The Importance of Questioning in Developing Critical Thinking Skills

By Judith S. Nappi

According to the Cambridge English Dictionary (2016), a question is a word or words used to find out information. Questioning is an important component of the teaching/learning process and is embedded in quality instruction and strategic thinking. Questions are used to teach as well as to assess student understanding, and thus questioning plays a critical role in the overall success of a classroom. Teachers pose up to 400 questions a day when in the classroom, with 60-80% of the questions requiring recall (Cotton, 1988; Tienken, Goldberg, & DiRocco, 2010; Saeed et al., 2012). Accordingly, with more than 60,000 questions being asked in one classroom on a yearly basis, approximately 12,000 encourage students to engage in higher order thinking. For questioning to be effective, teachers need to plan for structured, higher level interactions. This article examines the relationship between higher level questioning and the development of critical thinking, which is a higher order thinking skill.

Observe any classroom, and one will most likely see continuous discourse between students and the classroom teacher, with much of the dialogue being composed of questions and answers. Questioning is an essential element of efficacious teaching (Hannel, 2009). Teachers and students will both benefit from questions that are purposefully designed (Peterson & Taylor, 2012) as students will acquire the ability to make connections to prior learning as well as make meaning of the world around them. Through the planning and implementation of questions that require high level thinking, educators foster the kind of engagement and critical thinking skills that students will need to process and address new situations. Higher level questioning requires students to further examine the concept(s) under study through the use of application, analysis, evaluation, and synthesis while lower level questioning simply requires students to gather and recall information. Lower level questions are easier for teachers to produce but do not encourage students to engage in higher level or higher order thinking (Tienken et al., 2010).

Literature Review

Questioning cannot be discussed without referring to the work of Socrates, a Greek philosopher, dating back more than 2000 years. Socrates spent most of his life asking deliberate and organized questions about people's beliefs and values and examining the same. Through questioning, Socrates encouraged his students to explore prior-held beliefs and subsequently to build stronger and more scholarly views. What we now refer to as the Socratic approach involves posing a succession of systematic and prearranged questions

designed to help students to reflect and therefore improve their thinking and gain a better understanding of their own beliefs and ideas.

An instructor using the Socratic approach is not looking for a specific correct answer but is, in fact, inspiring students to reflect on their thinking. Socrates respected the experiences, understandings, and knowledge that individuals had gained through life experiences and believed that, through questioning, previously attained knowledge could be used to develop thinking supported by rationales and logic (Byrne, 2011).

Tienken, Goldberg, and DiRocco (2009) focused on the procedures of questioning and cited a distinction in the cognitive processes used when asked recall or lower level questions as opposed to higher level questions that required students to analyze, synthesize, and evaluate. Higher level questioning that requires students to analyze, synthesize, evaluate, categorize, and/or apply information has been found to be particularly advantageous to student learning, yet higher level questions are rarely used (Peterson & Taylor, 2012; Tienken, et al., 2010). Generally, higher level questions do not have one correct answer but encourage students to engage in critical thinking. Lundy (2008) found that addressing higher level questions is essential to student learning. In addition, Lewis (2015) found that asking higher level questions presents teachers with more information in relation to student understanding. The implications are that teachers need to plan questions strategically to encourage students to investigate further the concepts under study to obtain a deeper understanding.

A seminal study conducted by Glaser (1941) identified the following three characteristics of critical thinking:

> (1) an attitude of being disposed to consider in a thoughtful way the problems and subjects that come within the range of one's experience; (2) knowledge of the methods of logical enquiry and reasoning; and (3) some skill in applying those methods. Critical thinking calls for a persistent effort to examine any belief or supposed form of knowledge in the light of the evidence that supports it and the further conclusions to which it tends. (Glaser, 1941, p. 5)

To exercise the components of critical thinking as identified by Glaser, students must develop the ability to recognize problems, collect information that will enable them to address the problems logically, weigh the issues against beliefs, and make accurate decisions.

Bloom's contributions

In 1956, Benjamin Bloom worked with a group of educational psychologists to organize the levels of cognition identified as important in learning. The levels of cognition are understood to be consecutive, so that one level must be achieved before the next level can be attained. The classification that Bloom and his colleagues created focused on the levels of questions that were observed in a variety of educational settings. Through his observations, Bloom noted that more than 95% of the assessment questions that were posed to students at the college level only required recall, the lowest level of thinking.

