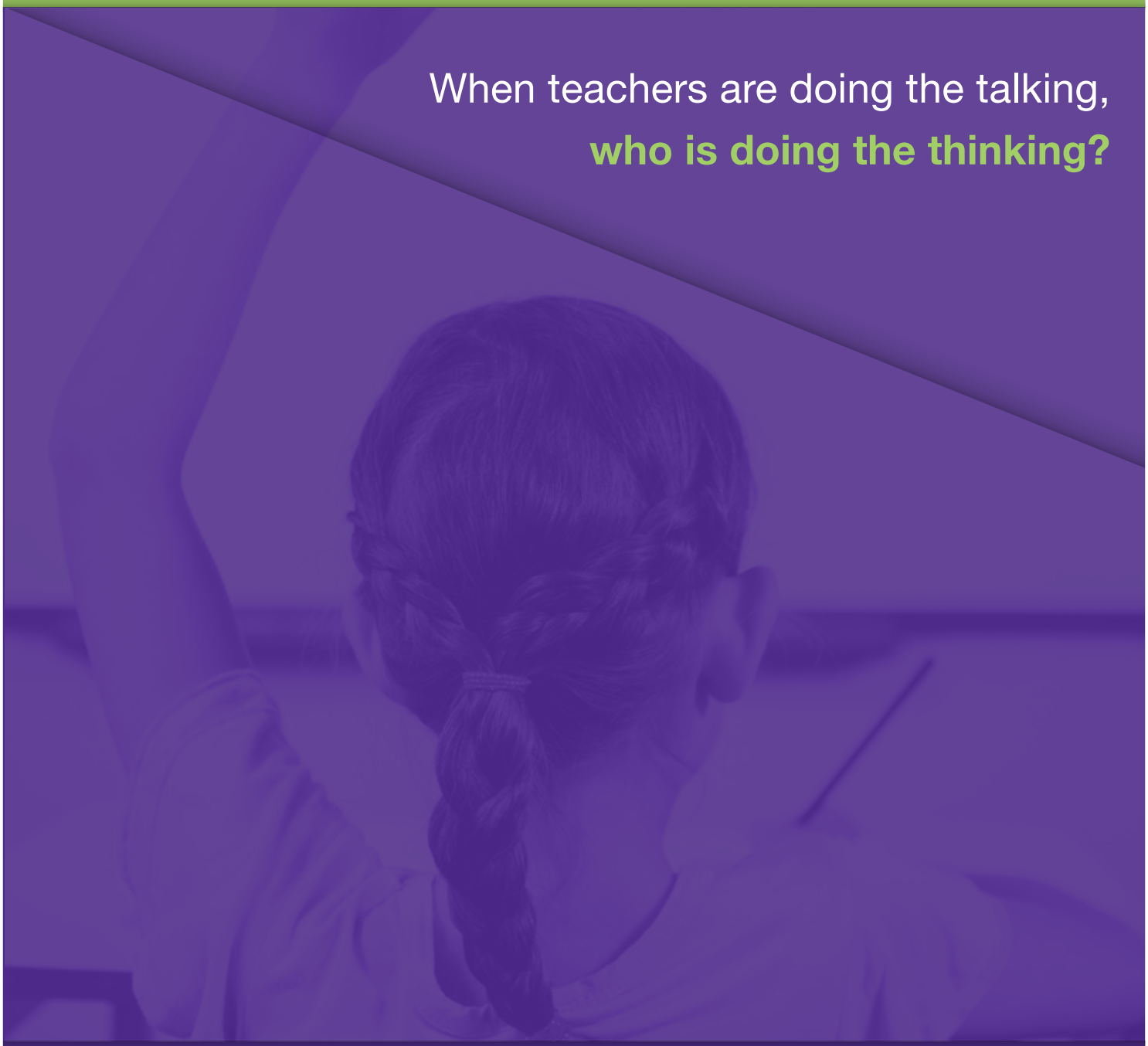
SPARKING
STUDENT QUESTIONING

When teachers are doing the talking,
who is doing the thinking?



By Rebecca Stobaugh, Ph.D.

MentoringMinds®
Critical Thinking for Life!™

TABLE OF CONTENTS

"Does anyone have any questions?"
Silence fills the room. The teacher waits the customary three seconds and then moves on to the next topic. Often in traditional classrooms, students pose few questions. How can we get students to ask questions? And why is student questioning important?

Importance of Student Questioning

When Wagner (2008) interviewed CEOs about important qualities of employees, one key trait that was mentioned by multiple employers was an employee's ability to ask questions. Wagner asserts, "Problem-posing is more important than problem-solving" (p. 214). However, in many classes, teachers often pose all the questions. It is like a ping-pong match. The teacher tosses the question out and a student answers. The teacher tosses another question out, and the cycle repeats. J. T. Dillon (1983) stated, "One of the simplest ways to permit student questions is to stop asking questions yourself" (p. 37).

