CLASSROOM ASSESSMENT TECHNIQUES (CATs)

A GUIDE FOR FACULTY AND TEACHING ASSISTANTS

The following guide is designed to explain and give examples of how in-class assessment can enhance university teaching and learning. These techniques are based on the work of Angelo and Cross (1993). If you have questions about this material or would like to meet with a staff member at the Center for Innovative Teaching and Learning, please e-mail **citl@gwu.edu**.

WHAT ARE CATs?

Classroom Assessment Techniques (CATs) are, typically, ungraded activities conducted in the classroom setting. Their purpose is to provide the instructor feedback on whether or not students understand course material so that adjustments can be made before the end of term. In addition, they provide students opportunities to reflect on what they are learning. Frequent use of CATs also can assure students that the instructor takes a genuine, active interest in their learning process throughout the course, before the summative assessment (e.g., final exam) is given at the end of term.

WHY SHOULD I USE CATs?

Frequent use of CATs:

- Provides regular feedback about student progress and can preempt misconceptions and poor performance on more heavily-weighed tests, quizzes, projects, etc.
- Gives insight into day-to-day teaching methods and student learning processes. It also can model to students the fact that learning is an ongoing and evolving process that can be modified as needed.
- Provides students with a means of gauging their own learning styles and then modify study strategies as appropriate.
- Helps students feel less anonymous in large class settings, since it is concrete evidence that the instructor cares about student learning.
- Provides "food for thought" for instructors as they reflect on their teaching and on a particular course at the end of term.

IMPLEMENTATION AND EXAMPLES OF CATs

There are 50 tested assessment techniques from Angelo and Cross. The table below describes 8 techniques that can be easily adapted for and implemented in a classroom setting. For information on remaining techniques, please consult the Angelo and Cross book, which is available from the CITL Library (http://citl.gwu.edu/pages/library.html).

Tips on implementation:

- Start off simple by choosing a technique that easily fits your teaching style and classroom time limits.
- Conduct at least one CAT before the first major assignment, so that you can intercept any problems or questions before the fact.
- Don't feel obligated to do a CAT every day or every week. You'll create information overload for yourself and "survey overload" for your students.
- When you do any CAT, explain its purpose and your goal clearly to students.
- Report your findings to your students and let them know what you plan to do in terms of their feedback.

SSELECTED CATs FOR GETTING FEEDBACK ON STUDENT LEARNING AND RESPONSE TO TEACHING*

(CATs table adapted from: http://www.ntlf.com/html/lib/bib/assess.htm)

Name:	*Description:*	*What to do with the data:*	*Time required:*
Minute paper	During the last few minutes of the class period, ask students to answer on a half-sheet of paper or 3x5 card: "What is the most important point you learned today?" and, "What point remains least clear to you?" The purpose is to elicit data about students' comprehension of a particular class session.	Review responses and note any useful comments. During the next class periods emphasize the issues illuminated by your students' comments. You may also choose to highlight any comments (students' names not mentioned) that you feel might be useful to the rest of the class.	Prep: Low In class: Low Analysis: Low
Chain notes	Students pass around an envelope on which the teacher has written one question about the class. When the envelope reaches a student he/she spends a moment to respond to the question and then places the response in the envelope.	Review student responses and determine the best criteria for categorizing the data with the goal of detecting response patterns. Discussing the patterns of responses with students can lead to better teaching and learning.	Prep: Low In class: Low Analysis: Low
Memory matrix	Students fill in cells of a two-dimensional diagram for which the instructor has provided labels. For example, in a music course, labels might consist of periods (Baroque, Classical) by countries (Germany, France, Britain); students enter composers in cells to demonstrate their ability to remember and classify key concepts.	Tally the numbers of correct and incorrect responses in each cell. Analyze differences both between and among the cells. Look for patterns among the incorrect responses and decide what might be the cause(s). This technique also can be used with a student response system.	Prep: Med In class: Med Analysis: Med
Application cards	After teaching about an important theory, principle, or procedure, ask students to write down at least one real-world application for what they have just learned to determine how well they can transfer their learning.	Quickly read once through the applications and categorize them according to their quality. Pick out a broad range of examples and present them to the class.	Prep: Low In class: Low Analysis: Med

