

CLASSROOM ASSESSMENT TECHNIQUES

*A Handbook for
College Teachers*

SECOND EDITION

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Muddiest Point

Estimated Levels of Time and Energy Required for:

Faculty to prepare to use this CAT	LOW
Students to respond to the assessment	LOW
Faculty to analyze the data collected	LOW

DESCRIPTION The Muddiest Point is just about the simplest Classroom Assessment Technique imaginable. 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.

PURPOSE As its name suggests, the Muddiest Point technique provides information on what students find least clear or most confusing about a particular lesson or topic. Faculty use that feedback to discover which points are most difficult for students to learn and to guide their teaching decisions about which topics to emphasize and how much time to spend on each. In response to this CAT, learners must quickly identify what they do not understand and articulate those muddy points. Consequently, even though the technique is extremely simple to administer, responding to it requires some higher-order thinking.

**RELATED TEACHING
GOALS**

Improve skill at paying attention (TGI Goal 9)
Develop ability to concentrate (TGI Goal 10)
Improve listening skills (TGI Goal 12)
Develop appropriate study skills, strategies, and habits (TGI Goal 16)
Learn terms and facts of this subject (TGI Goal 18)
Learn concepts and theories in this subject (TGI Goal 19)

SUGGESTIONS FOR USE While this technique can be used in virtually any setting, it is particularly well suited to large, lower-division classes. Since students' responses to the Muddiest Point question usually consist of a few words or phrases, a teacher can read and sort a great many in a few minutes. The Muddiest Point question should be posed at the end of a lecture, at the close of a discussion

or presentation, or immediately after a reading assignment. This CAT can be used quite frequently in classes where a large amount of new information is presented each session—such as mathematics, statistics, economics, health sciences, and the natural sciences—probably because there is a steady stream of possible “muddy points.” On the other hand, the Muddiest Point is best used sparingly in courses where the emphasis is on integrating, synthesizing, and evaluating information.

EXAMPLES

From the Decline and Fall of the Soviet Union (International Relations/Political Science)

This professor used the Muddiest Point in his senior-level honors course to assess students' understanding of a prerecorded videotape. The videotape was a recording of an hour-long speech on the reasons for the collapse of the Soviet Union. The speech had been delivered by one of the professor's eminent colleagues to foreign policy consultants and journalists in Washington, D.C. At the conclusion of the tape, the international relations professor asked his eighteen students to write the “muddiest point” they found in the videotape.

As the professor read through the responses, he noted that almost half of his students mentioned the same “muddy point”: the videotaped speaker's thesis that “imported inflation” seriously undercut the Soviet economy in the 1980s. Since the instructor regarded that thesis as the most important and original element of his colleague's analysis, he was pleased to discover the students' confusion right away. To clear it up, he prepared a detailed explanation of that critical point, which he presented during the next class meeting.

From Fundamentals of English (English as a Second Language)

After two lectures and related homework assignments on English pronoun usage, the new ESL instructor decided to try the Muddiest Point technique. So, just before class ended, she asked students to write down the “muddiest point” in their minds about pronoun usage. When several students quickly raised their hands to ask what she meant by a “muddy point,” she realized that even widely used colloquialisms can stymie nonnative English speakers. As soon as she explained that “muddy” in this phrase meant unclear, confusing, or hard to understand, they were able to carry out the assessment.

Later, shuffling through the index cards containing their responses, the instructor was dismayed and disappointed by what she read. Although she had worked hard to explain the pronominal system on a conceptual level, stressing what pronouns do in English and why it is important to use them correctly, the muddy points that students mentioned were virtually all about very specific, and sometimes rather minor, rules of usage—such as the difference between “who” and “whom.”

Feeling that her class had failed to see the forest for the trees, the ESL instructor asked one of her veteran colleagues for advice. Her colleague assured her that the students' responses were quite normal, given their low level of experience with and knowledge of English. The

veteran teacher reminded the new faculty member to keep her audience in mind. Teaching the pronominal system conceptually makes sense if students are English-speaking linguistics majors or future English language teachers, but is less useful with beginning or intermediate language learners.

After that conversation, the new ESL teacher again looked at the muddy points. This time she realized that she had been teaching about pronouns as she had been taught in graduate linguistics courses, rather than thinking about what her ESL students needed to learn and how they could best learn it. That realization caused her to change her approach to the next few lessons. Specifically, she provided many more examples and much more practice, helping students move from the specifics to the more general concepts and back to specifics—and helping them see the connections.