Students' questions can make a powerful contribution to their own learning process by creating deeper engagement and providing teachers with clear evidence of their students' understanding. One research study found a negative link between the quantity of teacher talk and student achievement. In high-achieving classrooms, teachers talked around 55 percent of the time, whereas in low-achieving classrooms, teacher talk consumed 80 percent of the instructional time (Flanders, 1970). When teachers fill the void with their own voice, they leave little opportunity for students to talk. The question is, when teachers talk so much, who is doing the thinking? The danger of too much teacher talk is that, in some instances, teachers end up doing the thinking for their students.

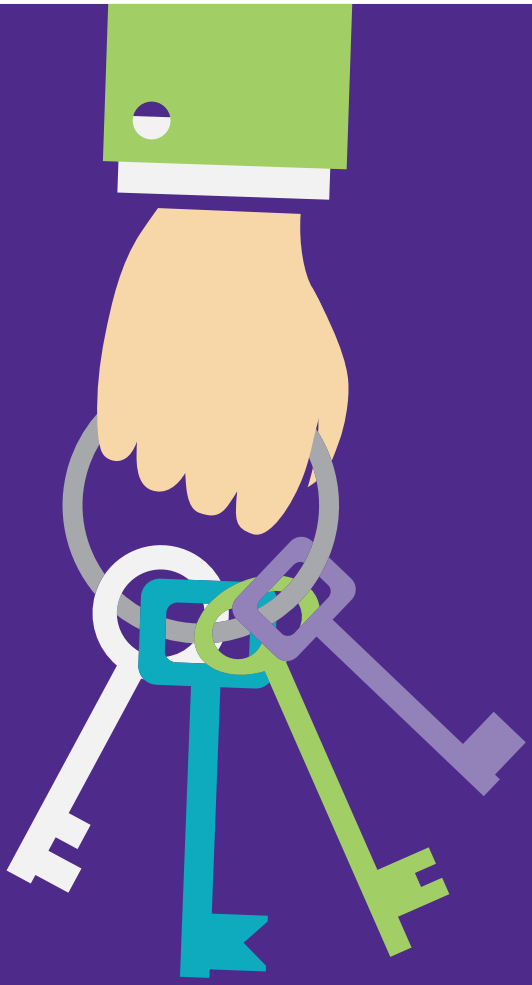
Having students generate their own questions about topics has been shown to be an effective questioning practice (Crowd, Kaminsky, & Podell, 1997). Students who can formulate quality questions can become self-directed learners with high levels of intrinsic motivation. Children are naturally curious. Instead of accepting a diminishing trend of student questions as students get older, we should be reversing this trend and celebrating students' questions. Tucker (2015) stated, "Students who learn to ask questions are no longer just consumers of information; they are also generators of information" (p. 78).

Research has found that self-questioning has a positive impact on reading comprehension and knowledge retention (King, 1991; Pate & Miller, 2011). After learning how to develop quality questions in class, students seem to apply the strategy in other situations (King, 1991). When students formulate questions, the teacher gains insights into students' learning interests. Teachers can then use this information to adapt instruction to harness their students' innate curiosity.

4 Keys to Supporting Student Questioning

How can teachers build student questioning skills? There are several crucial aspects for teachers to consider as they support student questions. These include:

- **Time:** Students need ample time to think about the information, brainstorm ideas, and construct their questions. Only then will they be ready to share them with a group.
- **Protocol:** To support students as they begin creating questions, teachers can use protocols and questioning stems (see Figure 2) to initiate the process. These structures guide students toward designing quality questions.
- **Refinement:** Students need sufficient time to reflect, revise, and select their best questions. Good thinkers are always refining their thinking. The Question Evaluation Checklist (Figure 1) can be used by students to assess the quality of their questions.
- **Supportive Environment:** As students begin generating questions, students might be anxious about sharing. Teachers and peers need to provide supportive, constructive feedback to encourage students to participate and refine their questions. If the teacher or peers provide discouraging comments, students may not feel emotionally safe to share their question ideas in the future.



Question Evaluation Checklist

- ☑ **Is it connected to the topic?**
- ☑ **Is it open-ended? (Does it require more than a yes or no answer?)**
- ☑ **Is it clearly worded?**
- ☑ **Does it promote student thinking and discussion?**

FIGURE 1

Question Stems

Why is . . . ?

Why did . . . ?

How might . . . ?

How did . . . ?

Who should . . . ?

When might . . . ?

What if . . . ?

Predict . . . .

Why do you think . . . ?

Where might . . . ?

In what ways . . . ?

