

CLASSROOM ASSESSMENT TECHNIQUES

Adapted from Angelo & Cross, Classroom Assessment Techniques (CATs)

Why Use CATs?

CATs can be used to improve the teaching and learning that occurs in a class. CATs respect the autonomy, academic freedom, and professional judgment of college faculty.

More frequent use of CATs can...

- Provide just-in-time feedback about the teaching-learning process
- Provide information about student learning with less work than traditional assignments (tests, papers, etc.)
- Encourage the view that teaching is an ongoing process of inquiry, experimentation, and reflection
- Help students become better monitors of their own learning
- Help students feel less anonymous, even in large classes
- Provide concrete evidence that the instructor cares about learning

Example CATs

1. Background Knowledge Probe

Description:

At the first class meeting, many college teachers ask students for general information on their level of preparation, often requesting that students list courses they have already taken in the relevant field. This technique is designed to collect much more specific, and more useful, feedback on students' prior learning. *Background Knowledge Probes* are short, simple questionnaires prepared by instructors for use at the beginning of a course, at the start of a new unit or lesson, or prior to introducing an important new topic. A given *Background Knowledge Probe* may require students to write short answers, to circle the correct response to multiple-choice questions, or both.

Step-by-Step Procedure:

1. Before introducing an important new concept, subject, or topic in the course syllabus, consider what the students may already know about it. Recognizing that their knowledge may be partial, fragmentary, simplistic, or even incorrect, try to find at least one point that most students are likely to know, and use that point to lead into other, less familiar points.
2. Prepare two or three open-ended questions, a handful of short-answer questions, or ten to twenty multiple-choice questions that will probe the students' existing knowledge of that concept, subject, or topic. These questions need to be carefully phrased, since a vocabulary that may not be

familiar to the students can obscure your assessment of how well they know the facts or concepts.

3. Write your open-ended questions on the chalkboard, or hand out short questionnaires. Direct student to answer open-ended questions succinctly, in two or three sentences if possible. Make a point of announcing that these *Background Knowledge Probes* are not tests or quizzes and will not be graded. Encourage students to give thoughtful answers that will help you make effective instructional decisions.
4. At the next class meeting, or as soon as possible, let students know the results, and tell them how that information will affect what you do as the teacher and how it should affect what they do as learners.

2. Minute Paper

Description:

No other technique has been used more often or by more college teachers than the *Minute Paper*. This technique -- also known as the *One-Minute Paper* and the *Half-Sheet Response* -- provides a quick and extremely simple way to collect written feedback on student learning. To use the *Minute Paper*, an instructor stops class two or three minutes early and asks students to respond briefly to some variation on the following two questions: "What was the most important thing you learned during this class?" and "What important question remains unanswered?" Students write their responses on index cards or half-sheets of scrap paper and hand them in.

Step-by-Step Procedure:

1. Decide first what you want to focus on and, as a consequence, when to administer the *Minute Paper*. If you want to focus on students' understanding of a lecture, the last few minutes of class may be the best time. If your focus is on a prior homework assignment, however, the first few minutes may be more appropriate.
2. Using the two basic questions from the "Description" above as starting points, write *Minute Paper* prompts that fit your course and students. Try out your *Minute Paper* on a colleague or teaching assistant before using it in class.
3. Plan to set aside five to ten minutes of your next class to use the technique, as well as time later to discuss the results.
4. Before class, write one or, at the most, two *Minute Paper* questions on the chalkboard or prepare an overhead transparency.
5. At a convenient time, hand out index cards or half-sheets of scrap paper.
6. Unless there is a very good reason to know who wrote what, direct students to leave their names off the papers or cards.
7. Let the students know how much time they will have (two to five minutes per question is usually enough), what kinds of answers you want (words, phrases, or short sentences), and when they can expect your feedback.

3. Muddiest Point

Description:

The *Muddiest Point* is just about the simplest technique one can use. It is also remarkably efficient, since it provides a high information return for a very low investment of time and energy. The technique consists of asking students to jot down a quick response to one question: "What was the muddiest point in?" The focus of the *Muddiest Point* assessment might be a lecture, a discussion, a homework assignment, a play, or a film.