Dr. Judith S. Nappi is currently an assistant professor of educational leadership at Rider University in New Jersey. Previously, she was the Assistant Superintendent/Director of Curriculum and Instruction for the Manchester Township School District in Ocean County, New Jersey. A member of Omicron Chapter in New Jersey State Organization, Dr. Nappi has also held positions as a principal, grade-level administrator, and teacher. She has degrees in psychology, social sciences, educational administration, and administrative policy and urban education. jstegmaiern@rider.edu

Bloom, Englehart, Furst, Hill, and Krathwohl (1956) developed a taxonomy that provides an important framework for teachers to use when developing questions of all levels (Figure 1). The taxonomy is represented as a pyramid with higher order thinking (cognition) at the top. The taxonomy developed by Bloom et al. (1956) classifies educational objectives into three domains: cognitive, affective, and psychomotor. The cognitive domain involves the development of knowledge and intellectual skills (Bloom et al., 1956), the affective domain includes the manner in which individuals deal with things emotionally (Krathwohl, Bloom, & Masia, 1973), and the psychomotor domain (Bloom et al., 1956) involves physical movement and motor skills. Although all of the identified domains are important, the cognitive domain is the focus of this article.

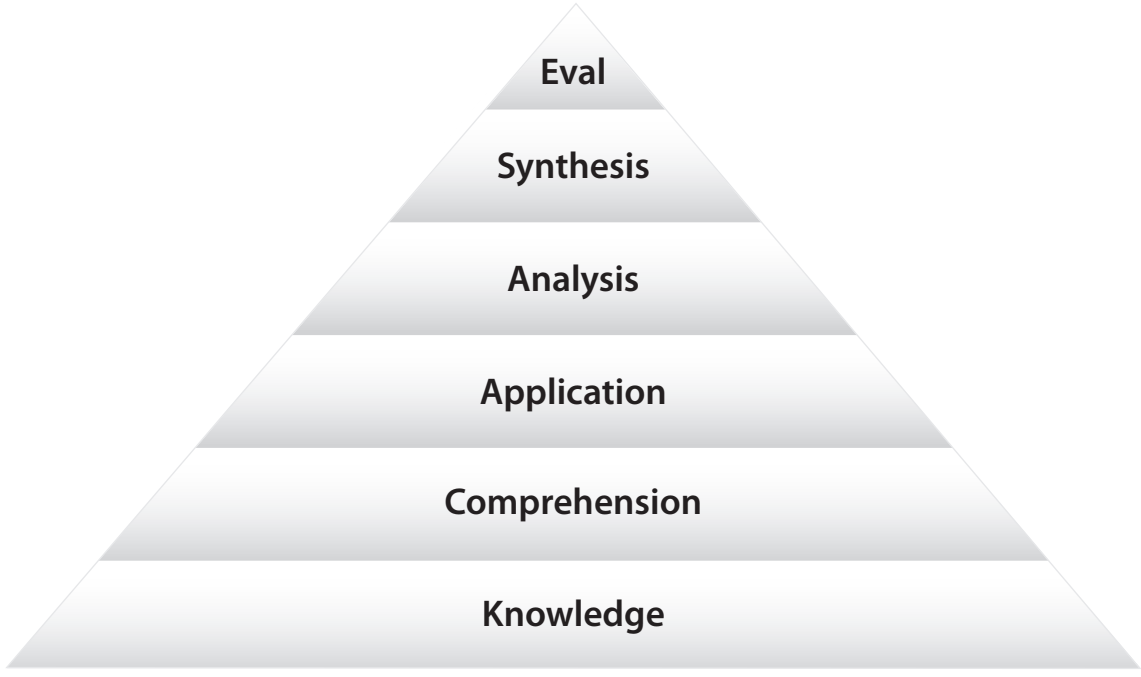

Figure 1. Bloom et al. (1956) Taxonomy

The taxonomy developed by Bloom et al. (1956) provides a scaffold for asking questions that become progressively more challenging and provides a structure for teachers to model complex thinking that, ultimately, can guide students to become independent thinkers who can develop their own viewpoints. Figure 2 presents the taxonomy with examples of verbs and student behaviors or outcomes (Huitt, 2011).

