The Well Developed Classroom Blog: Effective Questions

Fewer questions, better questions, and time to think.

"It is better to have a "classroom full of unanswered questions than unquestioned answers".

Morgan, N. & Saxton, J. (1991). *Teaching Questioning and Learning*. New York: Routledge; 8.

1. What makes questions effective?

Effective questions produce thinking. Learning is the result of thinking. Therefore, questions are one of the most important tools used in teaching and learning. In this blog we will examine how both teachers can ask fewer and better questions leading to more time to think in class. We will explore routines that help students ask thoughtful questions to further their learning.

Effective questions generate in students thought and interest in making answers.
Effective questions are posed by both students and teachers throughout the learning process.

Characteristics of a Good Question

A good question:

- expresses genuine curiosity; behind every question there must be an intention to find out
- is a vehicle to clarify and make thinking visible
- is supported by tone and non-verbal signals that demonstrate interest
- engages our feelings as well as our thoughts
- challenges existing thinking and encourages reflection
- has reason, focus, and clarity
- is part of an on-going dialogue which involves relationships between speakers
- is paced so that listening to the answer is necessary
- results in an answer that creates change – either in the listener or in the next events

2. How do we know when questions are effective in furthering learning?

There are many important ways to think about the purpose of questions in the classroom. We often think of questions in terms of Bloom's taxonomy. Teachers aim to ask more questions that encourage higher level thinking. We often judge the quality of a question by noting where the question falls on a range from concrete or the answer is "right there" questions to questions that inspire critical thinking or multiple debatable answers. The purpose of questions evaluated by Bloom's Taxonomy is to inspire thinking. Therefore if the question asks for higher level thinking then the question is a better question. However, one might argue that "right there" questions are just as important as synthesis type questions. "Right there" questions may serve to confirm and clarify knowledge while synthesis type questions summarize. It might be impossible for students to synthesize if they have not clarified knowledge first; therefore both types of questions have value in learning. So, how do we know when questions further learning?

Rather than measuring the level of thinking in the question, it might be more useful to evaluate the quality of the question by the opportunity for answers. A high quality question can be evaluated by how the students formulate an answer to the question (alone, pairs, small groups and responses to think, talk, write, or draw) and what the teachers asks students to do with the answers to the questions. High quality questions result when the process used to answer a question matches intended purpose of the question. In addition to the process and purpose match, the amount of time devoted to answering a question may reveal more about the level of thinking required then the question itself.

In a completely different way, teachers use questions as a means to move the action in the classroom along, for example, "Does everyone have their notebook out?", "Are we ready to go on?" Procedural questions help students to know the teacher's expectations, for example, "What do we do after lunch?" "What should be included in your

notebook?" These procedural type questions are essential and usually are in the greatest frequency of types of questions asked during a class period. It is important to note that students get in the habit of hearing questions that are part of a management dialog instead of a learning dialog. So, ***when the teacher switches to questions that demand thinking it is not surprising that many students do not recognize the change in expectations for answering questions.***

There really isn't such a thing as "good" questions and "bad" questions. But, there are questions that accomplish the teacher's purpose. A communicated clear expectation for an answer is as important as the question. Students need to know when the teacher is using questions as part of classroom management and when the questions are part of learning. So, effective questions serve a particular purpose in a well developed classroom and are posed with an expectation of a specific type of thinking students will use in their response.

Classroom questions can usually be divided into three general purposes, to: elicit information, build understanding, and encourage reflection. Within each purpose questions can accomplish different goals or tasks. See the table below for examples.

Purpose	Specific Goal or Task Questions will Accomplish and Examples
Elicit Information	• **Confirm: Recalling and clarifying knowledge** *What comes next? Could you summarize? What do we know now?*
	• **Procedural: Establishing expectations** *Can everyone see? Did someone get a different answer? Are you ready?*
	• **Elicit prior experience:** *What sort of ideas come to your mind when…? What kinds of experience lead people to act that way?*
Build Understanding	• **Generative: Exploring a topic** *Is there _____? Why do we remember _____?*
	• **Constructive: Building new understanding** *How could things change…? What could this mean to ____?*
	• **Facilitative: Promoting learner's own thinking and understanding** *Can you put that in a way that _____ would understand?*
Encourage Reflection	• **Reflective: Challenge to think critically and creatively** *What patterns do you see here? Can you compare… to ….?* *What are your questions now?*

Ideas taken from:
Morgan, N. & Saxton, J. (1991). *Teaching Questioning and Learning*.
New York: Routledge; .
Richhart, R. http://ronritchhart.com/Presentations_files/FIU_VT_Language%20%26%20Questioning.pdf

How do we ask Powerful Questions?
So now we have established the different purposes for asking questions in the classroom. But, how do teachers make questions powerful? How do teachers ask questions that efficiently and effectively move students in their thinking and understanding? How do questions help us build a classroom culture of collaboration and inquiry?

