

Questioning Techniques

Chad Giacomozzi

This paper was completed and submitted in partial fulfillment of the Master Teacher Program, a 2-year faculty professional development program conducted by the Center for Teaching Excellence, United States Military Academy, West Point, NY, 2007.

Questioning techniques are a key element of the interactive classroom which are constantly being invented and revised to help facilitate active learning. Active learning puts the responsibility of learning on the learners themselves, and has been championed by Charles Bonwell and James Eison in their 1991 report *Active Learning: Creating Excitement in the Classroom* as a method to increase student retention of material. Questioning when used effectively can also serve as an assessment technique, helping teachers determine what students know and understand.

Teachers have been using questions as a means to assess their students since the invention of the Socratic Method around 400 BC to challenge assumptions, expose contradictions and lead students to new knowledge and wisdom. Questioning techniques, however, made their boldest entrance into the forefront of teaching discussions in the mid 20th century with Benjamin S. Bloom's *Taxonomy of Educational Objectives: The Classification of Educational Goals*. Here Bloom broke the cognitive domain into six categories, which form the basis of most modern questioning techniques. More recently, Bonwell and Eison redefined the term "active learning," and in doing so caused the teaching community to embrace innovative questioning techniques in order to improve the learner's ability to retain knowledge and increase their level of thinking. This paper will highlight and contrast some of the most commonly used modern questioning practices in order to help instructors more effectively use questioning as a pedagogical strategy.

Ronald T. Hyman states in his book *Strategic Questioning* that "teaching is essentially a verbal activity" and that "questioning is essential to teaching; both for the teacher and the student." Because of this, modern questioning techniques rely on developing open-ended questions that facilitate interactive discussion in the classroom. Leslie Blair declares in her article, *The Right Questions Can Improve Student Thinking and Learning*, that "teachers often ask closed-ended questions that don't allow the students to demonstrate their level of knowledge or lack of knowledge. The quality of a student's response is affected by the quality of the question's contents, how the question is asked, and the pacing of the question."

One can easily argue that the "quality" questions suggested by Blair are ones that stimulate higher-order thinking. Higher-order thinking is defined by Ervin F. Sparapani in his 1998 paper *Encouraging Thinking in High School and Middle*

School: Constraints and Possibilities as thinking creatively, critically, or in a decision making or problem solving manner.” It is also defined by L.B. Savage in his 1998 paper *Eliciting critical thinking skills through questioning* as “formulating generalizations from the information learned and then substantiating those generalizations.”

There are many systems in educational literature used to create and classify questions. According to William W. Wilen over 21 such classification systems existed at the time he wrote his book *Questioning Skills for Teachers* in 1991. Wilen presents his own taxonomy that separates questions into four quadrants with paired criteria. According to Wilen, questions can either be low or high-order and they can either be convergent or divergent in their design. Low and high-order questions refer to the type of thinking they stimulate, where the terms divergent and convergent refer to the limits placed on the response to the question. Convergent questions may also be referred to as “closed-ended” questions, meaning that there is generally one accepted answer to the question. Divergent questions are open ended by nature, and not only require a student to recall knowledge from memory but also how to apply that knowledge to explain, extrapolate or further analyze a topic or problem. Lower level convergent questions require the learner to recall or recognize information like definitions, identifications and quotations. Higher level convergent questions require the learner to apply information by comparing, contrasting, describing, explaining, summarizing, interpreting, or providing examples to answer the question. Lower level divergent questions require students to think critically about ideas and information by allowing them to discover causes, draw conclusions or make inferences and generalizations to answer the question. Lastly, higher level questions allow students to make predictions, speculate, construct and devise lifelike problems and their solutions, express opinions and make choices and decisions.

Hyman proposes a simple framework to aid in the construction of effective questions, which consists of three different categories of questions. These categories are organized to assist in building questions that stimulate higher-order learning. The first category contains definitional questions, which involves lower order thinking because they require nothing more than memorization to answer. Empirical questions are the second category which consists of both facts and relationships between facts. The former of which requires lower order thinking, while the latter requires higher order thinking because the learner must make comparisons, explain causes, make predictions, etc. The last category contains evaluative questions consisting of both opinions and justification of opinions. Making an evaluation based on one’s opinion involves lower level thinking, whereas justification of that opinion is considered higher level thinking. Using this framework, effective questions would be ones that ask learners to express relationships among things and to justify or support their opinions.

Jill Slack, from the Southwest Educational Development Laboratory, created a workshop entitled *Teaching Thinking Through Effective Questioning* which is designed to develop questioning skills. She breaks questions into two groups: core

questions and processing questions. Slack describes the attributes of each group of question and provides examples of each. Core questions are used to cue and direct the interactions in the classroom. Processing questions are also referred to as probing questions, and are themselves broken down into six categories: refocusing questions, clarifying questions, verifying questions, redirecting questions, narrowing the focus questions and supporting questions. She provides an excellent questioning process map consisting of examples of core and processing stems of questions.