Bloom's original framework was modified by Anderson and Krathwohl (2001) to fit outcome-based educational objectives. This involved retaining the original number of categories with changes such as switching the names of some levels from nouns to verbs and reversing the order of the highest two levels (Krathwohl, 2002). The two highest levels of Bloom's taxonomy, synthesis and evaluation, were reversed in the Anderson and Krathwohl model and renamed *evaluating* and *creating* (2001).

LEVEL	DEFINITION	SAMPLE VERBS	SAMPLE BEHAVIORS
KNOWLEDGE	Student recalls or recognizes information, ideas, and principles in the approximate form in which they were learned.	Write List Label Name State Define	The student will define the 6 levels of Bloom's taxonomy of the cognitive domain.
COMPREHENSION	Student translates, comprehends, or interprets information based on prior learning.	Explain Summarize Paraphrase Describe Illustrate	The student will explain the purpose of Bloom's taxonomy of the cognitive domain.
APPLICATION	Student selects, transfers, and uses data and principles to complete a problem or task with a minimum of direction.	Use Compute Solve Demonstrate Apply Construct	The student will write an instructional objective for each level of Bloom's taxonomy.
ANALYSIS	Student distinguishes, classifies, and relates the assumptions, hypotheses, evidence, or structure of a statement or question.	Analyze Categorize Compare Contrast Separate	The student will compare and contrast the cognitive and affective domains.
SYNTHESIS	Student originates, integrates, and combines ideas into a product, plan or proposal that is new to him or her.	Create Design Hypothesize Invent Develop	The student will design a classification scheme for writing educational objectives that combines the cognitive, affective, and psychomotor domains.
EVALUATION	Student appraises, assesses, or critiques on a basis of specific standards and criteria.	Judge Recommend Critique Justify	The student will judge the effectiveness of writing objectives using Bloom's taxonomy.

Figure 2. Bloom et al. (1956) taxonomy with illustrated verbs and student behaviors.

Research has indicated that the first four levels of both taxonomies (Anderson & Krathwohl, 2001; Bloom et al., 1956) are hierarchical in nature; however, controversy exists regarding the two highest levels (Hummel & Huitt, 1994). Krathwohl proposed that evaluation is less difficult than synthesis, while Lutz and Huitt (2003) proposed that evaluation and synthesis are equally difficult but are processed differently. Huitt (1992) suggested that evaluation is critical thinking while synthesis is creative thinking…and both are required to problem solve.

In addition to revising the taxonomy, Anderson and Krathwohl (2001) added a knowledge dimension. The knowledge dimension illustrates where each of the cognitive processing dimensions is used (Figure 3). Both frameworks (Anderson & Krathwohl, 2001; Bloom et al., 1956) were constructed to assist teachers in developing questions that will allow students to respond at all stages of the thinking process (low level and high level), ranging from recall of fact to processes that call upon students to engage in critical thinking. Although low level questions that are posed by teachers do not require students to engage in deep thinking, it has been argued that low level questions lay the groundwork for higher level cognition (Tienken et al., 2010).

Knowledge	Cognitive Processes					
	Remember	Understand	Apply	Analyze	Evaluate	Create
Facts						
Concepts						
Procedures						
Metacognitive						

Taxonomy of Educational Objectives (Anderson & Krathwohl 2001)

Figure 3. Anderson and Krathwohl (2001) revision of Bloom et al. Taxonomy (1956). Adapted from http://peter.baumgartner.name/wp-content/uploads/2016/02/Anderson-Krathwohl-Taxonomy.png

Other Research Regarding Cognition

Bloom conducted the earliest work on levels of cognition (Bloom et al.,1956). Since that time, however, others have applied various theories to cognition and learning and are worthy of consideration.

In a seminal and comprehensive meta-analysis of studies of instructional methods, Redfield and Rousseau (1981) noted a positive correlation between the prevalent use of higher level questions during instruction and student achievement on assessments of both memorization of facts (recall) and application of thinking skills. Marzano, Pickering, and Pollock (2001) also identified higher level questions as a component of meaningful learning. Therefore, if deeper learning is to take place, teachers must purposely plan to present more high level questions than recall (lower level) questions when designing lessons. Higher order questions will help students to make connections between previous learning experiences and new material. According to Anderson and Krathwohl (2001), retention and transfer are two important educational goals. Retention involves students remembering what they have learned and transfer requires students to make connections and use the information that they have learned.