The Key #1 to Powerful Questions is Engagement: when we feel, think, and do at the same time
Powerful questions appeal to our **feelings** as well as our **thinking and doing**. Powerful questions invite and sustain student engagement in a learning experience. We cannot separate thinking from feeling and doing, so powerful questions connect to students on both an intellectual and a feeling level.

Powerful questions are the key to teaching for understanding. Students gain control over their learning when they see a relationship between what they are currently thinking, feeling, and doing with what they already know, feel,

and have experienced. This sense of control over the learning helps students integrate new information with what they know to develop new understandings (Morgan, 21). Students cannot be given understanding by the teacher, rather students develop understanding by comparing their previous experiences with what they currently know, feel, and are experiencing. So, fostering engagement through questions is essential in developing student understanding.

There are different levels of involvement in every learning experience. Morgan and Saxton (1987) call this the Taxonomy of Personal Engagement. We can influence the type of engagement learners experience through the opportunities we create through questions and support students in building understanding.

Purpose	Feeling We Observe Students Expressing in Class
Interesting: attract student attention	• being curious about what is presented
Engaging: draw students into active involvement, where their ideas become an important part of the process	• wanting to be, and being involved in the task
Committing: invite students to take on responsibility for the inquiry	• developing a sense of responsibility towards the task
Internalizing: create an environment in which students will have opportunities to reflect upon their personal thoughts, feelings, attitudes, points of view, experiences and values in relation to the material of the lesson	• merging objective concepts (the task or what is to be learned with subjective experience (what is already owned) resulting in understanding and therefore ownership, of new ideas
Interpreting: Express understanding of the relationship between the subjective world, the world of peers, and the world of the subject matter	• wanting and needing to communicate that understanding to others • formulating new questions which arise from their new understanding
Evaluating Test results and reflect on how results compare with previous feeling, knowledge, and experiences.	• wanting and being willing to test understanding • testing their new thinking in different media independently and through self motivation

Key #2: The expectation and process of achieving the answer is as important as the question.

A. **To what extent are you, as the teacher, like a student, seeking answers to questions?**
Teacher Skills:
To be an effective questioner you will have to develop:
- The patience to wait for answers to be formulated,
- The skill of listening so that you will know how to respond,
- The finesse to 'send the ball back' in such a way that learning is perceived by your students as a dialogue in which everyone's thoughts, feelings and actions are important elements for collective and individual understanding (Morgan & Saxton, 1987).

B. **Active listening, quality time to think and thoughtful answers (reflecting on one's own answers).**

Characteristics of **active listening**
- Genuinely interested in the reply and willing to let it change them in some way
- Are prepared to wait for answers
- Are as interested in others responses as they are in their own
- Are aware of the social context as well as the subject content

Characteristics of **quality think time**

- Everyone is comfortable with silence
- Is filled with the energy of curiosity balanced with thinking and feeling
- Interrupting silence is equal to interrupting a speaker
- Thought of as part of verbal expression and exchange
- Everyone knows what actions to take during **think time**, such as highlighting important notes, making connections, letting mind wander through thoughts, writing down ideas

Characteristics of **thoughtful answers**

- Can move the exploration on to a new stage
- Can raise the exploration to a higher intellectual and emotional level
- Shows respect for the question
- May not come easily; may be rephrased or hesitant
- Reveals level of thought and feeling of the responder
- Often appears in the form of a question
- Depends upon the care with which the question is put.

Key #3: Ask fewer, better questions, provide more time to think, and use the answers to further learning.

3. **What do supports and extensions look like when asking questions?**
"There can certainly be **no *change in understanding unless the question holds the possibility of an answer with personal meaning*** for the student. The more you know about students' backgrounds, interests and experiences, the greater chance you have of choosing a question that holds that possibility." (Morgan & Saxton, 1987, 24)

Teachers use their knowledge of student background, interests, and experiences to craft questions that both support and extend learner thinking. To assist students in both small and large group discussions, teachers use the Pocket Guide to Probing Questions or Naming Seven Types of Questions found in the resources section of this blog. Using examples of questions with clear purposes will lead to more thought provoking discussions in class and will help students form habits around asking purposeful questions to guide their own learning. Students will also be able to better determine what questions are asking on standardized tests.

