

## Using Classroom Assessment Techniques to Improve Teaching and Learning

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Most teachers are eager to know whether their students comprehend the material being presenting in their classroom lessons, and, consequently, many teachers use informal methods to help determine the level of student comprehension. Watching the expressions on students' faces, allowing opportunities for students to ask questions during class, and asking students to respond to questions are popular methods of getting feedback from students. Short quizzes and weekly tests are also used by many teachers to see whether students are keeping up with the material.

Classroom assessment techniques provide additional means to acquire information from students about how well they are learning. Although these techniques have been built on informal methods of observing students, they provide an approach that is more systematic and therefore more effective. Thomas Angelo and Patricia Cross, 1993 have worked with classroom teachers to develop 50 techniques that can be used, adapted, and expanded by all classroom teachers. This chapter introduces some of the techniques presented in their book, Classroom Assessment Techniques: A Handbook for College Teachers.

Classroom assessment techniques are growing in popularity among college teachers. These techniques provide a way to collect information about teaching and learning without testing students. They also provide information that is specific to the teacher. Unlike large-scale assessments where the classroom teacher must often cooperate in an assessment activity that was designed by others, classroom assessment techniques are selected, designed, and used by individual teachers in specific classes. The teacher makes all the choices, including how to handle the results.

### *What Are Classroom Assessment Techniques*

Classroom assessment techniques are small-scale initiatives that provide information to teachers about what is going on in the classroom. Generally, they can

be administered in a few minutes at the beginning, the end, or sometime during the class period. These techniques allow the teacher to get a sense of how much and how well students are learning. They also provide information about how students are learning. They are used by teachers to help adjust instruction. For this reason they are considered formative methods of assessment. Classroom assessment techniques are not used to assign grades to students and, in fact, are usually ungraded and anonymous exercises.

Classroom assessment techniques fall into three broad categories:

Techniques that assess course-related knowledge and skills. These techniques are used to find out how much prior knowledge students have about a topic, to determine how well students are following the instructional process, to discover areas of confusion, and to reinforce the material that is being taught. They assess various levels of understanding including recall, analysis, synthesis, and application of knowledge.

Techniques that assess attitudes, values, and self-awareness of students. These techniques help students gain personal insight and help them understand their own approaches to learning. Techniques in this group help students assess their self-confidence, their goals for learning, and their methods of learning.

Techniques that assess students' reactions to instruction. These techniques determine how students are responding to class activities, assignments, and materials, as well as to teaching style. Teachers are quite familiar with end-of-semester faculty evaluations that cover many aspects of the course. Classroom assessment techniques differ from the latter because they are given by the teacher and for the teacher. The results need not be shared with the department chair or anyone else unless the teacher chooses to do so. The other difference is that classroom assessment techniques usually focus on specific aspects of instruction, such as group work.

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### *Assessing Course Related Knowledge and Skills*

**The Minute Paper.** The minute paper is the most popular classroom assessment technique used to assess course related knowledge and skills. Teachers simply ask their students to take a half sheet of paper and indicate the most important thing they learned during that class period. The teacher also asks students to indicate their most important unanswered question.

Although very simple, this technique serves a number of purposes. First, it asks students to recall what they have learned. Second, because it asks students what was most important, students must evaluate what they have learned. In addition, because students must indicate the most important unanswered question, they must engage in some self-assessment.

This technique provides the teacher with rich information about students' learning. The teacher can then respond immediately by clarifying points in the lesson that were confusing to students. Some students may raise unanswered questions that were not part of the lecture material. The teacher can address these questions or provide references for students to do additional reading. Students are generally appreciative of the opportunity to provide responses to the minute paper. Giving students the opportunity to provide their reactions encourages them to become more involved in their own learning. Frequent use of this technique can actually help students become better listeners.

This classroom assessment technique is quite flexible. Although it is usually used at the end of the class to get students' reactions to the day's material, it can be used at any time during class to ask for reactions to lab assignments, readings, group work, or other aspects of instruction. The question that is asked can also be varied. Rather than asking about the most important thing learned, teachers can ask about the most surprising thing learned or the most interesting thing read. Any question that prompts a short written response from students can be considered a minute paper.