Questioning Circles. Christenbury and Kelly (1983) designed the Questioning Circles model (Figure 4) to classify or evaluate the level of questioning in the classroom. Three intersecting circles represent different fields of cognition in this model, which does not follow a hierarchical approach but suggests intereconnectedness. Christenbury

and Kelly identified three aspects of cognition, each represented by a circle: The Subject Matter, Personal Response, and External Environment or Reality. The subject matter is the material under study. The personal response is the student's reaction to the subject matter under study. The external environment or reality is how the subject matter relates to other disciplines. Questioning Circles is a teaching strategy that guides students from perfunctory replies to a richer dialogue on the subject matter. According to Christenbury and Kelly, instructors should plan questions that represent each of the separate circles as well as questions that overlap areas of the circles. Questions that encompass all three circles represent the most important questions and require the deepest thinking on the part of the students (Meyers, 2002).

Christenbury and Kelly (1983) used the work of Mark Twain to illustrate the Questioning Circles technique in practice.

> Text: What does Huck say when he decides not to turn Jim in to the authorities?
> Reader: When would you support at friend when everyone else thought he/she was wrong?
> World: What was the responsibility of persons finding runaway slaves?
> Text/Reader: In what situations might someone be less than willing to take the consequences for his or her actions?
> Reader/World: Given the social and political circumstances, to what extent would you have done as Huck did?
> Text/World: What were the issues during that time which caused both Huck's and Jim's actions to be viewed as wrong?
> Dense Question: When is it right to go against the social/political structures of the time as Huck did when he refused to turn Jim in to authorities?" (p. 16)

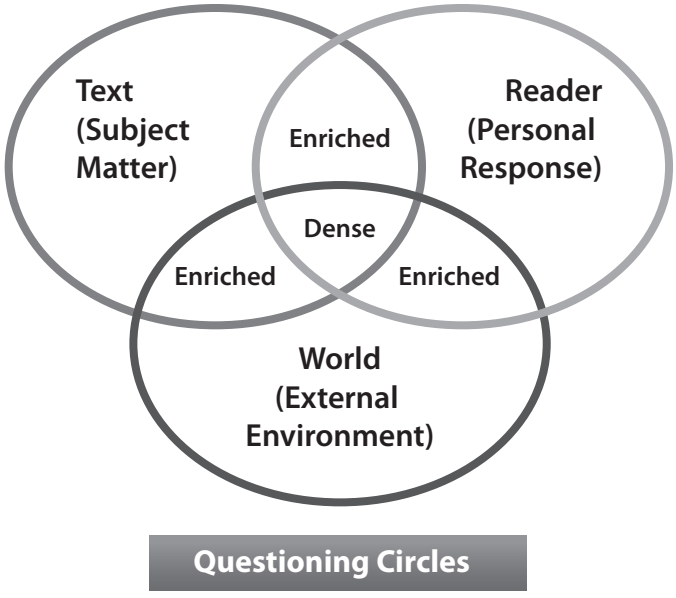

Figure 4. Questioning Circles Model, Christenbury and Kelly (1983).

Depth of Knowledge. While Bloom et al. (1956) focused on educational goals and objectives or what educators want students to know and be able to do, Norman Webb's Depth of Knowledge (1997) model outlined the manner in which students interact with content. Webb's model centered on classifying tasks according to the difficulty of thinking required to complete the tasks with success. Constructing lessons, activities, and assessment utilizing Webb's Depth of Knowledge requires students to delve into the thinking process

in order to deepen their learning. For this reason, Webb's model has been utilized in a number of states to construct educational materials and performance assessments as well as alignment between standards and assessments (Hess, 2008).

Webb's Depth of Knowledge (Figure 5; 1997) analyzed the thought processes that the educational standards, approved by each state independently, require students to master. The model provides educators with a method and measure for analyzing the alignment between standards, assessments, and curriculum. Depth of Knowledge is centered on the supposition that parts of the curriculum can be classified by the cognitive requirements necessary for an acceptable response.