Avoid asking simple questions as a way to support struggling learners.
Remember that interest lies in complexity. Our human brain is interested in things that are complex. So, a student may need to think concretely – but questions should have dimension and complexity. Offer supports such as visual aides including pictures, graphs or timelines to support students in answering complex questions. Important information for a question can be numbered or highlighted to offer supports for students who need their attention to be focused. Process supports such as sharing an answer with a partner or jotting down notes before answering to the whole group is another support. Another support is to provide questions on an index card for students to think about as a Do Now enables students to look up notes and prepare their answers before the discussion time in class. The key is to ask purposeful questions that demand thinking and answers that are useful to further learning of all students.

The art of questions involves active listening, thoughtful answers and time to think.
The key to good questioning is quality not quantity.

"The job of the teacher is to open doors; to let students know that doors exist, that there are many of them, that they are meant to be opened (some easily, some with difficulty) and that there is something beyond every door that is worthwhile knowing about. The key to the door, to carry the analogy further is, most often, the 'good' question.

Morgan, N. & Saxton, J. (1991). *Teaching Questioning and Learning*.
New York: Routledge; 75.

Connections

Quality Review Rubric

1.1 Design engaging, rigorous and coherent curricula, including the Arts, for a variety of learners and aligned to key State standards

a) Rigorous habits and higher order skills are emphasized in curricula and academic tasks, and are embedded in a coherent way across grades and subject areas

1.2 Develop teacher pedagogy from a coherent set of beliefs about how students learn best, and ensure that it is: aligned to the curriculum, engaging, and differentiated to enable all students to produce meaningful work products

a) Across classrooms teaching practices are aligned to the curriculum and reflect a coherent set of beliefs about how students learn best that is informed by discussions at the team and school level

b) Across classrooms teaching strategies and routines are strategically differentiated so that all learners have multiple entry points, supports, and extensions into the curricula

c) Across classrooms teaching strategies and routines lead to high levels of student engagement and thinking, as evidenced in work products and processes

2.4 b) Across classrooms teachers have developed reflective practices and routines through which students assess their own academic and behavioral progress and articulate next learning steps (as developmentally appropriate)

Resource 1: Classifying Questions by Purpose

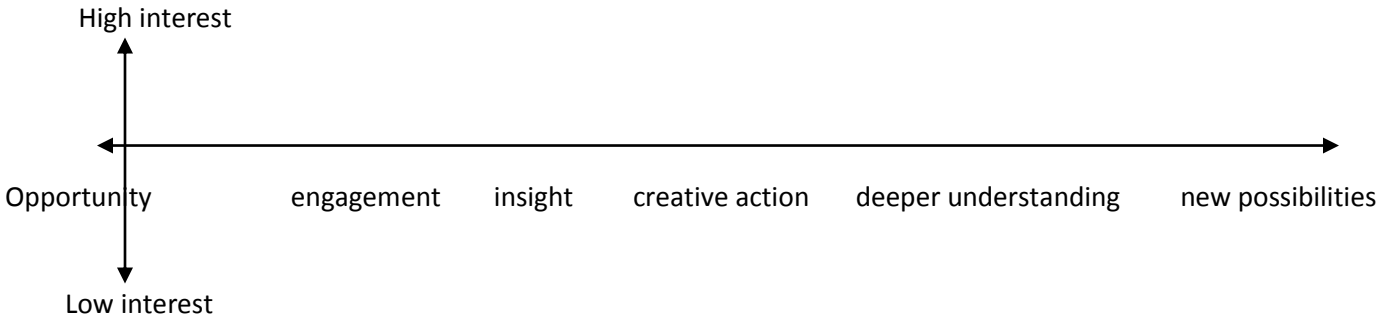
Questions:

1. On the lines (will this question have to do with what is already known?)
2. Between the lines (Will this question help us shape our understanding of the facts?)
3. Beyond the lines (Will this question make us think about the implications of those facts?)

