



Artisan teacher NOTES

Questioning Works, Except When It Doesn't

Must teaching always involve asking so many questions? Certainly, questioning students is a time honored approach to teaching and it remains immensely popular. I suppose we owe the popularity of questioning to Socrates, the first and most famous questioner. Since the days of the early Greek masters we have associated teaching with questioning. Strategies for asking questions are widespread and popular given the number of articles and workshops devoted to the practice. We have easy questions, hard questions, reflective questions, higher order questions, open-ended questions, leading questions, rhetorical questions, fat questions, thin questions, beamed questions, inquiry questions, review questions, targeted questions, differentiated questions, follow-up questions... you get the idea.

Certainly, asking questions of students is often, and even usually, productive. Effective questioning can be the spark that ignites rich conversations, interesting discoveries, deep insights, and lively intellectual interaction. A well-designed question can generate curiosity, cause students to recall relevant context, and sharpen students' focus.

Questioning, however, just like any teaching device, can be inappropriately used, ineffectively used, or just plain overused. Given its popularity and overall efficacy, it is inevitable that the practice of questioning would leak into areas where it is less productive and sometimes counterproductive.

One such area, where questioning can produce dubious results, is when the teacher is providing initial modeling for students. When content or skills are being introduced initially, it is effective for the teacher to explicitly model what she plans for the student to learn or perform. This provides the learners' brains a clear target toward which to work. To provide modeling through questioning, however, is to introduce the real possibility that the students' answers won't accurately model that which is to be learned.

Here's an illustration of how this can, and often does happen. This is a true story reported to the best of my recollection. Names have been changed to protect the innocent.

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I remember watching a 3rd grade teacher introduce long division to his students.

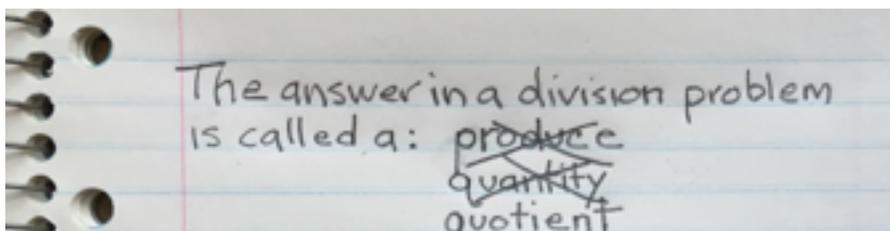
The lesson was going very well until he stopped and asked, "Does anyone know what we call the answer in a division problem?" The students appeared perplexed for a moment, then dutifully began offering possible answers. "Product," offered one student. "No, that's close though," the teacher prodded. "Remember that's what we call the answer in a multiplication problem." "Five," another student exclaimed confidently. "No, that actually is the answer to the sample problem, Dustin. Good job! But, I'm looking for what we call any and all answers in a division problem." "Jasmine, what do you think?" the teacher questioned (I inferred that Jasmine was a top student and that the teacher was hoping, almost desperately, for a correct answer). Jasmine thought for a few seconds and then answered "produce." I thought to myself "produce- really? Like vegetables?" Interestingly, the class seemed to be satisfied with Jasmine's answer and several students put pencil to paper writing the word produce. I think they were accustomed to Jasmine getting this type of tough question right, so they were thinking "good enough- case closed."

The teacher, sensing that this was now spiraling out of control, but not wanting to abandon little Jasmine who just gave her best effort in a losing battle of Q&A, did what I think we all might do in a similar situation. After labeling the answer as incorrect, but a good effort, he began to give Jasmine hints. "Ok Jasmine, you can do this," he said. "It starts with a Q. And, we learned in Spelling that Q is always followed by ____." He paused and waited for Jasmine to complete his sentence. "U" she quickly answered, visibly relieved to be back in the win column. "Yes," the teacher confirmed. "So, the name of the answer in a division problem is a Qu_____?" The teacher sounded it out "Qu, Qu, Qu." Jasmine shaped her lips to sound out Qu and thought hard. Her intensity was palpable. She searched her brain for possibilities... queen, quote, quack, Quaker, queasy, quarterback... Nothing seemed to fit. As far as I could tell, everyone in the class was now following Jasmin's lead and searching through their schemas for possible qu answers... quarry, quad, quasar, quail, quart.

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Then, it happened. Jasmine's facial expression flipped from frustration to hope, then from hope to certainty. She had it! Her hand popped into the air. She exuded confidence and victory. Everyone sensed it. Jasmine finally had the answer! The teacher sensed it too, and moved right in for the long anticipated reward for his patience. "You've got it. I can tell. OK, tell the class. What do we call the answer in a division problem?" Jasmine paused just a second for dramatic effect and then loudly and articulately pronounced- - - - "**quantity**." The word just hung there in the air- - - - "**quantity**." I think that I shall never forget that moment.

Fast forward... the teacher eventually recovered his footing, gracefully took responsibility for leading Jasmine down the wrong road, acknowledged that the word quantity was an excellent guess, pronounced the correct answer to be **quotient**, and life went on for both teacher and students. The lesson, in its totality, was effective, and no one was permanently damaged by the schema scavenger hunt. As I was leaving the classroom, I happened to glance at a nearby student's math notebook. I saw the word **produce** crossed out and replaced with the word **quantity**, which was also crossed out and replaced with the word **quotient**. That recaps the action pretty well.



The key moment in the episode above, I believe, was a spontaneous decision that the teacher made just as students were primed to learn a new and important math term- quotient. Instead of having the term and its meaning introduced with clarity and precision by a professional educator with an advanced degree and years of experience—the teacher opted to delegate the **initial modeling** of this key math concept to an eight year-old. In hindsight, this seems an obviously poor decision, but as I reflect on my own teaching career, I can remember making the same decision quite regularly. I think I did it because of a desire to engage and involve my students. I also think I was acting on a vague belief that asking questions was such an integral part of teaching that there was hardly ever a time when questioning could be counterproductive.

How questioning can thwart high-quality initial modeling:

When a teacher poses a question, students' brains begin to sort through all their available schema to find an answer. The human brain is determined and persistent. It seeks to find an answer, a solution to the conundrum posed by the question. The brain will search, connect, experiment, and stretch to find an answer. And—it **WILL** find an answer. It may not be the right answer. It might not even be close. But—the nature of the brain is to search and seek out similarities and connections, and when it finds one that looks reasonable, it latches onto it and proposes it as the answer to the question. This can be counterproductive (remember “produce?”). The late education researcher and author Madeline Hunter taught a concept called **degree of original learning** (Mastery Teaching, 1982). She suggested that a student's brain will latch onto the first or an early solution that seems possible and, right or wrong, this will become the preferred answer.

For initial modeling then, teachers do well to NOT teach through questioning. Rather, provide students with an accurate, complete, and memorable initial experience. If vocabulary is involved, be sure that words are spelled and pronounced correctly. If a process or skill is involved, model it as close to perfectly as possible. Don't begin an initial experience with an examination of commonly made errors or counterexamples. **In most cases, the way something is learned first creates the memory that will last.**

For further study on the science and art of designing high-quality initial experiences for students see **The Artisan Teacher: A Field Guide to Skillful Teaching**, Chapter 14: **First Time Learning**, pages 99-100. (Rutherford, 2014)