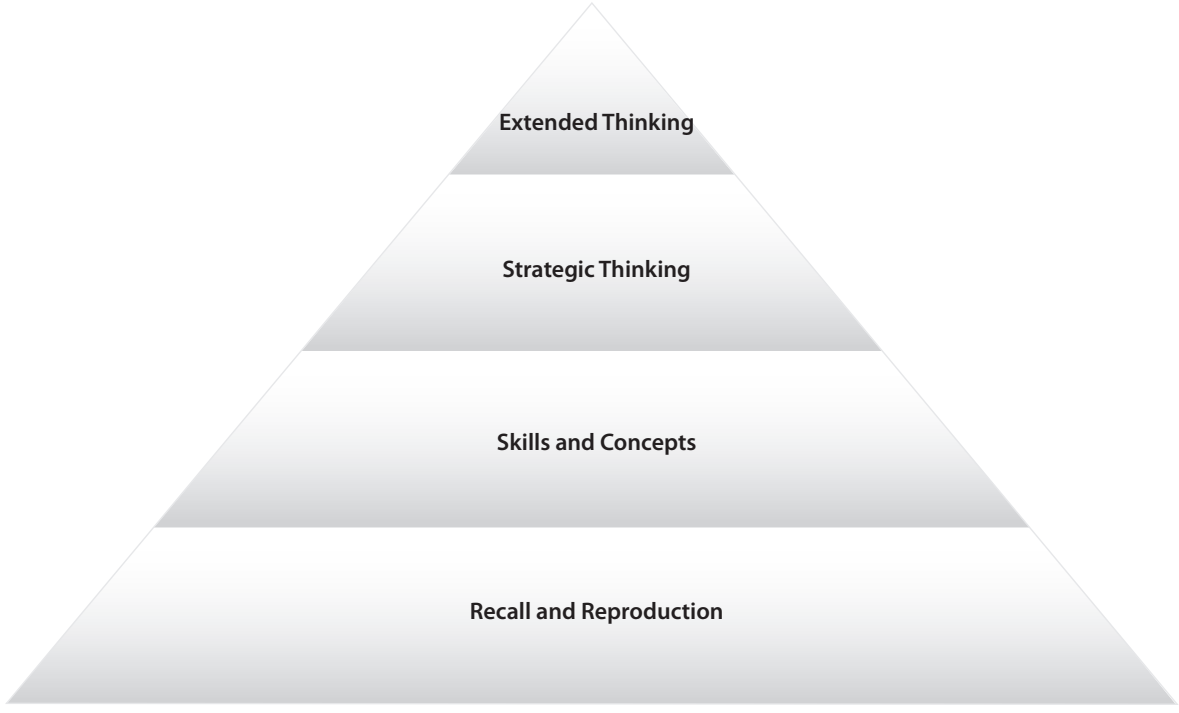

Figure 5. Webb's Depth of Knowledge (1997).

Models for Questioning

The connection between questioning and the cognitive processes involved has been widely studied, as indicated by the number of theories and taxonomies discussed thus far. In examining the relationship between Socratic questioning and critical thinking skills, Elder and Paul (2007) developed a taxonomy (Figure 6) designed to cultivate and assess quality thinking. The taxonomy provides a framework of the intellectual standards that evaluate thinking by well-informed individuals. According to Paul and Elder (2009), questions are what stimulates the thinking process, and unless the answers generate more questions, the thought process will be brought to a halt. For an individual to be a proficient thinker, he or she must be proficient in developing questions. Good questioning techniques need to be modeled in order for students to become skilled in both thinking and questioning. Because questioning leads to problem solving, quality questions will lead to quality decisions.

Elder and Paul (2007) stated that, ultimately, educators should model Socratic questioning to allow students to internalize and apply the concepts of self-directed, disciplined questioning themselves. Their taxonomy appears in Figure 6.

1. Questioning clarity – No thought is completely understood other than to the degree an individual can explain, demonstrate or give an example.
2. Questioning precision – Thinking is not always clear cut or completely understood other than to the degree that an individual can provide details.
3. Questioning accuracy – Thoughts are only assessed to the extent that an individual has determined the accuracy of facts and data.
4. Questioning relevance – Thinking is only relevant to the extent that supporting arguments have been examined and applied.
5. Questioning depth – Thoughts are only as deep as the considered complexities involved.

Figure 6. Elder & Paul (2007). Socratic Questioning Taxonomy.

An examination of the cognitive taxonomies discussed above will reveal that the ultimate teaching goal is providing students with the ability to apply knowledge and skills to new situations. Learning for recall is important when new information is being presented; however, higher order thinking is required for students to be successful in life, because life outside of the classroom can be described as a chain of applying knowledge to new circumstances as opposed to recalling information.

