





# Inviting Student Engagement with Questioning

by Chris A. Caram and Patsy B. Davis

Questions that stretch students' minds, invite curiosity, provoke thinking, and instill a sense of wonder can keep students engaged.

Youth of today expect, actually demand, experiences that are action-packed, flashy, entertaining, and propel them into sensory overload. How can teachers capture students' attention when they must compete with the drama of real life, cell phones and games, loud music, and action movies? How can classrooms mirror that excitement, engage students in learning objectives, and inspire them to advance their own learning?

Students actively engage in learning because they are intrinsically motivated by curiosity, interest, and enjoyment, or they want to achieve their own intellectual or personal goals (Brewster and Fager 2000). Learning that students view as purposeful creates for them an insatiable thirst for extending their knowledge. Successful student engagement requires a classroom culture that invites mutual inquiry, gives permission to investigate open-ended and suggestive questions (Levy 1996; VanTassel-Baska 2003), and casts the teacher as a deliberate facilitator.

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If creating a culture of investigation is a key component to engaging students, then why is the questioning element of teaching “often either underdeveloped or unarticulated” (Hannel and Hannel 2005, 6)? Teacher preparation programs frequently do not include questioning techniques and engagement strategies in their training of preservice teachers. When considering the state of apathy and disinterest of students in today’s classrooms, school districts clearly should be preparing teachers through professional development in the philosophical belief and techniques of questioning and investigative learning. Arguably, an important skill for teachers is the ability to find problems to solve and formulate questions to answer.

### What Successful Teachers Do

“Classrooms are powerful places. They can be dynamic settings that launch dreams and delight minds or arid places that diminish hope and deplete energy” (Intrator 2004, 20). The teacher is responsible for creating a culture that fosters motivation and engagement, and for inspiring and energizing student learning. While teachers have little control over many factors that contribute to a student’s interest in school and level of engagement, research has shown that teachers can influence student motivation, certain practices do work to increase task commitment, and methods exist to make learning more engaging and relevant for students at all levels (Anderman and Midgely 1998).

Effective use of questioning arouses curiosity, stimulates interest, and motivates students to seek new information. Students engaged in the questioning process benefit from the clarification of concepts, emergence of key points, and enhancement of problem-solving skills. Using questioning, teachers assess students’ knowledge, determine needs for focused reteaching, and encourage students to think at higher cognitive levels.

### Teacher-Generated Questioning

Successful teachers engage students with questioning rather than using a stand-and-deliver method of teaching. Teacher-initiated questioning is a simple, yet strong method for exploring ideas and concepts. It is applicable in all courses and is an essential tool for teaching students to think. This teaching strategy is based on the practice of disciplined, rigorously purposeful dialogue between the students and teacher. According to questioning expert and educational consultant Lee Hannel (Hannel and Hannel 2005), teachers who ask the right questions kindle fires of critical thinking to create problem solvers. His research and subsequently developed strategies related to his Highly Effective Questioning method have demonstrated how cognitive student engagement results from teacher-generated questioning.

As claimed by Hannel and Hannel (1998, 7), student engagement “should not be optional. . . . Students come to school to learn, and when they are in school they do not have the right not to learn. Students are undertrained not underbrained.” Teachers should feel that it is incumbent on them to engage students, invite them to be curious, and help them quench their thirst for knowledge. Teachers must be committed to tap dance, if needed, to secure the interest of students.

Questioning is a highly effective strategy that has the potential to successfully engage students. Questioning a particular student about an aspect of a lesson prompts the attention of that student as well as most of the students in close proximity. The distribution of questions should include all students, yet be unpredictable so that students know that their attention is required.

To engage learners effectively with questions, teachers must foster a culture of investigation in which students are receptive to questioning—encouraged and willing to respond. Teachers can reinforce student efforts verbally and thereby sustain engagement.

### Effective Strategies

Teacher-initiated questions enhance student learning by developing critical thinking skills, reinforcing student understanding, correcting student misunderstanding, providing feedback for students, and enlivening class discussion. Questions serve as a teaching tool by which instructors manage and direct learning, test student understanding, and diagnose problem areas. The skillful use of questioning can enhance learning and increase student performance. The following strategies lend insight into successful questioning.

**1. Create a classroom culture open to dialogue.** A positive expression, nod, or verbal acknowledgment of a correct response encourages students to participate in discussions. Pose questions in nonthreatening ways and receive answers in a supportive fashion. A harsh tone, especially when it interrupts a student’s response, can be devastating for both the student and his or her peers.

**2. Use both preplanned and emerging questions.** Preplanned questions are those prepared by the teacher to introduce new concepts, focus the discussion on certain items, steer the discussion in specific directions, or identify the level of student knowledge on the topic. Emerging questions derive from the discussion itself and the specific answers given to previous questions. Teachers need to go with the flow, using student responses to bring depth and breadth to the lesson.

