The Role of Assessment in Teaching

Understanding what our students are learning is fundamental to good teaching. Within a class, this understanding guides our next steps with each student. On the scale of a course, it allows us to assess where our methods and materials are achieving the desired outcome and when they need revision. On the one hand, assessing student understanding lies at the heart of grading. However, on a larger scale, understanding what students are learning is fundamental to researching how students learn in the geosciences.

Why are we assessing student learning?

Workshop participants noted that assessment is used for a number of different purposes including:

- promoting and understanding learning
- informing teaching
- assigning grades
- institutional or professional evaluation as the basis for faculty rewards and recognition.

What are we assessing?

To be successful in these roles, assessments need to gather information about student mastery of content, concepts, and skills, attitudes.

How do we develop assessments?

To be most effective, an integrated and iterative approach to development of assignments, goals, methods and assessments must be coupled with a firm grounding in cognitive research and theory, scholarship of teaching and learning, and assessment research and practice.

To Learn More:

Observing and Assessing Student Learning: A Workshop Report

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In May 2005, the NSF funded “On the Cutting Edge” professional development program brought together 42 leaders in cognition, education, assessment, and geoscience education to improve our ability to design and use effective assessments of student learning in the geosciences.

Workshop participants recommended:

- opportunities for collaboration between geoscience faculty and those with expertise in assessment;
- sharing of existing assessment activities and instruments and the strategies for use and adaptation;
- professional development regarding development of assessments and their use.

The following links will take you to lists of resources (both print and online) providing information about using different assessment types in class:

- Concept Maps: A diagramming technique for observing how well students see the “big picture”
- Concept Tests: Conceptual multiple-choice questions useful in large classes
- Multiple-Choice Exams - Hint tips on how to make multiple-choice exams better assessment Instruments.
- Oral Presentations - Tips for evaluating student presentations.
- Peer Rating - Having student assess themselves and each other.
- Portfolios - A collection of evidence to demonstrate mastery of given set of concepts.
- Rubrics - A set of evaluation criteria based on learning goals or student performance.
- Written Reports - Tips for assessing written reports.
- Other Assessment Types: A collection of assessment types that might be used in teaching: peer studies, seminar-style courses, mathematical thinking and performance assessments.

To Learn More:

http://serc.carleton.edu/NAGTWorkshops/assess