Engaging Students in Metacognition

Cognitive theory examines the process through which one acquires knowledge and understanding. Metacognition involves the awareness of one's thinking or thinking about thinking. Acquiring knowledge about one's own cognitive system, or thinking about one's thinking, is an essential skill that needs to be honed to recognize how one learns.

When teachers design quality, scaffolded questions for instruction, students are more inclined to engage in metacognition, i.e., to think about their own thinking. Questions that are effective promote inquiry, student self-assessment, and creativity even as they stimulate critical thinking (Gose, 2009). Effective questions can be a means to engage students in the learning process and enable them to take charge of their own learning. Caram and Davis (2005) found that effective questions increased student interest and student motivation (Lorent Deegan, 2010). According to Walsh and Sattes (2010), when a culture of inquiry is developed through quality questioning, student engagement and achievement will be stimulated.

Metacognition is a skill that teachers can model by stopping periodically, explaining their thought processes, and posing higher level questions (Fordham, 2006). Teachers who model and explain the different types of questions provide their students with the skills necessary to discriminate between questions that require reasoning and questions that require recall. Strategies that teachers can use include

- having students make predictions based on readings and/or classroom activities;
- having students relate information previously learned to new situations;

- having students develop and ask questions of themselves and others; and
- having students explain how they have attempted to solve problems independently.

Students who are able to apply metacognitive skills to the learning process can increase their level of comprehension as they are better prepared to make connections to prior experiences (Gunn, 2008; Kängsepp, 2011). Research on the relationship between reading comprehension and achievement has indicated that higher level questioning correlates positively to increased student understanding (Lundy, 2008). Probing questions that challenge students to think strategically about their reading (an aspect of metacognition) appear to increase comprehension (Fordham, 2006; Kängsepp, 2011). Carefully planned, quality questioning will allow students to make connections between the readings under study and their experiences.

Students who are exposed to teaching that models questioning techniques demonstrate the ability to ask more complex questions when learning new material (Lewin, 2010). Metacognition involves having the capacity to ask and respond to questions such as

- What do I already know about this subject or issue?
- Do I have enough information?
- Do I know where to get additional information?
- What strategies can I employ to learn this information?
- Will I be able to determine errors?

In addition to increasing the potential of student achievement, higher level questioning has also been found to have a positive impact on the work of teachers. Planning higher order questions requires teachers to reflect upon their practice and often involves collaboration among colleagues (Peterson & Taylor, 2012). Peterson and Taylor (2012) found that collaboration and peer observations increased the value of teacher reflection and the implementation of higher level questioning. Collaborating and observing peers allows teachers to engage in conversations that will build upon their own ideas, consider new ideas, test their thoughts, weigh the value of different viewpoints, and ultimately develop questions that are designed to engage students in problem solving. Unfortunately, as important as strategic questioning is, questioning is often a characteristic of good teaching that is not developed in teacher education and teacher training programs (Caram & Davis, 2005).

> *"Designing higher order questions is not an innate skill. Developing questions that are scaffolded—beginning with recall and working up to analysis, synthesis, and creation— requires careful planning."*

Critical thinking activities can be implemented in the classroom to hone thoughtful reasoning. A recent study conducted by McCollister and Sayler (2010) suggested that teachers use questioning techniques that allow students to engage in metacognition and develop activities that require students to evaluate information through collecting and analyzing data rather than memorizing and recalling facts. According to various studies (McCollister & Sayler, 2010; Tsai, Chen, Chang, & Chang, 2013), when students view the acquisition of information as a process, they are developing problem-solving skills that have been found to have a positive impact on student performance.

Once teachers model the thinking process, asking questions that are similar in nature to the following will help students improve their metacognitive abilities or how they think about thinking as the questions encourage reflection:

- How would you describe the metacognitive strategies you used in this learning situation?
- How did thinking as part of a team impact your completing of the assignment?
- In what other situations could this knowledge be applied?
- What were you thinking about as you were reading?
- What did you do when you or your group encountered a problem?

Other strategies that can be implemented to improve student thinking include:

- Ask students to clarify or give evidence to support their answers.
- Ask open-ended questions that have more than one answer.
- Sequence questions and tasks using a cognitive taxonomy.
- Model the thinking that is required.
- Implement activities that challenge previously held beliefs.
- Design lessons that engage students and require them to process information as opposed to recall information.
- Allow for student-to student-interaction so students are more likely to take educational risks.

