main points.

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*Created by Kristy Miller, University of Evansville*

You are the assistant to Pat Williams, the president of DynaTech, a company that makes precision electronic instruments and navigational equipment. Sally Evans, a member of DynaTech's sales force, recommended that DynaTech buy a small private plane (a SwiftAir 235) that she and other members of the sales force could use to visit customers. Pat was about to approve the purchase when there was an accident involving a SwiftAir 235. You are provided with the following documentation:

1: Newspaper articles about the accident
2: Federal Accident Report on in-flight breakups in single engine planes
3: Pat's e-mail to you & Sally's e-mail to Pat
4: Charts on SwiftAir's performance characteristics
5: Amateur Pilot article comparing SwiftAir 235 to similar planes
6: Pictures and description of SwiftAir Models 180 and 235

Please prepare a memo that addresses several questions, including what data support or refute the claim that the type of wing on the SwiftAir 235 leads to more in-flight breakups, what other factors might have contributed to the accident and should be taken into account, and your overall recommendation about whether or not DynaTech should purchase the plane.

Source: Shavelson (2010) and Council for Aid to Education (www.cae.org)
Challenges: Measuring “Responsibility” Directly

- Need to expand assessment beyond single courses to critical thinking in majors/gen ed and to focus campuses on full mission
- Use approach to measure “non-cognitive” to avoid self-report (in some areas)
- Perspective Taking performance prototype

“Parker Dam Project”
- Rebuild or demolish dam? Pros and cons
- Doc Library (blogs, eng. report, biographies, newspaper, etc.)
- Competing groups in community
- Take each of 3 actors’ perspectives and advise mayor for upcoming meeting as what to expect
- Finally, your perspective on dam
A Word Of Wisdom

Assessment information that goes unused by college administrators, instructors and students is not worth collecting.
Assessment Information Can Lead to Improvement in T & L

- Assessment information can lead to improvement in teaching and learning *if used appropriately*

- Appropriate use of assessment information includes:
  - Pinpointing strengths and weaknesses and leads to experiments in addressing weaknesses
  - Being valued by administration in concrete ways
    - Incentives,
    - Time for assessment,
    - Promotion and tenure,
    - Public understanding of mission,
    - Commitment to improvement,
    - Transparency
  - Being used by deans and department chairs to inform program and personnel decisions
  - Being used by faculty to improve their teaching
  - Being used by students to improve their learning
A Vision Of Learning Assessment & Accountability

- Culture of evidence—evidence fed back up and down system from president to students

- Learning organization—organizational structures in place to:
  - Feedback information
  - Assess gap between goals and current performance
  - “Experiments” to try alternative improvements
  - Repeat cycle gauging improvement
  - Appropriate incentives
Thank You!