It is a commonly held belief that using a mixture of types and levels of questions in the classroom yields the most beneficial experience to the learner. Proving the relationship between the cognitive level of a teacher's questions and the achievement of their students, however, has been a point of controversy. Many studies have found higher level questions superior to lower level ones, while some have found the opposite, yet others have found no difference.

Most problems that occur in the classroom are not because of inherent flaws in these questioning systems, but in teaching pedagogy itself. Wilen reports that only 5% of teacher directed questions are higher level divergent. While these systems provide an excellent breadth of questions to ask and we know that asking multiple types of questions is good pedagogy, educators consistently revert back to asking lower level convergent questions far more than any other type of question. The first step to overcoming this problem is for educators to ask themselves what kind of questions they are asking, why they are asking them, and finally which of the many questioning techniques they can utilize to make their classroom better.

The following are recommendations for good questioning practice:

1. Consider your instructional goals for the lesson and plan some questions designed to direct the flow of the lesson, but do not be afraid to use un-planned questions to steer the conversation.
2. Ask clear and specific questions that cannot be answered with a simple yes or no. Communicate the question so that the learner understands what kind of response is expected.
3. Sequence questions so that they build upon each other. Use a balance of questions from all types and levels.
4. Encourage responses from both volunteering and non-volunteering students to gain maximum participation. Redirect initially asked questions to other students to cultivate discussion.
5. Probe initial student responses and encourage students to clarify and support their answers.
6. Pause anywhere from 3 to 15 seconds after asking a question to give students time to formulate their answers. Also pause after students' initial responses to give other students a chance to interpret that response.
7. Respond to answers in a positive, sincere way to create a risk free environment. Guide incorrect answers with additional questions or rephrase your question in such a way that it is better understood.

8. Require students to generate questions of their own.

The techniques listed above are straightforward and most instructors are already familiar with them; however, many fail to use them regularly. Regular application of some of the questioning techniques mentioned above could greatly enhance the learning environment of any classroom.

Annotated Readings:

Blair, Leslie. (December 2002). The Right Questions Can Improve Student Thinking. *Southwest Educational Development Laboratory*, 14(3), 20-22.

This is an excellent article that summarizes Jill Slack's SEDL workshop entitled *Teaching Thinking Through Effective Questioning*. Blair provides a strategy to construct effective core questions in outline form, as well as examples of core questions to use in eleven different roles: observing, recalling, comparing, contrasting, grouping, labeling, classifying, sequencing, inferring causes, inferring quality and predicting. She describes and also provides several examples of each of the five different kinds of processing questions: refocusing, verifying, redirecting, narrowing the focus, and supporting. At the end of her article is a very useful annotated bibliography.

Bloom, Benjamin S. (Ed.). (1956). *The Taxonomy of Educational Objectives: The Classification of Educational Goals*. New York, NY: David McKay.

This is the book that revolutionized the way educators think about learning. Almost all modern questioning techniques are derived from Bloom's work. He divides educational objectives into three domains: affective, psychomotor and cognitive. The success of most questioning techniques relies on understanding the cognitive domain and its hierarchical structure. The lowest to highest order cognitive domain objectives are: knowledge, comprehension, application, analysis, synthesis, and evaluation. Some researchers argue against the hierarchical nature of his taxonomy, but almost all agree on its six categories. In order to properly use questioning techniques, teachers must first understand their students and know why those techniques are applicable.

Bonswell, Charles C., & Eison, James A. *Active Learning: Creating Excitement in the Classroom*. ASHE-ERIC Higher Education Report No. 1. Washington, DC: The George Washington University, School of Education and Human Development.

This is the quintessential article on active learning. They cover four major issues: what is active learning and why is it so important, how can it be incorporated into the classroom, what are the barriers, and what conclusions should be drawn and recommendations made. They make a call for teachers to be well versed in questioning techniques and strategies, particularly the ones pioneered by Ronald Hyman. In order to use any questioning technique or strategy effectively, one must first understand why they are so important.

Brookfield, Steven D., & Preskill, Stephen. (2005). *Discussion as a Way of Teaching: Tools and Techniques for Democratic Classrooms*. San Francisco, CA: Jossey-Bass.

This book is full of classroom examples from different disciplines. It covers many different tools and techniques that can be incorporated into almost any classroom. There is a chapter dedicated to ensuring that students come to class prepared and contains exercises designed to help prompt students to talk. Two chapters are devoted to preparing for and starting discussions, and two more to keeping discussions going. There are also more conceptual topics covered in other chapters, such as balance of voice and speech patterns.

Hyman, Ronald T. (1979). *Strategic Questioning*. Englewood Cliffs, NJ: Prentice-Hall.

This book is written for educators and its purpose is to help you become an effective, strategic questioner. Hyman provides a simple framework for constructing effective questions. Chapter Four is designed to help organize your questions. Chapter Five gives fifteen specific questioning strategies. Chapter Six is essentially a training manual with numerous scenarios designed to help improve your teaching, probing, learning and dialoging skills.