Designing higher order questions is not an innate skill. Developing questions that are scaffolded—beginning with recall and working up to analysis, synthesis, and creation—requires careful planning. Collaborating with colleagues will provide support for teachers as they strive to master questioning techniques that will encourage their students to engage in thinking critically and with reason.

Summary

Classroom teachers frequently pose questions that require lower order thinking or basic recall. Questions that are limited to asking students to recall information obstruct the promotion of higher order, critical thinking that is necessary for students to be successful in life. Careful planning of questions utilizing the various cognitive taxonomies will help teachers to develop a wider range of questions that include recall of information as well as require students to analyze, apply, and create. Teaching students how to think about their thinking, or metacognition, can lead students to deeper understanding. Questions are among the most powerful teaching tools, and when teachers increase their repertoire of questioning techniques, the quality of instruction can be significantly improved.

References

Anderson, L. W., Krathwohl, D. R., Airasian, P. W., Cruikshank, K. A., Mayer, R. E, Pintrich, P. R.…Wittrock, M. C. (2001). *Taxonomy of learning, teaching, and assessing: A revision of Bloom's taxonomy of educational objectives* (2nd ed., abridged). Boston, MA: Pearson Allyn & Bacon.

Bloom, B., Englehart, M., Furst, E., Hill, W., & Krathwohl, D. (1956). *Taxonomy of educational objectives: The classification of educational goals. Handbook I: Cognitive domain*. New York City, NY: Longmans, Green.

Byrne, G. (2011). Using Socratic circles to develop critical thinking skills. *Practically Primary, 16*(2), 13–15.

Caram, C. A., & Davis, P. B. (2005). Inviting student engagement with questioning. *Kappa Delta Pi Record, 42*(1), 18–23.

Christenbury, L., & Kelly, P. (1983). *Questioning: A path to critical thinking*. Urbana IL: ERIC Clearinghouse on Reading and Communication Skills and the National Council of Teachers of English. Retrieved from http://files.eric.ed.gov/fulltext/ED226372.pdf

Cotton, K. (1988). Classroom questioning. Retrieved from https://www.learner.org/workshops/socialstudies/pdf/session6/6.ClassroomQuestioning.pdf

Elder, L., & Paul, R. (2007). Critical thinking: The art of Socratic questioning. *Journal of Developmental Education*, *31*(2), 32–33.

Elder, L., & Paul, R. (2009). *The art of asking essential questions*. Tomales, CA: The Foundation for Critical Thinking. Retrieved from https://www.google.com/webhp?sourceid=chrome-instant&ion=1&espv=2&ie=UTF-8#q=essential%20questions%20critical%20thinking

Fordham, N. W. (2006). Crafting questions that address comprehension strategies in content reading. *Journal of Adolescent & Adult Literacy*, *49*(5), 390–396.

Glaser, E. M. (1941). *An experiment in the development of critical thinking*. New York City, NY: Teachers College, Columbia University.

Gose, M. (2009). When Socratic dialogue is flagging: Questions and strategies for engaging students. *College Teaching,* 57(1), 45–49.

Gunn, T. M. (2008). The effects of questioning on text processing. *Reading Psychology*, *29*(5), 405–442.

Hannel, I. (2009). Insufficient questioning. *Phi Delta Kappan, 91*(3), 65–69.

Hess, K. (2008). Exploring cognitive complexity and depth of knowledge. Dover, NH: National Center for Assessment. Retrieved from http://www.nciea.org/publications-2/?keywords=Hess&x=0&y=0&action=search&current_page=1&items_per=20&sort_by=name_last&sort_dir=ASC

Huitt, W. (1992). Problem solving and decision making: Consideration of individual differences using the Myers-Briggs Type Indicator. *Journal of Psychological Type, 24*, 33–44. Retrieved from http://www.edpsycinteractive.org/papers/prbsmbti.html

Huitt, W. (2011). Bloom et al.'s taxonomy of the cognitive domain. *Educational Psychology Interactive*. Valdosta, GA: Valdosta State University. Retrieved from http://www.edpsycinteractive.org/topics/cognition/bloom.html

Hummel, J., & Huitt, W. (1994, February). What you measure is what you get. *GaASCD Newsletter: The Reporter,* 10–11. Retrieved from http://www.edpsycinteractive.org/papers/wymiwyg.html

Kängsepp, P. (2011). Impact of asking support questions on grades 4 and 7 students' reading comprehension. *Creative Education, 2*(4), 381-387.