**The Background Knowledge Probe.** This classroom assessment technique is designed to help teachers assess the prior knowledge of their students. Courses are often sequenced so the teacher can be reasonably

certain that students have had certain prerequisites. Some teachers ask students to indicate the previous courses they have taken. The background knowledge probe is focused on students' prior learning about content areas rather than on their course taking patterns. Teachers who use this technique usually ask their students to rate their degree of knowledge about the subject on a four or five point scale. For example, an economics teacher might prepare a short questionnaire asking students if they are familiar with different theories about the economy. Rather than checking yes or no for each theory, students might choose among the following responses:

*I have never heard of this;*

*I have heard of this, but don't know much about it;*

*I have some idea, but am not really clear;*

*I have a clear idea what this means.*

This range of options gives the teacher a great deal more information than yes/no answers provide.

The background knowledge probe enables teachers to take an informal inventory of the content knowledge of their students. This can help the teacher find both a starting point for presenting material and the appropriate pace for covering various subjects. Sharing results from the background knowledge probe helps students know their status with respect to others in the class and sends strong signals about what level of knowledge is expected by the teacher.

Teachers who use this technique can include a mix of subjects on the probe including items that should be very familiar to students, as well as items that may be unfamiliar to most students. If the questionnaire is planned appropriately, the results should be easy to summarize and share with the class. This technique can be used at any point during the semester to determine the levels of knowledge about specific subjects as they are introduced.

Another classroom assessment technique, the misconception/preconception check, can be used in similar ways. This technique is used to determine whether students have prior ideas or knowledge that might present barriers to learning. Typically, a short ungraded quiz is designed to determine whether the students have incomplete or incorrect knowledge. The quiz can include factual items and/or subjective items.

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**The Word Journal.** The word journal asks students to select a single word to summarize an assigned reading. In addition, students must write one or two paragraphs explaining why they selected the word.

This classroom assessment technique helps students develop their ability to read carefully. It also helps them develop abilities to summarize information and to explain and defend their choices. For these reasons, the word journal helps students develop the ability to understand information rather than just memorize it. Students may need encouragement to relate their justifications to the actual readings rather than to statements of their personal opinions.

The word journal helps teachers see how well students are making connections with the material and whether they are focusing on important aspects of the readings. The words students choose can be used to start class discussions and to contrast the viewpoints of various students. This technique is best applied to relatively short readings or to specific aspects of the readings. The teacher can narrow the choice of selected words by asking students to focus on the central problem in a reading or to clarify the main relationship. The teacher can also provide a list of words and ask students to select and justify one word from the list.

### *Assessing Learner Attitudes, Values, and Self Awareness*

**Process Analysis.** This classroom assessment technique asks students to keep logs of the steps they use to carry out their assignments and to draw conclusions about the approaches they use. The focus of the technique is on how students do their work rather than on specific content knowledge. This technique can help the teacher determine whether there are specific aspects of the work where students could possibly benefit from more instruction.

Process analysis can be used for work that takes place in class or out of class. For example, a biology teacher might ask students to document the procedures they are using to carry out an experiment. An English teacher could ask students to document the steps they take to create an essay, such as developing outlines or drafts of their work.

Process analysis is most useful if students are expected to engage in a particular type of assignment

or activity more than once. When the teacher has an idea of how students are approaching the work, s/he can provide advice to students about how to improve their approach to assignments. The teacher can make process analysis easier for students by providing examples of the processes used by students in previous semesters. S/he could also provide a checklist of steps and ask students to indicate which ones they utilized when they completed their assignments.

**Punctuated Lecture.** Teachers who use this technique actually stop the class for a few minutes and ask students to reflect on what they were doing during the last few minutes. Students are also asked to write down any insights about how what they were doing helped or hindered their learning of the material. The teacher then collects and summarizes the written materials.

This technique allows students to become more aware of how their behavior in class helps or hinders their learning. For example, some students may say they were thinking about how to apply the material, or were relating the material to their own life, or drawing connections with information they learned in another class. Others may say they were distracted by noise. Some students may indicate they were daydreaming. This technique helps the teacher become aware of what holds students' attention, what is distracting, and which parts of the lecture were most difficult for students. The teacher may be able to tell from the precision of the answers how much attention the students were paying to the lecture. This technique gives the teacher information about how students are learning while also providing students with practice in monitoring their own learning.

