



The Science of Questioning

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“Questioning is the only defensible form of teaching” attributed to Socrates by Elder and Paul (2017, p.4).

There are seven (7) basic guidelines to remember when questioning students:

1. Ask the question first and then call on a student, not the opposite.
When you call a student’s name first, everyone else unthinkingly turns off the teacher and stops listening.
2. Never ask more than one question at a time. This is called asking multiple questions and is not an effective technique.
I once was observing a class and heard a teacher ask this question without taking a breath (I’m paraphrasing): *“John, where is your femur? Remember it was one of the bones that we studied last chapter and of all the bones is the longest. Think now, where your longest bone might be found?”* By the time that she had finished, the student didn’t know what the question was and neither did I.
3. Be inclusive when calling on students to answer questions.
Whether you use popsicle sticks, draw names out of a hat, or simply remember which students have been called-on, the teacher must ensure that all students are engaged in the question and answer session and that all feel that they could be called on at any time.
4. Do not allow unison response.
When students are allowed to answer together, the teacher cannot properly monitor each student response. Choral responses can be appropriate.
5. Use appropriate Wait Time.
Wait Time is the time that teachers afford students to formulate an answer before calling on a particular student (Rowe, 1972).

The reason for giving a longer response time is to allow the student an opportunity to think of the correct answer, especially when asking higher order questions. When the appropriate response time is not given students feel rushed and will either guess at the answer or give the classic answer, “I don’t know.” Waiting too long then begins to create an “everyone is staring at me” feeling.

Wait time is the time teachers wait to interject themselves back into the conversation, either by prompting the student to the correct answer or by calling on another student, after students have been asked a question. Wait times are critical in the questioning process because teachers must give students an appropriate amount of time to formulate an answer. Teachers that allow too little wait time encourage a culture of blurted answers and no critical thinking. On the other hand allowing too long a wait time leads to students losing interest and increased classroom management problems.

So what's the appropriate amount of time to provide students to respond to a teacher's question? Text books and scholarly writings will say that anything from two to ten seconds is appropriate. From my personal experience, I've found that the 2 and 3 second times are too fast and that most of the time anything after 6 seconds is too long. So, I personally like 4-5 seconds; it works for me. You have to find what works for you. Wait times, like most things in education are very subjective and require the teacher's personal touch. The more that you're in the classroom, the better feel you'll get for waiting the appropriate amount of time.

Also, it's important that the teacher not embarrass students when they don't know the answer or when the response time has run out. See #7 below.

6. Always provide feedback to a student that responds.

Let your students know that you heard their responses. Be careful not to give unspecific praise. Comments like, "good", "great", and "fantastic" are unspecific and less effective than simply saying "okay," or "correct."

Preferably, when giving praise, be specific. Let students know why their answers are "good" or "great". For example, "That's a great answer because you applied the proper formula." or "That's good use of parallelism".

7. Create Risk Free Student Response Opportunities on the Way toward Creating Risk Free Classroom Environments.

Students should never feel embarrassed to answer a question or to express themselves. Conversely, students should feel emboldened to express their opinions and attempt any academic endeavor. This can best be accomplished by creating risk free classroom environments.

Our classrooms should not be survival of the fittest. Instead, they should be settings that allow students to flourish. Teachers can create these settings by differentiating their instruction so as to create niches for students. Prime elements of these niches are that students must feel free to express themselves and to venture out and grow.

In education there is much subjectivity leading to relatively few absolutes, which, by the way, is one of the things that makes our profession so unique. One of these absolutes is that we must create risk free environments for students. However, what constitutes risk free is very much dependent on the environment. Who are the students? What is the subject? Who is the teacher? When in the school year is it? What kinds of relationships have been established?

A risk in a 9th grade class of non-proficient readers is a lot different than a risk in a Debate IV class comprised of high school seniors. For example, while we may actually encourage banter in the debate class, we certainly would allow very little banter in the reading class. The same goes for an AP Chemistry class versus a regular 10th grade biology class. In the chemistry class comprised of high-level, ambitious students we might create some risk to get students ready for the AP test, college, and the real world. On the other hand, in the biology class we're simply trying to give students as much background knowledge as possible to better prepare them for the state mandated test and for their next science class. Therefore, we will create very little risk in order for students to begin and feel comfortable in the learning process.

Yes we must challenge students and these challenges will eventually involve some risk but we must ensure that the risks do not come at the expense of inhibiting students thereby prohibiting them from learning. The risk, therefore, has to be incrementally increased and must be properly managed by the teacher.

There are varying ways to ensure that you have created risk free environments. One is by creating *risk free student response opportunities*. A risk free student response opportunity is how you as a teacher handle students who don't know answers to your questions. Below are 5 strategies for creating risk free student response opportunities:

- a. Prompting students in the direction of a correct response
If a student doesn't know an answer, give "hints" or "clues".
- b. Cueing students' attention to a correct response.
If a student doesn't know an answer, point out a page number in the text or an anchor chart on the wall where the answer can be found.
- c. Calling on students who you think know the answer
If you have a student whose confidence is down, call on that student on occasions when you know the student has the correct answer.
- d. Have students turn and share their answers
By students turning and sharing their answers prior to the calling of a specific student, students can 'sample' their response.
- e. Using individual response strategies
By using individual response strategies, such as response white boards, students do not necessarily have to share their answers with the whole class.

References

- Elder, Linda, and Richard Paul (2017). *The Thinkers Guide to Socratic Questioning*. The Foundation for Critical Thinking.
- Rowe, Mary Budd (1972). Wait-time and rewards as instructional variables, their influence in language, logic, and fate control. Paper presented at the National Association for Research in Science Teaching, Chicago, IL, 1972. ED 061 103.