Krathwohl, D. R., Bloom, B. S., & Masia, B. B. (1973). *Taxonomy of educational objectives, the classification of educational goals, handbook II: Affective domain.* New York City, NY: David McKay.

Krathwohl, D. (2002). A revision of Bloom's taxonomy: An overview. *Theory into Practice, 41*(4), 212–218. Retrieved from http://www.unco.edu/cetl/sir/stating_outcome/documents/Krathwohl.pdf

Lewin, L. (2010). Teaching critical reading with questioning strategies. *Educational Leadership, 67*(6). Retrieved from http://www.ascd.org/publications/educational-leadership/mar10/vol67/num06/Teaching-Critical-Reading-with-Questioning-Strategies.aspx

Lewis, K. (2015). *Developing questioning skills*. Retrieved from https://inside.trinity.edu/sites/inside.trinity.edu/files/file_attachments/6056/gravett-questioningskillswithattachment.pdf

Lorent Deegan, C. E. (2010). *A case study of the impact of guided reading groups in second grade on comprehension improvement.* (Doctoral dissertation, Widener University). Retrieved from http://eric.ed.gov/?id=ED517734

Lundy, M. M. (2008). *The nature of questioning moves used by exemplary teachers during reading instruction* (Doctoral dissertation). Retrieved from http://scholarcommons.usf.edu/cgi/viewcontent.cgi?article=1366&context=etdest

Lutz, S., & Huitt, W. (2003). *Information processing and memory: Theory and applications. Educational Psychology Interactive.* Valdosta, GA: Valdosta State University. Retrieved from http://www.edpsycinteractive.org/papers/infoproc.pdf

Marzano, R. J., Pickering, D. J., & Pollock, J. E. (2001). Classroom instruction that works: Research-based strategies for increasing student achievement. Alexandria, VA: Association for Supervision and Curriculum Development.

McCollister, K., & Sayler, M. (2010). Lift the ceiling: Increase rigor with critical thinking skills. *Gifted Child Today, 33*(1), 41–47.

Meyers, G. (2002). *Whose inquiry is it anyway? Using student questions in the teaching of literature.* Urbana, IL: National Council of Teachers of English. Retrieved from http://www.studentachievement.org/wpcontent/uploads/InquiryandtheLiteracryTextConstructingDiscintheEngClassroom_Holden.pdf

Nosich, G. M. (2009). *Learning to think things through: A guide to critical thinking across the curriculum* (3rd ed). Upper Saddle River, NJ: Pearson Education

Peterson, D. S., & Taylor, B. M. (2012). Using higher order questioning to accelerate students' growth in reading. *The Reading Teacher*, *65*(5), 295.

Question [Def. 1]. (2016). In *Cambridge Academic Content Dictionary*. Retrieved from http://dictionary.cambridge.org/us/dictionary/english/question

Redfield, D. L., & Rousseau, E. W. (1981). A meta-analysis of experimental research on teacher questioning behaviour. *Review of Educational Research, 51*, 237–245.

Saeed, T., Khan, S., Ahmed, A., Gul, R., Cassum, S., & Parpio, Y. (2012). Development of students' critical thinking: The educators' ability to use questioning skills in the baccalaureate programmes in nursing in Pakistan. *Journal of the Pakistan Medical Association, 63*(3), 200–203. Retrieved from http://ecommons.aku.edu/cgi/viewcontent.cgi?article=1006&context=pakistan_fhs_son

Tienken, C. H., Goldberg, S., & DiRocco, D. (2010). Questioning the questions. *Education Digest: Essential Readings Condensed for Quick Review, 75*(9), 28–32.

Tsai, P., Chen, S., Chang, H., & Chang, W. (2013). Effects of prompting critical reading of science news on seventh graders' cognitive achievement. *International Journal of Environmental & Science*, *8*(1), 85–107.

Walsh, J. A., & Sattes, B. D. (2010). *Leading through quality questioning: Creating capacity, commitment, and community*. Thousand Oaks, CA: Corwin Press.

Webb, N. (1997). *Research Monograph Number 6: Criteria for alignment of expectations and assessments on mathematics and science education*. Washington, DC: CCSSO.

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