Step-by-Step Procedure:

1. Determine what you want feedback on: the entire class session or one self-contained segment? A lecture, a discussion, a presentation?
2. If you are using the technique in class, reserve a few minutes at the end of the class session. Leave enough time to ask the question, to allow students to respond, and to collect their responses by the usual ending time.
3. Let students know beforehand how much time they will have to respond and what use you will make of their responses.
4. Pass out slips of paper or index cards for students to write on.
5. Collect the responses as or before students leave. Stationing yourself at the door and collecting "muddy points" as students file out is one way; leaving a "muddy point" collection box by the exit is another.
6. Respond to the students' feedback during the next class meeting or as soon as possible afterward.

4. One-Sentence Summary

Description:

This simple technique challenges students to answer the questions "Who does what to whom, when, where, how, and why?" (represented by the letters WDWWWWHW) about a given topic, and then to synthesize those answers into a simple informative, grammatical, and long summary sentence.

Step-by-Step Procedure:

1. Select an important topic or work that your students have recently studied in your course and that you expect them to learn to summarize.
2. Working as quickly as you can, answer the questions "Who Did/Does What to Whom, When, Where, How and Why?" in relation to that topic. (Note how long this first step takes you.)
3. Next, turn your answers into a grammatical sentence that follows WDWWWWHS pattern. (Note how long this step takes.)
4. Allow your students up to twice as much time as it took you to carry out the steps and give them clear direction on the One-Sentence Summary technique before you announce the topic to be summarized.

5. What's the Principle?

Description:

After students figure out what type of problem they are dealing with, they often must then decide what principle or principles to apply in order to solve the problem. This technique focuses on this step in problem solving. It provides students with a few problems and asks them to state the principle that best applies to each problem.

Step-by-Step Procedure:

1. Identify the basic principles that you expect students to learn in your course. Make sure you focus only on those that students have been taught.
2. Find or create sample problems or short examples that illustrate each of these principles. Each example should illustrate only one principle.
3. Create a *What's the Principle?* form that includes a listing of the relevant principles and specific examples or problems for students to match to those principles.
4. Try out your assessment on a graduate student or colleague to make certain it is not too difficult or too time-consuming to use in class.
5. After you have made any necessary revisions to the form, apply the assessment.

6. Classroom Opinion Polls

You may already use de facto opinion polling in your classes when you ask students to raise their hands to indicate agreement or disagreement with a particular statement. Create a short survey (one or two questions) and ask students to complete it and hand it in. By making the Classroom Opinion Polls anonymous, they will provide more honest and accurate results for you. Classroom Opinion Polling can help you discover student opinions about course-related issues. In this way, you can better gauge where and how to begin teaching about issues that come up in students' responses and where potential conflicts or divisions may arise. Students also learn about their own opinions, compare those opinions to others', and test their opinions against evidence and expert opinion. A number of UMass faculty use "class talk" to gather this type of information.

Classroom Opinion Polls are particularly useful in large lecture classes where there is only limited opportunity for students to express their thoughts, in preparation to discuss a controversial issue, or to assess student opinion after you have presented class material. Use the Classroom Opinion Poll to evaluate student learning over a period of time or over the course of a semester by creating a pre- and post-assessment poll. This assessment method will help you determine whether and how students' opinions have changed in response to class discussions and assignments.

7. Defining Features Matrix

Prepare a handout with a matrix of three columns and several rows. At the top of the first two columns, list two distinct concepts that have potentially confusing

similarities (e.g. hurricanes vs. tornados, Picasso vs. Matisse). In the third column, list the important characteristics of both concepts in no particular order. Give your students the handout and have them use the matrix to identify which characteristics belong to each of the two concepts. Collect their responses and you'll quickly find out which characteristics are giving your students the most trouble.

8. 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.

9. 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.

10. 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. Go through the 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.

11. Goal Ranking and Matching

Students list a few learning goals they hope to achieve through the course and rank the relative importance of those goals. This assesses the "degree of fit" between the students' personal learning goals and teachers' course-specific instructional goals and between the teachers' and students' ranking of the relative importance and difficulty of the goals.

12. Self-Assessment of Ways of Learning

Students describe their general approaches to learning, or their learning styles, by comparing themselves with several different profiles and choosing those that, in their opinion, most closely resemble them. This provides teachers with a simple way to assess students' learning styles or preferences for ways of learning.