McKeachie, Wilbert J., & Svincki, Marilla. (2006). Facilitating discussion: posing problems, listening, questioning. In *McKeachie's teaching tips: Strategies, research, and theory for college and university teachers* (pp. 35-55). Boston, MA: Houghton Mifflin Company.

This book as a whole is an excellent blend of theory backed by practical suggestions. McKeachie invites other nationally recognized authors to write specific chapters of his book. One such chapter by Svincki tackles discussion and questioning techniques. The author covers various methods used to start and lead discussions, how to overcome the barriers to discussion, and how to handle arguments and emotional reactions. This is a very easy to read book, and each chapter has its own annotated references for further study. This book also has a short section covering online discussions, which are becoming more and more popular.

Stahl, Robert J. (May 1994). *Using "Think-Time" and "Wait-Time" Skillfully in the Classroom*. Bloomington, IN: ERIC Clearinghouse for Social Studies/Social Science Education of Indiana University.

This is an excellent article that examines the topic of wait-time and think-time in great detail. Stahl discusses the importance of the three second threshold as a "breakthrough-point" and gives his "Eight Categories of Periods of Silence." He describes in great detail how to use these eight categories of periods of silence: post-teacher question wait-time, within student's response pause-time, post student's response wait-time, student pause-time, teacher pause-time, within teacher presentation pause-time, student task completion work time, and impact pause time. Lastly the author summarizes his article with his recommendations for skillful use of think-time.

Walsh, J. A., & Sattes, B.D. (2005). *Quality Questioning: Research Based Practice to Engage Every Learner*. Thousand Oaks, CA: Corwin Press.

This is a very easy to read book that gives practical, research based techniques designed to enhance teaching in the classroom. It uses very clear examples and provides tools to guide teachers in their construction of questions. The authors offer strategies designed to engage every student with a question as well as prompt them to generate their own questions. At the end of every chapter, there are useful questions for reflection and quotes from various teachers.

Wilén, William W. (Ed.) (1987). *Questions, Questioning Techniques, and Effective Teaching*. Washington, DC: National Education Association.

This is an edited collection of nine papers. It provides a review of pertinent research on questioning techniques in Chapter Two. Chapter Four discusses the characteristics, purposes and values of the different kinds of questions. Chapter Five discusses wait time and how it can be used advantageously in the classroom to produce different effects. It describes the characteristics, principles, types and phases of classroom discussions in Chapter Seven and provides a research based approach to improve questions and questioning skills in Chapter Nine.

Wilén, William W. (1991). (3rd Ed.). *Questioning Skills, for Teachers. What Research Says to the Teacher*. West Haven, CT: NEA Professional Library.

This book discusses Wilén's research findings on teachers' questioning practices and student generated questions. Wilén discusses the impact of these questioning practices on student thinking, achievement and attitudes. This book provides an approach using two analysis forms, "Question Levels" and "Questioning Techniques," that teachers can use to gather information in self-evaluation of their own questioning behaviors.

Additional Resources:

Camp, William G. *Improving Your Teaching: Questioning Techniques*. Vol. 66, No. 5. Agricultural Education Magazine, Nov 1993. 17-23.

Finkel, Donald L. *Teaching with your mouth shut*. Boynton/Cook Publishers Inc., 2000.

Harris, Robin Lee. *Batting 1,000: Questioning Techniques in Student-Centered Classrooms*. Vol. 74, No. 1. Clearing House, Sep-Oct 2000. 25-26.

Hunkins, F.P. *Involving Students in Questioning*. Allyn & Bacon, 1976.

Hunkins, F.P. *Questioning Strategies & Techniques*. Allyn & Bacon, 1972.

Hyman, R.T. "Fielding Student Questions. Theory into Practice." Vol. 19, No. 1. *Teaching Methods: Designs for Learning*. Winter, 1980. 38-44.

Hyman, R.T. *Improving Discussion Leadership*. Teachers College Press, 1980.

McComas, William & Abraham, Linda. *Asking More Effective Questions*. Retrieved 15 May 2007 from the University of Southern California, Rossier School of Education website:

www.usc.edu/programs/cet/private/pdfs/usc/Asking_Better_Questions.pdf

Patterson, Michelle. *Questioning Techniques*. Vol. 8, No. 1. Teacherlink, 1999. 14-16.

Savage, L. B. *Eliciting Critical Thinking Skills Through Questioning*. Vol. 71, No. 5. Clearing House, May-June 1998. 291-293.

Slack, Jill. Teaching Thinking Through Effective Questioning. Retrieved 15 May 2007 from the Southeast Educational Development Laboratory website:
www.sedl.org/secac/rsn/thinking.pdf

Sparapani, Ervin F. *The Effect of Teaching for Higher-Level Thinking: An Analysis of Teacher Reactions*. Education, Fall 2000.

Zander, A.F. "The Discussion Period in a College Classroom: Memo to the Faculty." No. 62. *Center for Research on Learning and Teaching*. The University of Michigan, March 1979.