What do you think about . . . ?

Why do you agree/ disagree with . . . ?

What advice would you give . . . ?

What else could . . . ?

What do you think the author meant by this quote: "____"?

What would happen if . . . ?

What caused . . . ?

What are the pros and cons of . . . ?

Do you agree that _____? Explain.

FIGURE 2

5 Question Protocols

Often students are pushed to develop questions on the spot. This leads to low-level questions that lack clarity. However, with support and time to reflect, students can develop quality questions. Questioning protocols provide a variety of ways to structure the process as students construct questions.

As teachers introduce their protocols, it is helpful if they model the process themselves and provide question stems to guide their question development (see Figure 2). Question stems are simply introductory phrases for questions, such as “Why is . . . ?” or “What do you think about . . . ?” These stems can be particularly helpful for students who struggle with the initial process of formulating a question. As students become more confident designing questions, these stems could become an optional resource.

In the following pages, there are five questioning protocols that help students to practice generating questions and collaborating with their classmates in the process. Students can use question stems (see Figure 2) with any of these protocols.

1. Think, Pair, Square
2. 10 by 10
3. Visual Cue
4. Question Continuum
5. Priority Questions

1. Think, Pair, Square

Students collaboratively work with a partner to develop questions. Then, with group support, they refine their thinking.

Steps

1. Pairs of students write two or more interesting questions.
2. Pairs then share their questions with another pair.
3. The four-person team will select the most thought-provoking question to use in the whole-class discussion.

2. 10 by 10

Students create ten questions about a topic in ten minutes (Berger, 2014). The time limit helps students to focus their thinking. The 10 by 10 is useful after reading, before discussing a topic, or to activate student prior knowledge or interest in a topic.

Steps

1. Provide a visual timer with ten minutes.
2. Students should generate ten questions that spark student thinking.
3. Select the best question to use in discussion.

3. Visual Cue

The teacher posts a captivating visual or shows a media clip, and students pose questions that will later be used for discussions. For example, students might view the animal picture shown in Figure 3 and develop questions based on the photograph. Often the use of a visual helps trigger students' initial ideas.

Steps

1. Select a visual or media clip that will spur students' thinking.
2. Have students design two to four thoughtful questions that connect to the learning target for the day.

Example: In a science classroom currently studying heredity (inheritance and variation of traits) or biological evolution (unity and diversity), a teacher could display a photo of unlikely animal friends and ask students to develop questions about the picture that connect to the standard.

4. Question Continuum

Students create and evaluate questions for interest and complexity. This strategy helps students develop high-quality questions by building awareness of their questions' relevance to content and the depth of thinking (Quigley, 2012).

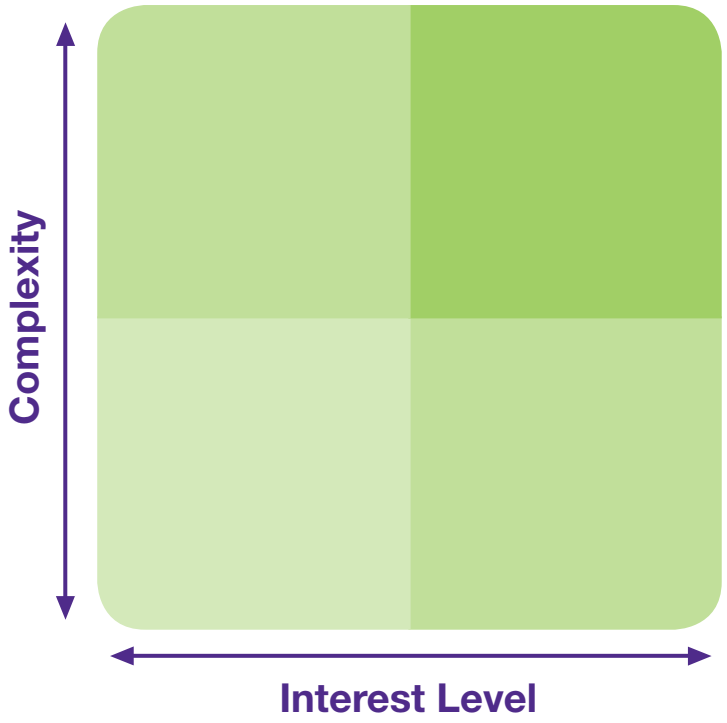
Steps

1. Post the Question Continuum on a display board or use a digital tool like Padlet. The horizontal axis would be termed "Interest Level" and the vertical axis would be termed "Complexity" (see Figure 4).

2. Explain the continuum to the students. For interest, the continuum represents how much the question inspires new ideas and promotes debate and discussion. For complexity, it represents how well the question sparks critical thinking. Recall questions, closed questions, and factual questions are at the low end of the complexity axis, and questions that promote deep thinking are at the high end.