Name:	*Description:*	*What to do with the data:*	*Time required:*
One-sentence summary	Students summarize knowledge of a topic by constructing a single sentence that answers the questions "Who does what to whom, when, where, how, and why?" The purpose is to require students to select only the defining features of an idea.	Evaluate the quality of each summary quickly and holistically. Note whether students have identified the essential concepts of the class topic and their interrelationships. Share your observations with your students.	Prep: Low In class: Med Analysis: Med
Directed paraphrasing	Ask students to write a layman's "translation" of something they have just learned -- geared to a specified individual or audience -- to assess their ability to comprehend and transfer concepts.	Categorize student responses according to characteristics you feel are important. Analyze the responses both within and across categories, noting ways you could address student needs.	Prep: Low In class: Med Analysis: Med
Exam evaluations	Select a type of test that you are likely to give more than once or that has a significant impact on student performance. Create a few questions that evaluate the quality of the test. Add these questions to the exam or administer a separate, follow-up evaluation.	Try to distinguish student comments that address the fairness of your grading from those that address the fairness of the test as an assessment instrument. Respond to the general ideas represented by student comments.	Prep: Low In class: Low Analysis: Med
Student-generated test questions	Allow students to write test questions and model answers for specified topics, in a format consistent with course exams. This will give students the opportunity to evaluate the course topics, reflect on what they understand, and what make good test items.	Make a rough tally of the questions your students propose and the topics that they cover. Evaluate the questions and use the goods ones as prompts for discussion. You may also want to revise the questions and use them on an upcoming exam.	Prep: Med In class: High Analysis: High (may be used assigned as homework)

*Details on these and others available from Angelo & Cross, Classroom Assessment techniques, 1993.

The CITL staff members are happy to meet with you if you wish to discuss any of these techniques and their implementation in your course. Please contact us on 202-994-0485 or email citl@gwu.edu

ADDITIONAL RESOURCES

THE OFFICE OF ACADEMIC PLANNING AND ASSESSMENT @ GW – HTTP://WWW.GWU.EDU/~APIRA

This GW office provides information and guidance on how to effectively incorporate assessment –formative or summative – into a course. Their website provides tools including a *Course Assessment Toolkit*, worksheets, and Web links. Instructors also may consult various reports and metrics, and find out more about initiatives and grants. To access the Course Assessment information directly go to:
http://www.gwu.edu/~apira/courseassessment.html

CENTER FOR INNOVATIVE TEACHING AND LEARNING, TEACHING TIPS - HTTP://CITL.GWU.EDU/PAGES/FACULTYSHOWCASE.HTML

Below is a classroom assessment technique recommended by Dean Shelley S. Heller, Associate Dean of Academic Affairs, Mount Vernon Campus and Professor of Engineering and Applied Science.

"TEACHING TIP:

ONE-MINUTE MADNESS, TEAMWORK, AND ONLINE TESTING:

"My favorite tools of assessment are:

Richard Light's famous one minute madness. I use it at the end of every class. On one side I ask what topic of lecture was and the other side the one thing I sat here for two and a half hours and still did not understand. Now, I can give in-depth answers to those questions and I post them on blackboard on a section called One-Minute madness which helps the students very much. I can highlight one or two in my next lecture and then I think it is fair game to use that in an evaluation later in the course.

For team projects, consisting of 3-5 people, every other week students turn in a diagram of a circle of everyone in the team on that circle somewhere. It is a nice visual check for me to see if everyone is inside the circle which indicates the team is working well. If the students are on the edge of the circle, then they need to work on integrating themselves better.

***Instructional Technology Tip*.** The ability of student to say privately what they did not understand and can respond on Blackboard with an answer for everyone to read. The other part of ITL is that my courses can rollover. I can look at my class from a previous semester and check what I did and if it was a good idea.

The online exam through blackboard has pedagogic value, but not initially. By the third semester, it becomes more useful. It takes a long time to create a quality test as many questions need to be created, ranging from easy to hard difficulty. Then they must be pulled by a random generator to form the test for each student so not every student gets the same exact question. It takes a long time to balance the questions so the tests are not perfectly equal. Automatic grading makes life much easier as the students receive their grades right when they finish and committing to the online exam is a good investment for the long haul."

REFERENCES

Angelo, T.A. and Cross, K. P. (1993). *Classroom Assessment Technologies* (Second Edition). San Francisco: Jossey-Bass Publishers.

Available in the CITL Library – http://citl.gwu.edu/pages/library.html

Field Tested Learning Assessment Guide (Publication date not provided). *Classroom Assessment Techniques (CATs) – Overview.* Retrieved July 15, 2008, from http://www.flaguide.org/cat/cat.php

The National Teaching and Learning Forum (Publication date not provided). *Classroom Assessment Techniques.* Retrieved July 15, 2008, from http://www.ntlf.com/html/lib/bib/assess.htm