From General Chemistry (Chemistry)

From the first week of class, students in this general education science course had been responding to the Muddiest Point. Now, several weeks into the course, the professor used this CAT to assess the students' understanding of a lecture on enthalpy and entropy. The most commonly mentioned muddy point concerned the difference between enthalpy of activation and entropy of activation. Other students mentioned the difference between enthalpy of formation and enthalpy of activation. These responses let the professor know that the students had not firmly grasped the differences between entropy and enthalpy and that many of them probably did not understand either principle in isolation. Looking back on her lecture, she realized it had probably contained too much detail and too little differentiation of concepts—resulting in highly “entropic” learning.

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 points” collection box by the exit is another.
6. Respond to the students' feedback during the next class meeting or as soon as possible afterward.

TURNING THE DATA YOU COLLECT INTO USEFUL INFORMATION

As with everything else about this technique, data analysis can and should be kept very simple. Quickly read through at least half of the responses, looking for common types of muddy points. Then go back through all the responses and sort them into piles—several piles containing groups of

related muddy points, and one “catch-all” pile made up of one-of-a-kind responses. You may want to count the responses in each group before you decide which to deal with. Or you may want to group together the muddy points that concern facts and principles, those that concern concepts, and those that concern skills.

**IDEAS FOR ADAPTING
AND EXTENDING
THIS CAT**

Ask students to identify the muddiest points in a homework assignment or an out-of-class reading and to turn in their responses at the next class meeting. For example, ask them to list the three muddiest points in a chapter or a case that they have been assigned to read.

Ask students to read each other's drafts of writing assignments and to point out the muddiest points in those drafts.

When students are familiar with the material and are relatively articulate, ask them to indicate the muddiest point and then to explain briefly what it was about that point that they found “muddy.”

At each class meeting, ask a few different students to categorize and summarize the data and to present the results—and perhaps even their responses—at the beginning of the next class.

Use other CATs (such as Directed Paraphrasing, Memory Matrix, or Concept Maps) to check later on how much clearer the most critical muddy points have become since you responded to them.

Let students know that some of your exam questions will concern the muddy points that you have responded to in class.

PROS

The Muddiest Point is not only quick, simple, and easy to administer; it also requires very little preparation. This is one of the few CATs you can successfully use on the spur of the moment.

For students who are hesitant to ask questions in class, this technique is a safe alternative. For students who are lost, it can be a “lifeline.”

This technique can give the instructor a “snapshot” diagnosis of what students are finding difficult to learn. As a result, the teacher can focus subsequent lessons and assignments much more accurately and effectively.

This technique enables teachers to see the material through their students' eyes and reminds them of the range of intellectual and perceptual diversity present in each classroom.

If students are regularly asked to identify the “muddiest point,” they tend to pay more attention to how well they are understanding the relevant session or assignment because they expect to be asked about it. This expectancy can lead, on the simplest level, to more care in listening and studying. Because of the nature of the question, however, this technique also promotes introspection and self-assessment.

This is a simple technique that students can easily internalize, making self-assessment a regular part of their own classroom and study routines. Students can learn to habitually ask themselves, "What was the muddiest point in _____?" whether or not other instructors ask them for such feedback.

CONS

As Mosteller (1989) points out, there are drawbacks to asking students to focus only on what they don't understand. Such an emphasis can undermine both the students' and the teacher's motivation and sense of self-efficacy. To restore some balance, teachers need to focus on what students do understand as well as on the muddy points.

It can be disconcerting to realize that even your best-prepared, most lucid lecture or lab will be misunderstood or poorly understood by some of your students.

Initially, a number of students may have difficulty explaining, or even naming, what it is that they don't understand. Becoming effective self-assessors takes time and practice, and you may not wish to develop that skill on class time.

As students become more adept at identifying and explaining the points they find "muddiest," they become more likely to raise difficult questions that you may be unable to answer on the spot.

CAVEATS

Don't become angry or disappointed when students identify something as a "muddy point" that you're positive you presented with absolute clarity. At least, don't respond to the class until you have dealt with those feelings. (Remember: don't ask if you don't really want to know.)

Don't spend so much class time responding to "muddy points" from past sessions that you risk losing the momentum of your course.

Don't give students the impression that all confusions and questions can be cleared up in a few minutes—or even a few days. Make it clear that some points are "muddier" than others and that a few are real landslides that will take a lot of digging out!

REFERENCES AND RESOURCES

In an informative and thoughtful journal article, Mosteller (1989) describes how he developed and used the Muddiest Point in his large undergraduate statistics course at Harvard. To request copies of the journal (*The Journal of the Harvard-Danforth Center*) or reprints of the Mosteller article, contact:

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See also Cottell (1991, pp. 50–51) for a clear and humorous example of the Muddiest Point applied to accounting. In this example, the author refers to the CAT as an adaptation of the Minute Paper.