The teacher can modify this technique by asking directed questions. For example, the teacher might have a checklist which specifically asks students whether they were taking notes or anticipating what might come next in the lecture.

### *Assessing Reactions to Classroom Activities*

**Group Work Evaluation.** Teachers who use group work evaluation are seeking specific reactions to this type of learning activity. With this technique the teacher designs a form to obtain students' reactions to

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work they are doing with other students in a structured group. The teacher can use this technique at various points during the semester to determine whether there are potential problems within the working groups that may hinder the learning process.

The teacher usually designs a form that asks several questions about how the group is functioning. For example, the form might ask whether all of the members are actively participating. The teacher can also ask each student to indicate a contribution they have made to the group. It is probably a good idea when using this technique to have the students identify the group to which they belong. However, in order to ensure that students give candid answers, it is important that individual students reply anonymously.

**Making Classroom Assessment Work.** Classroom assessment techniques provide useful information to teachers and students. The teacher makes the choices about what techniques to use and when to use them. However, in order for the techniques to be effective, the teacher must also summarize the responses and share the results with the class. If students do not have the benefit of the results, they will lose interest in participating. Summarizing results need not be difficult. For example, the minute paper can be summarized by quickly categorizing answers into broad groups. In addition to sharing results, the teacher must also indicate to the class how s/he intends to respond to the results. Perhaps the teacher will spend some time reviewing difficult material or will assign additional readings. The teacher's response should also indicate to students what they need to do to be more successful. A classroom assessment technique should not be used unless there is a way for the teacher or students to use the information that is generated.

Some teachers have reservations about using classroom assessment techniques because they feel the process will be too time-consuming. Teachers need to plan carefully so they are able to administer the technique and summarize the results within a reasonable time frame. For example, in a large class the teacher might select a sample of responses to summarize rather than trying to summarize every response. The teacher can also break the class into groups and ask each group to share the best responses with the entire class.

Some teachers express concern that they may find out negative things they would rather not know. Teachers should realize that some feedback may be negative. It is their choice whether to take that risk. Teachers should start by determining what question they want to answer and then select the appropriate technique. With proper planning, the answers can be valuable even if some are negative.

### *How Do Classroom Assessment Techniques Improve Teaching and Learning?*

Classroom assessment techniques have potential to improve classroom teaching. This can occur in many ways:

The teacher has much more information about student learning that is occurring in the classroom.  
The teacher has important information about the ways that students are approaching their assignments.  
The teacher can gain information to help set priorities for instruction and to clarify course goals.  
The teacher can use the information gained through these techniques to identify problems and to determine what needs to be reviewed.

Classroom assessment techniques also have the potential to improve learning. Using the techniques helps students be more aware of the teacher's expectations, it helps them be more actively engaged in the learning process, and it improves self-awareness about their own learning.

Many teachers give short unannounced quizzes that can serve similar purposes. Occasionally teachers choose to grade information they collect through classroom assessment techniques. But the use of ungraded and anonymous exercises provides teachers and students with a collaborative way to exchange information. Because the focus is on the performance of the group rather than on individual performance, using the techniques provides a means of communication that is much more comfortable than a formal testing situation.

### *Learning More about Classroom Assessment Techniques*

The book, Classroom Assessment Techniques: A Handbook for College Teachers, co-authored by

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Angelo and Cross, 1993 contains complete descriptions of 50 classroom assessment techniques. It also provides examples of how these techniques have been applied in various classroom settings in different disciplines. It is very candid in describing the pros and cons of each technique.

Many faculty members at Ball State utilize classroom assessment techniques. Staff members in the Office of Academic Assessment and Institutional Research are available to assist instructors, individually or in groups, to learn more about these techniques. For additional information, call the office at 285-1337.

### References

Angelo, T., & Cross, P. (1993). *Classroom assessment techniques: A handbook for college teachers* (2<sup>nd</sup> Ed.). San Francisco: Jossey Bass.