**Mary-Anne Neal**

[**http://www.cea-ace.ca/education-canada/article/engaging-students-through-effective-questions**](http://www.cea-ace.ca/education-canada/article/engaging-students-through-effective-questions)

*Mary-Anne Neal, MEd, taught secondary school for 15 years and is now an Associate Faculty member of Royal Roads University, where she teaches school principals in the Master of Educational Leadership and Management program, online and face-to-face, in Canada, the U.S. and China.*

My youngest son Robbie, aged 12, often asks thought-provoking questions.  Every few days he surprises me with a topic that seems to come out of the blue.  Responding appropriately and respectfully can be a real challenge for me.  Here are some examples of questions he has posed recently:

* Who invented the alphabet?
* Do dogs have feelings like we do?
* How do people measure the height of a mountain?
* Why do we use the same word (“love”) to describe what we feel for family members and also to describe romantic feelings?
* If you were alone in the house, and the phone was disconnected, and a robber was coming in, what would you do?
* Which way will my paper airplane fly farther – if I point it up or if I point it sideways?
* How do painkillers work?
* What would you do if you knew you only had two days to live?

and many, many more, often beginning with “What would happen if …?”

There are no easy answers to any of the above questions, and they are great conversation-starters.  What I like about Robbie’s questions is that they open up ways to explore what other people might think, not just about the question itself, but also about related topics.  Thanks to Robbie’s open-ended questioning technique, he and I have discussed ancient Egypt, the nature of emotions, the scientific process, the use of drugs, personal values, slide-rules, mathematical principles, safety procedures, and many other assorted subjects.  Often I respond to Robbie’s query with another question, such as “What do you think?”  He is quick to divulge his opinion, and the great debate begins.

One of the reasons I am so intrigued by Robbie’s questions is that, somewhere along the way to adulthood, I began to forget how to ask wide-open questions.  When I was a student in school, I was so busy learning the answers, I forgot how to ask the really deep questions.   As a teacher, I had to re-learn questioning techniques in order to engage students in their learning.   That’s because I couldn’t help noticing the students’ eyes glaze over when I went off on a long-winded tangent.  A thought-provoking question could bring them back to the subject, though, and that’s when I saw the wheels start turning.  The right questions can get learners talking, discussing, reflecting, and writing their thoughts.   That’s when they really begin to “own” their learning.

In what ways might questioning techniques improve student learning?  What kinds of questions enable educators to tap into different parts of the cognitive domain?  How can questions engage students when their attention begins to wander?

**Student Engagement**

Like many teachers, I have seen my students begin to doodle or show signs of boredom as I explained a point or waxed eloquent about the subject under discussion.  When I first saw this happen during the early years of my teaching career, my initial response was to talk faster or louder, gesticulate, write on the board, or otherwise enliven my performance.  But I’ve changed.  Now, when I notice the students’ attention waning, I immediately reconnect with them in a very different way.  How?  Instead of trying to keep the focus on my message, I reverse the focus so it is squarely with the students.  I stop talking and start asking questions.

For example, I was recently teaching communications students about the changes that have taken place in the English language over the past hundred years.  When I detected some of the students losing interest, I stopped right in the middle of a sentence.  I waited a moment, and then I asked them:  “Turn to the person next to you and, together, make a list of ten words that you think are recent additions to the English language.  You have five minutes for this exercise.  Then we will compare your ideas.  Go!”

The students looked at each other and started talking.  Those who had been daydreaming immediately got down to work because of the immediate attention from their “shoulder partners.”

Asking secondary students insightful questions has many benefits for professional teaching practice.  Whether the response is intended to be written, spoken, dramatized, or conveyed in some other manner, it will provide feedback on how successful the lesson was in stimulating their thought processes.  The students will reflect on their learning through higher-level thinking processes such as analysis, synthesis, comparison, or summation.  Finally, students are more likely to remember what they have learned when they explore the implications of their learning.

Benjamin Bloom is credited with developing a way to categorize levels of reasoning skills in the 1950s. His taxonomy of questions is a widely-accepted framework that many teachers use to guide their students through the learning process.  Though not necessarily sequential, the hierarchy of Bloom’s Taxonomy is often depicted as a pyramid, with simple knowledge-based recall questions at the base. Questions higher on the pyramid are more complex and demand higher cognitive skills from the students.