**3. Select an appropriate level of questions based on learners’ needs.** Assess students’ needs and tailor questions to maximize the number of correct answers

while moving toward increasingly difficult questions. One good strategy is to start with knowledge-level questions and graduate to open-ended questions—perhaps building from the recall of facts to higher levels of thinking and problem solving. If a question requiring a higher-level thinking skill confuses a student, pose a question requiring a different level of thinking. Progressing from simple questions to more difficult ones that require reasoning helps students develop cognitive abilities and critical thinking skills.

So much classroom learning has focused on the lower rungs of the thinking skills ladder—knowledge, comprehension, memorization, and understanding. To correct the imbalance in the types of thinking skills required by present classroom questioning techniques, teachers must focus on questions that generate higher-level thinking (Kagan 1999).

Teachers can use effective questioning to maximize learning if they remain cognizant of students' thinking skill levels. Table 1 identifies categories of student thinking skills (Munk 2001), provides examples of trigger questions in each category, and gives key words that teachers can use when designing questions (Houghton 2003).

**4. Avoid trick questions and those that require only a Yes or No response.** Trick questions frustrate students and tend to encourage frivolous responses. Yes or No questions encourage students to respond without fully understanding or thinking through the issue.

**5. Phrase questions carefully, concisely, and clearly.** Using multiple questions that are related to the same topic, are phrased improperly, or cause overlapping responses may result in unintentional cueing and a teacher's inability to accurately assess student understanding.

**6. Address questions to the group or to individuals randomly.** Pose the question to the entire group and wait before identifying a student to respond. The wait time encourages all students to think about the response, because they do not know who will be selected to answer. To keep everyone attentive and involved, select students at random to answer questions. Select both volunteers and others to answer questions. Occasionally calling on a student prior to asking the question is a technique that can be used to redirect an inattentive student.

**7. Use sufficient wait time.** Wait time is the amount of time an instructor waits for students to respond before giving the answer or posing another question. At least five to ten seconds are needed for students to think about and respond to the questions. Of course, questions at higher cognitive levels tend to require longer wait times. The teacher can enhance the analytic and problem-solving skills of students significantly by allowing sufficient wait

times, both after posing a question and after the answer is given.

**8. Respond to answers given by students.** Listen carefully to the answers given by students; do not interrupt students while they are responding to questions unless they are straying far off course, are unfocused, or are being disruptive. Respond to correct answers with positive reinforcement. Sarcasm, reprimands, accusations, and personal attacks are ineffective and harmful. Repeat answers only when other students have not heard them; repeating wastes time. Keep questioning until the learning objectives for the session have been achieved; this may be the best opportunity to teach a particular concept. Handle incomplete answers by reinforcing what is correct and then asking probing questions. Probing questions require the student to think beyond the initial response; they direct, develop, or refocus the student's response.

**9. Deliberately frame questions to promote student interest.** Questions should be sufficiently open to accommodate diverse interests and learning styles, and to allow for individual responses and creative approaches—even ones that the teacher has not considered. Consider that there may be multiple answers to many questions.

**10. Use questions to identify learning objectives for follow-up self-study.** Pose questions toward the end of the teaching session to identify specific areas for additional learning opportunities that students can pursue on their own to extend learning (Walsh 2004; Wiggins and McTighe 1998).

Progressing from simple questions to more difficult ones that require reasoning helps students develop cognitive abilities and critical thinking skills.

### **Student-Generated Questioning**

Teachers who are successful in motivating and engaging students often establish the classroom practice of inviting student-generated questions. Student-initiated