3. Have students work in pairs and use two sticky notes to write two questions and post the questions in the appropriate places on the continuum. At least one should be in the higher-level quadrant.

4. The teacher and students could examine the questions and select a few to use for the discussion.



5. Priority Questions

Priority Questions is a more extensive protocol completed in small groups. This method guides students to develop excellent questions (Rothstein & Santana, 2011). This protocol teaches students to design a variety of questions while discouraging discussion about the questions themselves during the development process. After the teacher introduces this protocol and explains the steps, students break up into small groups of three to five members. The teacher should identify the focus and set a timer for groups to work on steps two through four. These questions can spark a discussion or become topics for driving future research.

Steps

1. Identify the focus of the questions (the topic, issue, or main emphasis). It should spark interest and new thinking while deepening understanding. For example, "The scientific method must be followed" (p. 32) or "Torture can be justified" (p. 36) or "All U.S. citizens have freedom."

2. Construct as many questions as possible. This step encourages students to produce many options and promotes divergent thinking. The teacher should refrain from giving examples of questions during the brainstorming process to encourage students to think in a variety of ways.

3. Record every question posed. This ensures that all voices in the classroom are heard.

4. Do not discuss, evaluate, or answer any question during the brainstorming phase. This step promotes a safe environment and prevents any negative comments from hijacking the process and stopping the flow of questions.

5. Direct a conversation about closed questions and open questions and teach students the difference between them. While closed questions can be answered with a word or two, open questions tend to require elaboration or more detail. Students can then classify their questions as open or closed. Finally, students will practice changing a closed question into an open question. The teacher might suggest to the students to begin open questions with a "How" or "Why."

6. Prioritize the questions. The group will select the three most important questions, called "Priority Questions," for discussion. Each group reports back to the whole class with their rationale for selecting the three questions. This step requires students to compare, analyze, and evaluate the questions.

Summary

The ability to ask complex, germane questions is a crucial skill for academic success and for life. When students ask questions, they engage in high-level thinking. Some methods for encouraging students to ask questions include giving them adequate time to develop and refine their questions, providing protocols to guide their questioning, and fostering a supportive and positive environment.

As educators, we can replace teacher-led questions and their accompanying silent pauses with student-developed, thought-provoking questions in order to ignite engaging discussions that center on quality thinking.

References

Berger, W. (2014a). *A more beautiful question*. New York: Bloomsbury.

Berger, W. (2014b). Five ways to help your students become better questioners. *Edutopia*. Retrieved from: http://www.edutopia.org/blog/help-students-become-better-questioners-warren-berger?utm_source=twitter&utm_medium=socialflow%20&utm_campaign=RSS

Crowl, T. K., Kaminsky, S., & Podell, D. M. (1997). *Educational psychology, windows on teaching*. New York: Brown & Benchmark.

Dillon, J. T. (1983). *Teaching and the art of questioning*. Bloomington, IN: Phi Delta Kappa.

Flanders, N. (1970). *Analyzing teacher behavior*. Reading, MA: Addison-Wesley.

King, A. (1991). Improving lecture comprehension: Effect of a meta-cognitive strategy. *Applied Cognitive Psychology*, 5(4), 331–346.

Pate, M. L., & Miller, G. (2001). Effects of regulatory self-questioning on secondary-level students' problem solving performance. *Journal of Agricultural Education*, 52(1), 72-84.

Quigley, A. (2012 November 10). Hunting English blog post Retrieved from: http://www.huntingenglish. com/2012/11/10/questioning-top-ten-strategies/

Rothstein, D. & Santana, L. (2011). M*ake just one change: Teach students to ask their own questions*. Cambridge, MA: Harvard University Press.

Tucker, C. (2015). More than a Google search. *Educational Leadership*, 73(1), 78-79.

Wagner, T. (2008). *The global achievement gap: Why even our best school don't teach the new survival skills our children need—and what we can do about it.* New York, NY: Basic Books.

SPARKING
STUDENT QUESTIONING

About the Author

Rebecca Stobaugh, Ph.D. is the author of three books: Assessing Critical Thinking in Middle and High Schools, Assessing Critical Thinking in Elementary Schools, and Real-World Learning Framework for Secondary Schools. Currently, she serves as an associate professor at Western Kentucky University.

About Mentoring Minds

Mentoring Minds is a national educational publisher developing proven K–12 instructional materials that encourage critical thinking for life. Our mission and commitment is to motivate children to think critically and to learn effective problem-solving skills in the classroom that will increase their success and prepare them for life in the 21st-century global marketplace.

For more classroom ideas, visit: **mentoringminds.com/blog**

MentoringMinds®
Critical Thinking for Life!™