Bloom’s Taxonomy provides a structure for developing questions that encourage students to think on different levels.  In order, the levels are:

* Knowledge (facts, recall, recognition)
* Comprehension (translation, interpretation, extrapolation)
* Application (to new or unfamiliar situations)
* Analysis (break into parts)
* Synthesis (combine elements into a new pattern)
* Evaluation (apply criteria to defend the conclusion)

Within each level, closed-ended and open-ended questions can be constructed to engage students in different kinds of cognition.

**Closed-ended and Open-ended Questions**

Let’s consider two common forms of questions:  closed-ended and open-ended.  A closed-ended question (sometimes called a convergent question) is a way to find a specific answer.  These questions can usually be answered with one or two words.  Closed questions work well for simple recall, to determine whether students understand a concept or for review.

Closed-ended questions are common in everyday communication situations.  We use them when we need specific information quickly:

* What time is dinner?
* How much did that cost?
* Have you finished your work?
* Who won the soccer game?

Closed-ended questions and statements are appropriate on a pop quiz, to check for understanding, or to determine whether students completed their homework.  However, for other purposes, their effectiveness is limited.  For example, they are not effective when you want students to open up and freely express feelings or ideas. Closed questions do not usually encourage reflective dialogue or creative thinking.  Faced with a barrage of closed-ended questions, students sometimes feel that they are being interrogated.  Similarly, they may interpret a series of closed questions as an attempt by the teacher to control the direction of the discussion.

Another often-overlooked danger in closed-ended questions is that the question itself could be misleading.  For example, young children will ask, “Is Santa Claus real?”  Phrasing the question in this manner suggests that Santa Claus has physical characteristics; taken as a closed-ended question, it precludes discussion of the spirit of Christmas or the nature of contemporary Christmas traditions.  Indeed, most children who ask this question are just becoming aware of symbols and metaphors, so I prefer to interpret the query as a child’s effort to begin a discussion about Christmas and gift-giving.  It is an opportunity to enter into an open-ended dialogue about who or what Santa Claus represents, the reason(s) that people give gifts, whether a true gift needs recognition of the giver, our own roles in our families and communities, and other related ideas as the conversation unfolds.

Many questions at the lower levels of Bloom’s Taxonomy – particularly knowledge and comprehension – are closed-ended questions.  Higher order reasoning such as synthesis and evaluation is stimulated through the use of open-ended questions.

Asking an open-ended question (sometimes called a divergent question) is a way to elicit discussion, brainstorm solutions to a problem, or create opportunities for thinking outside the box.  The highest-order open-ended questions engage students in dynamic thinking and learning, where they must synthesize information, analyze ideas and draw their own conclusions. Some examples are:

* Why did the Vietnam War take place?
* How did you solve the numbers problem?
* What do you think will happen in this experiment?

Open-ended questions can also be phrased as commands or statements:

* Describe how photosynthesis works.
* Please explain the main character’s motives.
* Discuss the fairness of Canada’s judicial system.

When students believe that you have a “correct answer” in mind, they are slow to respond. On the other hand, a true open-ended question sincerely invites authentic reflection and discussion.

Questions such as the above invite the students to elaborate on their thoughts without limiting the direction of the discussion. That’s because, like the response to Robbie’s questions, a respectful answer will be longer than a word or phrase.  Instead, an appropriate response requires at least a few sentences or paragraphs.  Beware!  Answers to open-ended questions can surprise and baffle even the most experienced educators.

**Engaging Students at a Deeper Level**

For the purpose of student engagement, an open-ended question is a powerful tool that any teacher can employ.  I am not talking about an occasional question thrown out to the class.  Nor do I mean a rhetorical question, to which the teacher has a pre-conceived answer.  When students believe that you have a “correct answer” in mind, they are slow to respond.  On the other hand, a true open-ended question sincerely invites authentic reflection and discussion.