**Table 1. Thinking Skills Model Categories, Trigger Questions, and Key Words**

Category	Examples of Trigger Questions	Key Words
KNOWLEDGE	<ul style="list-style-type: none"> <li>• Define the word ____.</li> <li>• What is a ____?</li> <li>• Label the following ____.</li> <li>• Identify the ____ in this ____.</li> <li>• Who did ____?</li> </ul>	define, repeat, identify, what, label, when, list, who, name
ORGANIZING	<ul style="list-style-type: none"> <li>• Compare the ____ before and after ____.</li> <li>• Contrast the ____ to the ____.</li> <li>• Differentiate between ____ and ____.</li> <li>• Classify ____ by ____.</li> <li>• Order ____ by ____.</li> </ul>	compare, differentiate, contrast, order, classify, distinguish, relate
APPLYING	<ul style="list-style-type: none"> <li>• How is ____ an example of ____?</li> <li>• How is ____ related to ____?</li> <li>• Why is ____ significant?</li> <li>• Predict what would happen if ____ . Explain.</li> <li>• Choose the best statements that apply to ____.</li> <li>• Identify the results of ____.</li> <li>• Tell how much change there would be when ____.</li> </ul>	apply, demonstrate, calculate, complete, illustrate, show, solve, examine, modify, relate, change, classify, experiment, discover, dramatize, sketch
ANALYZING	<ul style="list-style-type: none"> <li>• What are the basic elements (ingredients) in a ____?</li> <li>• What is/are the function(s) of ____?</li> <li>• Inventory the parts of ____.</li> <li>• Categorize the ____ of ____.</li> <li>• Sort the ____.</li> <li>• What is the order of steps in ____?</li> </ul>	subdivide, categorize, break down, sort, separate
GENERATING	<ul style="list-style-type: none"> <li>• Hypothesize what will happen if ____.</li> <li>• Predict what would be true if ____.</li> <li>• Conclude what the result will be if ____.</li> <li>• What if ____ had happened instead of ____?</li> </ul>	deduce, anticipate, predict what if, infer, apply, speculate, conclude
INTEGRATING	<ul style="list-style-type: none"> <li>• What would you predict/infer from ____?</li> <li>• What ideas can you add to ____?</li> <li>• How would you create/design a new ____?</li> <li>• What might happen if you combined ____?</li> <li>• What solutions would you suggest for ____?</li> </ul>	combine, integrate, modify, create, design, invent, compose, theorize, develop, devise, originate, revise, synthesize, conceive, project, hypothesize
EVALUATING	<ul style="list-style-type: none"> <li>• What you would do if ____ happened? Why?</li> <li>• Judge what would be the best way to solve the problem of ____ .</li> <li>• Why did you select that solution?</li> <li>• Evaluate whether you would ____ or ____ . Why?</li> </ul>	evaluate, argue, judge, recommend, assess, debate, appraise, critique, defend

(Munk 2001; Houghton 2003)

questions are a powerful force for encouraging creative dialogue. By engaging in student-led questioning, students are confronted with varied perspectives, are pushed to evaluate and articulate their own thinking beyond a level they could attain on their own, and actually influence and enhance the learning of others (Kagan 1999).

Student-generated questioning parallels inquiry-based learning. In both methods, students are encouraged to think, investigate, ask pertinent questions, and gather information. When students use these methods, they have more ownership in the learning process and become active participants, responsible for their own growth. Further, letting students lead generates a motivation that is distinctive.

As an additional benefit, when students question students to construct their own knowledge, they develop lifelong social skills and caring attitudes toward their peers. Interestingly, cooperation increases and competition decreases (Wiggins and McTighe 1998). Cognitive engagement is ensured in situations that involve students to this degree.

## Gaston County Schools

Teachers in Gaston County, North Carolina, are expected to establish inviting classroom climates that promote active engagement, stimulate creative development, and maximize learning opportunities for all students through the infusion of effective questioning strategies. Through staff development provided district-wide, teachers and administrators at all grade levels (K–12) receive training in the integration of questioning skills to create powerful learning experiences. The training includes demonstration teaching and exploration of strategies that can elevate student performance in all academic areas.

The district encourages teachers to develop thinking classrooms that purposely give priority to teaching students in multiple ways, encouraging students to think about what they are learning, and helping students to transfer newly acquired skills into more complex content. Gaston County teachers use strategies that invite students into the learning situation, excite their curiosities, and entice them to investigate further. Rather than placing emphasis strictly on drill and practice, these teachers operate from a cognitive perspective, designing questions that stretch their students' thinking and challenge their understanding. By asking appropriate, thought-provoking questions, these teachers are able to stimulate learning and engage students in learning experiences that emphasize the development of critical and creative thinking.

## Closing Thoughts

Curricular concepts or objectives rarely lure students away from playing video games, watching television, or daydreaming. Though establishing and maintaining focus have much to do with the integrity of teaching and learning, they have little to do with the magic of the classroom. Much of the fine art of teaching comes in finding creative ways to deliver the standard required curriculum in ways that are irresistible to young minds (Tomlinson 2003).

Teaching is about designing, creating, and inventing intellectually challenging work for students—work that engages students and is so compelling that students persist when they experience difficulty and feel satisfaction, indeed delight, when they successfully accomplish the challenge (Schlechty 1997). “More than any other thing, or at least more than any other thing that we have the power to control, good and engaging instruction is our best hope to unleash the learning potential of our students in this time of great educational change. If this change is to occur, it must be because of the engagement with students, not in spite of them” (Hannel and Hannel 2005, 7).

Engaging learners in questioning, both teacher-directed and student-initiated, impacts not just the type of thinking we develop in our students but also the depth of thought (Kagan 1999). Whether thinking skills are taught directly or integrated into the curriculum, the goal is to develop students who question, are critical thinkers, and are creative. Questions that stretch students' minds—the kind that invite students' curiosity, provoke thinking, and instill in students a sense of wonder—keep students engaged. ■

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