

How to Help Students See When Their Knowledge Is Superficial or Incomplete

By Daniel T. Willingham

What can be done to combat spurious feelings of knowing in students? Remedies center on jostling students away from a reliance on familiarity and partial access as indices of their knowledge, and encouraging (or requiring) them to test just how much knowledge they recall and understand.

- *Make it clear to students that the standard of "knowing" is the "ability to explain to others," not "understanding when explained by others."* I have found the following analogy helpful in explaining the difference in the two types of knowing: You and a friend are watching a movie that only you have seen before. As the plot unfolds, each event, even those meant to be surprising, seems predictable and familiar. Yet if your friend asks you, "How does it end?" you can't quite remember. To truly know about a movie (or a mathematical concept or historical event), you must be able to discuss it in your own words.
- *Require students to articulate what they know in writing or orally, thereby making what they know and don't know explicit, and therefore easier to evaluate, and easier to build on or revise.* Suppose that you've just gone over a rather tricky point in class. You want to be sure that they've understood the lesson. As we all know, asking "Does everyone understand the main point here?" yields only silence. Calling on one student makes it clear to that student whether or not he or she understands the main point, but brings little benefit to other students. An alternative is to have students pair off and then take turns explaining the main idea to each other. (This will work best if the teacher provides clear criteria by which students can judge each other's answers; otherwise it can be a case of the blind leading the blind.) The process of having to explain aloud to someone else makes it clear to students whether or not they understand what they are meant to understand. The process breaks the ice of silence, and if the teacher afterwards asks if there are questions, students are usually more willing to ask for help. Indeed, observing the pairs will usually make the extent of students' understanding clear to the teacher.
- *Begin each day (or selected days) with a written self test.* The teacher may pose a few questions reviewing the material from the previous lesson. The success of this strategy depends on students writing their answers rather than having the class shout out answers or calling on students who raise their hands. Again, the question you pose will likely lead to a feeling of knowing in most students because it is material they were recently taught. If, moments after hearing the question, they hear the answer provided by another student, they will likely think, "Sure, right, I knew

that" because of this feeling of knowing. To get an accurate assessment of memory, each student must see whether he or she can recollect it.

- *Ask students to do self tests at home or in preparing for examinations.* For students who are a bit older, teachers can facilitate this process by organizing "study buddies" who agree to meet at least once before an examination, or at regular intervals, to test one another. Study buddies ask one another questions to ensure that they understand the material, and then go over whatever they don't understand. This procedure brings several benefits. It's another way to force students to actually recall information, rather than to simply recognize what is in the book. The process of generating questions for a partner is also an excellent way to encourage students to think deeply about the material; it is tantamount to asking oneself, "What is really important here? What must I know about this material?" That students pose questions for each other means that students will share their perspectives on the material—a point that one student missed or understood dimly will be supported by the other student's knowledge.

- *Help students prepare for examinations with study guides.* All students, but especially younger students, need help identifying the core information to be tested. Teacher-developed study guides are an excellent way to be sure that students are aware of the critical questions and key elements of the answers. Whether they study alone or with a buddy, the guide assures that all students will tackle the most difficult concepts or materials being tested.

- See more at: <http://www.aft.org/periodical/american-educator/winter-2003-2004/how-help-students-see-when-their-knowledge#sthash.ayd6Dzlp.dpuf>