In the larger community outside the classroom walls, few issues are black-and-white.  That’s why, in order to become fully contributing members of our society, adolescents need to become critical thinkers, find their own voice, and be recognized for having opinions that matter.  Innovative thinking is valued in our fast-changing society, and our classroom questioning techniques can help prepare young adults for what lies ahead.

Formulating open-ended questions is often more difficult than designing closed-ended questions.  Open-ended questions or statements are most appropriate when you want to:

* Brainstorm ideas
* Problem-solve
* Look for lots of information
* Encourage thinking “outside the box”
* Resolve conflict
* Negotiate agreement
* Elicit higher-level thinking such as application, analysis, synthesis and evaluation

Effective teachers use a combination of open and closed questions, depending on their purpose.  In designing lesson plans, we keep in mind learning outcomes.  As our lesson plan becomes more specific and detailed, we ask ourselves, “What is my objective?”  or “What kind of question will help achieve the learning outcome?”

Let’s say that you are teaching a lesson on poetry.  You have already motivated the students by linking poetry with music.  Perhaps you have discussed how the lyrics and melody of a song reinforce the theme.  Now it’s time to see if the learners understand a poem that was assigned for homework.  Whether you ask the initial questions orally or in writing, you want to “warm up” your students with some relatively straightforward, closed questions (simple recall) such as:

* What is the name of the poem you read last night?
* Who is the author?
* What is the subject of the poem?
* Did you understand it?  Did you like it?

After three or four such closed questions, students are ready to think about and respond to some open-ended, higher-level questions, such as:

* Why do you think the author wrote this poem?
* What mood did he intend to convey?
* What did you like or dislike about this poem?

A similar technique can be utilized in designing quizzes.  In setting the questions, I usually begin the quiz with relatively straight-forward recall or recognition questions before moving to more complex, open-ended questions.

Once students are familiar with different questioning styles, they can be asked to design their own questions.  For example, students who are dissecting a frog might be required to compose three closed-ended questions and three open-ended questions about that activity.  The nature and depth of their questions will often surprise even the most experienced educators.  They might be ready to explore the concept of metacognition and/or Bloom’s taxonomy of questions.

Since the term “metacognition” was coined by John Flavell in the 1970s, the concept has become an important part of the ongoing dialogue about student learning.  Metacognition – i.e., an individual’s awareness of his or her thought processes – requires an ability to stand back and observe oneself.  Most adolescent learners are mature enough to review their progress, identify their achievements, and chart their direction.

Inside and outside the classroom, we all need to be mindful of open-ended questions that masquerade as closed questions.  When a student asks me, “Should I go to college?” he has phrased his question as if it is closed-ended.  In reality, this is an example of an open-ended question disguised as a closed question.  The person asking the question does not want a one-word answer “Yes” or “No.”  The underlying message I take from this question is that the student wants to talk about the implications of pursuing a post-secondary education, whether making the commitment is a good idea, how much it will cost, and who knows what else.

**Parent-Teacher Communication**

Meeting parents in person is an ideal time to ask open-ended questions. The purpose?  To learn something unique about each student from the parent’s perspective.  On Parent-Teacher night, parents sometimes have to wait in line to meet their child’s teacher.  Those few minutes are precious.  How can they best be utilized? I have engaged parents and learned more about my students by having paper and pens handy, with open-ended questions or statements that will provide insight into my students’ needs and abilities, or parental expectations – questions such as:

* What would you like me to know about your son/daughter?
* What are your thoughts about homework?
* What do you hope your son/daughter will achieve in this class this year?

Of course, questions should be tailored to meet different objectives or to reach out to specific communities of learners.

**Conclusion**

When we ask open-ended questions of ourselves and our students, the answers sometimes surprise us.  Here are some sample questions you might ask of yourself or your students to explore your thoughts:

If I were not in school right now, I would be ….
The most amazing thing that happened to me …
I think school could be …
I wish people would …
My idea of happiness is …
In five years, I want to …
In moments of weakness I …
My worst fear is …
My greatest hope is …
I’m good at …
I’m not good at …
I live by this principle:

So, go ahead. Ask an open-ended question and explore the cognitive domain. You never know what you might learn.