Brownlie, Close, and Wingren. (1988). Reaching for Higher Thought. A.V. Request strategy for reading. (1969)

Question Sorts for Research Questions

Ask students to brainstorm potential research questions that they have about a topic. Sort the questions by the interest level in answering the question high versus low and by the type of product answering the question will result in or by how hard it would be to answer (time and resources needed). Then students can choose questions for research that are of high interest as well as practical for the time and resources or that answering the question will likely produce the desired product or outcome.



Question Purposes – offer a list of purposes for students to use when they are posing questions in large or small group discussions.

Eliciting Information

1. Establish the rules or norms (Can everyone hear?)
2. Establish procedures (How shall we reform this group?)
3. Establish help or control (who will be responsible for taking notes?)
4. Unify the class (Are we agreed…)
5. Recall facts (what is the formula?)
6. Supply information and suggest implications (With all the extra time that this will require, are you still prepared to …"
7. Reveal experience (What sorts of ideas does this bring to mind?)

Shape Understanding

1. Make connections (How is this similar to our lives today?)
2. Rethink or restate by being more accurate and specific (What do you mean by…)
3. Promote expression of attitudes, biases, and points of view (Would you rather… Where do you stand…)
4. Demand inference and interpretation (How would you explain…)
5. Focus on meanings that lie behind the actual content (What is this really about…Why do you think….)

Pressing for Reflection

1. Develop supposition or hypothesis (I wonder if…)
2. Focus on personal feelings (Why is that…)
3. Focus on future action and projection (What might happen when…)
4. Develop critical assessment/value judgments (How can we justify…)

Resource 2: Sample Questions to Promote Diverse Thinking

This question list is inspired by Bloom's Taxonomy. Note Anderson, L. & Krathwohl, D. revisions are in ( ). Use this list to enhance conversation and assignments inviting students to consider topics through different types of thinking.

KNOWLEDGE (creating)

- List the different shapes that you see in this picture.
- How many people do you see in this picture?
- List all the _____ you see in this picture.
- How many _____ do you see in this picture?
- List all the objects that start with "_____" in this picture.
- Circle all the people with _____ in the picture.

COMPREHENSION (understanding)

- What do you think this is a picture of? What makes you think that?
- What could you change in this picture that would give the picture a new idea?
- Estimate how many _____ might be in this picture.
- Is this picture happy or sad? What makes you say that?
- Is this picture new or old? What makes you say that?

APPLICATION (applying)

- What objects could be placed into this picture that would belong?
- Give a new title to this picture. Why did you choose that title?
- Write a caption for this picture that you feel explains what this picture is about.
- Create a new picture that shows what happened right before this picture was taken.
- Turn the picture over and draw what you remember of this picture.
- What if in this picture, _____?
- What chapter in your textbook would this picture belong in?

ANALYSIS (analyzing)

- Where might this picture have been taken? What makes you think that?
- When do you think this picture might have been taken? What makes you think that?
- Is this picture a good example of a _____? Why or why not?

SYNTHESIS (evaluating)

- Cover half of your picture. How does this change what the picture is about?
- Who is the most important person in this picture? What makes you say that?
- What is the most important object in this picture? What makes you say that?
- In this picture, what is the _____-est? or the most _____? (superlative)
- Do you think this is an important picture to study? Why or why not?

EVALUATION (Creating)

- What might happen next in this picture? What makes you think that?
- If you could talk to one of the people in this picture, what would you say?
- List 3-5 questions you have about this picture?
- What might the people in this picture be saying?
- What might the objects in this picture be saying?
- Choose one object in this picture and list as many adjectives as you can to describe it.
- What don't you see in this picture that you think you should see?

OTHER: Senses

- What would you expect to hear if you were where this picture was taken?
- What smells would you expect to smell if you were where this picture was taken?
- If this picture were in color, what colors would you expect to see?
- How could you act out the things you see in this picture?
- How does this picture make you feel? Why do you think that is?
- If you were the _____ in this picture, how would you feel?

Resource 3: Pocket Guide to Probing Questions

http://www.nsrfharmony.org/protocol/doc/probing_questions_guide.pdf

Offer this guide to students during small or large group discussions to support students in asking questions to each other.

Clarifying Questions are simple questions of fact. They clarify the dilemma so participants can ask good probing questions and provide useful feedback later in the protocol.

Probing Questions are intended to help the presenter think more deeply about the issue at hand. If a probing question doesn't have that effect, it is either a clarifying question or a recommendation. A probing question is asked without a right answer in mind and should not assert a personal agenda. It is truly a question related to the original question or focus point.

