

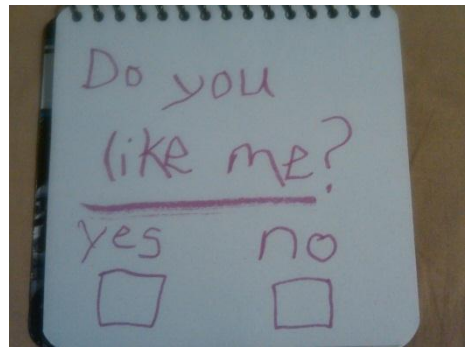
It's All in the Wording

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I have a confession to make... I enjoy doing math problems. When I was growing up, I always enjoyed math class because I could follow the various mathematical processes taught to me and I was good at memorizing facts.

I loved playing math games that involved speed of recalling math facts because I could almost always take the lead. My love for math continued on

through middle school. Then one year, I had a teacher who made me think about my answers and explain my thinking. Wait a second? There was a REASON for what I had been doing all these years? HOLD UP... It was time for me to S - L - O - W down. I had to stop and think about what I was doing and it wasn't easy, and it wasn't fun (at first) because I had to retrain my brain. However, I am glad I did because it helped to make me the teacher I am today. Someone who is able to explain the steps I take to arrive at an answer. Now I can "think aloud" with the best of them, and my understanding is more concrete.



Have you ever thought back to how you were taught in elementary school? When you are little, most questions are simple and provide little thought: Do you want milk or water with dinner? Do you want to go on a walk? Did you hang up your book bag? Did you like your lunch at school today? As children, we would emulate what was modeled for us and do the same in return by asking our parents: Did you have a good day? Can I have a snack? Do I have to go to bed? And the infamous, "Do you like me? Check yes or no." Think about it, did we ever say, "Mom, compare and contrast your day at work today with your day at work yesterday," or, "Please write down your feelings for me on the lines below." Of course not! We were not trained to think like that!

Here is a quick quiz for you...

What is 5×7 ?

What is the average of 3, 7, 10, 2, & 5?

If you were given \$200.00 to spend in your classroom, and you bought a game that cost \$20.00, math manipulatives that cost \$50.00, and a rug that cost \$30.00, how much would you have left to spend?

$$327 \div n = 109$$

$$\star\star\star + \star\star =$$

The above questions might appear on an assignment, a worksheet, or a quiz/test in developmentally appropriate settings. These closed questions are appropriate in figuring out if your students are able to find the answer. However, it is not a good way to find out if they *understand* their answer and the *thinking* that went into solving the problem.

Closed questions are necessary at times when we are teaching a process that has specific steps and has a specific right or wrong answer. We can dive deeper into closed questions by asking our students to solve these problems and explain their thinking. This will give us insight as to how they came up with their answer, but there is still only one right answer to the problem.

Good questions help us guide students in thinking, analyzing, and understanding the process they went through to solve a problem (Small, 2010). Students learn from answering good questions as they require a person to do more than just produce an answer by memorizing a fact or following a step by step process. Teachers also learn about their students' level of understanding when they ask good questions in the classroom. Open questions foster higher levels of thinking

because students are encouraged to problem solve and express their understanding in their response. In addition, depth of answers vary due to mixed abilities and the possibility of more than one right answer (Lilburn & Sullivan, 2002).

So, what does a good question look like? Using the above quiz, I reversed the questions to be open questions. Read the quiz now and think of what you would learn about your students if you were to read their answers.

35 is the product of what numbers?

The average of five numbers is 6, what could the five numbers be?

Mrs. Brooks bought three items for her classroom and they totaled \$100.00. What three items did she buy and what were their individual costs?

Tell me a way to get to 109 using division.

$$\underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \star \star \star \star \star$$

Using open questions, the above quiz will tell you if your students know specific vocabulary terms, if they know how to problem solve, and most importantly, if they understand the concepts being taught.

I recommend using open questions in a think/pair/share format, where you allow your students a chance to think on their own, pair up with a partner or in a small group to discuss, and then share with the class. Open questions are also good to use as a formative assessment when conferring with students to determine where they are in the learning process of a certain concept.

To develop open questions, Lilburn and Sullivan (2007) recommend working backwards. First, identify a topic. Then, think of a closed question and write down the answer. Develop a question that includes (or addresses) the answer/concept being taught. It is also recommended that when you begin to use open questions it helps to write them down ahead of time so you are prepared.

I have to admit, I still prefer the memorized, “drill and kill” lessons when I am in the learner’s shoes. However, I prefer it because it comes easy to me and requires little thought. There is nothing wrong with memorization and when it comes to basic facts, it is a necessary skill. However, as effective teachers it is our responsibility to make sure our students understand what they are learning. Using open questions helps to develop student understanding and the student responses provide us with necessary information to guide their instruction.

Will our use of open questioning ever have an impact on the elementary “Yes/No” notes that circulate all elementary schools? Probably not, but maybe, just maybe, it will get them to question a little deeper when it comes to other things that are a little more important. 😊

References:

Lilburn, P. & Sullivan, P. (2007). *Good questions for math teaching: Why ask them and what to ask*. Sausalito, CA: Math Solutions Publications.

Small, M. (2010). Beyond One Right Answer. *Educational Leadership*, 68(1), 28-32.
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