In addition to "What makes you say that?"

Sentence Stem Suggestions:

- Why do you think this is the case?
- What would have to change in order for …?
- What do you wish?
- What's another way you might…?
- What would it look like if …?
- What do you think would happen if…?
- How was…different from…?
- What sort of impact do you think…?
- What criteria did you use to …?
- When have you done/experienced something like this before?
- What might you see happening if …?
- How did you decide/determine/conclude…?
- What is your hunch about …?
- What is the connection between…and…?
- What was your intention when…?
- What do you assume to be true about …?
- How might your assumptions about …have influences how you are thinking about…?
- Why is this such a dilemma for you?
- Use verbs: What do you fear? Want? Get? Assume? Expect?
- "Why…?"
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Resource 4: Southern Maine Partnership Guide to Good Probing Questions

http://www.plcwashington.org/study-groups/communication/questioning/SMP-guide-to-good-probing-questions.pdf

Offer this guide to students during small or large group discussions to support students in asking questions to each other.

Examples of suggestive but still probing questions:

a. What's another way you could…?
b. What sort of impact would there be if you…?
c. What would it look like if you…?
d. What might you see happening if you…?
e. What would have to change in order for…?
f. What would happen if…?
g. What could you do that might cause x to…?
h. Have you considered/explored/looked into/thought about…?
i. Would it be possible to…?
j. Is there a way to…?
k. How would it work if you…?
l. Do you think there needs to be…?

Examples of good exploratory probing questions:

a. What criteria did you use to…?
b. How did you decide/conclude that…?
c. How was _____ different from _____?
d. What's your hunch about…?
e. What do you think the connection is between _____ and _____?
f. How might your assumptions about x have influenced your thinking about y?
g. When have you done/experienced something like this before?
h. In your heart, what do you feel is right?
i. What evidence exists that…?
j. How do you know that…?
k. Do you think the problem is _____ or _____ or something else?
l. Do you know of any successes in the past in similar situations that could give you insight into this situation?
m. Why is this a dilemma or problem for you/from your perspective?
n. Is there something in this situation that raises some fear in you?
o. What was your decision-making process?
p. How did you decide to do it that way?
q. If you were x, how would you see this situation?
r. How is this situation different than…?
s. Why do you think this happened this way?
t. What do you think is the reason for…?
u. What did/do you hope? expect? wish?
v. What's your perception or analysis of…?
w. If time, money, etc. were not an issue…?
x. Who (else) could help with this?
y. What (else) could you try to help this situation?
z. Why did you choose to do it this way?
aa.What was you intention when…?

Resource 5: Naming Seven Types of Thinking

Develop a thinking disposition through asking questions that require students to be curious, intellectually careful, reflective, strategic, creative, adventurous, and collaborative. Use the bulleted list below the disposition to be specific in the type of action or thinking expected of students.

For example
To develop a curious disposition by being playful, ask students, "How many different ways can you solve this problem?" or "What else could have caused this event to happen?"

Curious
- Wonder
- Ask questions
- Observe closely
- Find problems
- Be playful

Intellectually Careful
- Evaluate Evidence
- Alert for errors
- Check for accuracy
- Corroborate information
- Justify opinions with evidence

Reflective
- Compare a product to criteria
- Evaluate a process
- Seek understanding
- Gather other opinions
- Consider relationship between parts and a whole
- Question results
- Identify patterns

Strategic
- Set goals
- Take action
- Evaluate and revise plans
- Use knowledge to make decisions
- Reason through problems

Creative
- Create novel solutions
- Make unusual connections
- Combine ideas
- Rearrange elements into new patterns

Adventurous
- Explore alternative views
- Open minded
- Think with a wide scope
- Seek understanding

Collaborative
- Share ideas with others
- Ask clarifying questions
- Value the opinions of others
- Build learning through interaction

Richhart, R., M. Church, P. Palmer, & S. Tishman. (April, 2006). American Educational Research Association Conference. Thinking Routines: Establishing Patterns of Thinking in the Classroom. http://www.pz.harvard.edu/research/AERA06ThinkingRoutines.pdf

For ready to use thinking routines that inspire questions and build understanding go to:
Visible Thinking
http://www.pz.harvard.edu/vt/VisibleThinking_html_files/03_ThinkingRoutines/03a_ThinkingRoutines.html

Artful Thinking
http://www.pz.harvard.edu/tc/index.cfm