

Questions and Answers and What Happens in Between

Confratute 2019

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At the core of all
learning is the ability to
ask questions.

Pagliaro, 2011, p. ix

I was just wondering...

What is a question you are wondering about in your own professional work that you hope to explore during your time at Confratute?

What is something you feel good about in your own practice related to engaging students with questions?

What is something you are wondering about that influenced your choice to come to this strand today?

Write down for your own notes: What is a question about questioning that you hope to answer for yourself by the end of the week?

Write down on a note for me: What is a question about questions that you hope we will explore together this week?

A Teacher's Most Valuable Tool...

Imagine that you want to write a book for prospective teachers about classroom questioning. How would you write a purpose and focus for the book to propose it to a publisher? What would you include as major sections of the text? How would you organize your chapters? What are the most important points you would want your prospective readers to take away?

Using those questions, talk with your neighbors and make a rough draft of a purpose statement and potential table of contents for your best-selling questioning book. Write your TOC onto chart paper for sharing.

Types and Classifications of Questions

Higher Level/Lower Level
 Reproductive and Productive
 Conceptual/Empirical/Value
 Higher Order/Lower Order
 Fact and Opinion
 Thick and Thin Bloom's Taxonomy
 One system, No system, Multi-System
 Open and Closed

Why Classify?

We like to categorize and connect ideas.

Possibilities for diversifying and deepening our questioning practice

Guiding and modeling for students around asking questions

Cautions on Classifying

Knowing why

Deepening our understanding of what makes something belong in one category or another

Recognizing that the *level* or *type* of the question must be paired with consideration of the *content* of the question in evaluation of quality

How might classifying questions help us differentiate?

Questions for Gifted Students

Widespread recommendations for emphasis on higher level, thick, advanced, open-ended, etc. questions for gifted learners.

Importance of pairing with rich content

Building capacity to go beyond a quick path to the “right” answer

How do you monitor the types of questions you ask – or the types of questions you answer?

Self-Evaluation of Questioning (from Wragg & Brown, 2001)

TYPE			BREADTH/ OPENNESS		CLARITY		MOOD	
Recall	Observation	Thought	Broad	Narrow	Confused	Clear	Encouraging	Threatening

Questions	Dimensions								
	Recall	Observation	Thought	Broad	Narrow Narrow Focus	Confused	Clear	Encouraging	Threatening
what was temp.		✓		✓			✓	✓	
what evidence ...			✓	✓			✓	✓	
how to answer	✓			✓			✓	✓	
something designed	✓				✓		✓		✓
would that capture...			✓		✓		✓		✓
just feelings T/S			✓	✓			✓		✓
two terms ...	✓				✓		✓		✓
what to do w/ diff			✓	✓			✓		✓
relate to other			✓	✓		✓			✓
how well...		✓			✓		✓		✓
what? ...	✓				✓		✓		✓
what evidence...			✓	✓		✓			✓
how define ...			✓	✓		✓			✓
what is an ...			✓	✓			✓		✓

Reasons for Questions

Why do we ask questions...

in the classroom?

in the “real” world?

Key assumptions about information-seeking behavior:

1. Questioner does not know the answer
2. Questioner believes the person being asked can provide the answer
3. Questioner is sincerely interested in learning the answer
4. Questioner believes the listener is willing to provide the answer (Oliveira, 2010; Roth, 1996).

Acknowledging the Frequent Inauthenticity of Classroom Questions

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Some reasons driving our questions...

Initiating and Follow-Up

Procedural

Pedagogical

Management, Assessment, Modeling

Behavioral

Preparing Questions and Asking Questions

What strategies do you use in *preparing* questions for the lessons you teach?



Writing the Script or Going with the Flow

Within your group, discuss the pros/cons and implications of each of these approaches:

- Preparing a thorough list of questions, including possible follow-up questions, to go with a lesson
- Preparing a general sense of key ideas and understandings and then constructing the questions in the context of implementing the lesson

A Structure for Planning Questions – Questions to Guide Preparation

To which learning goal does the question relate?

What instructional function is the question intended to further?

At what level of thinking will the question engage students?

In which social context will students be working?

What linguistic structure will best express the question?

Walsh & Sattes, 2011

Instructional Functions of Questions

Essential question

Hook question

Diagnostic question

Check for understanding

Probing/scaffolding

Inferencing

Interpreting

Transfer

Prediction

Reflection

The Knowledge Dimension classifies four types of knowledge that learners may be expected to acquire or construct—ranging from concrete to abstract (Table 1).

Table 1. The Knowledge Dimension – major types and subtypes

concrete knowledge			→ abstract knowledge
factual	conceptual	procedural	metacognitive*
knowledge of terminology knowledge of specific details and elements	knowledge of classifications and categories knowledge of principles and generalizations knowledge of theories, models, and structures	knowledge of subject-specific skills and algorithms knowledge of subject-specific techniques and methods knowledge of criteria for determining when to use appropriate procedures	strategic knowledge knowledge about cognitive tasks, including appropriate contextual and conditional knowledge self-knowledge

(Table 1 adapted from Anderson and Krathwohl, 2001, p. 46.)

*Metacognitive knowledge is a special case. In this model, "metacognitive knowledge is knowledge of [one's own] cognition and about oneself in relation to various subject matters . . ." (Anderson and Krathwohl, 2001, p. 44).

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Table 2. The Cognitive Processes dimension — categories & cognitive processes and alternative names

lower order thinking skills			→ higher order thinking skills		
remember	understand	apply	analyze	evaluate	create
recognizing • identifying recalling • retrieving	interpreting • clarifying • paraphrasing • representing • translating exemplifying • illustrating • instantiating classifying • categorizing • subsuming summarizing • abstracting • generalizing inferring • concluding • extrapolating • interpolating • predicting comparing • contrasting • mapping • matching explaining • constructing models	executing • carrying out implementing • using	differentiating • discriminating • distinguishing • focusing • selecting organizing • finding coherence • integrating • outlining • parsing • structuring attributing • deconstructing	checking • coordinating • detecting • monitoring • testing critiquing • judging	generating • hypothesizing planning • designing producing • constructing

(Table 2 adapted from Anderson and Krathwohl, 2001, pp. 67–68.)

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A statement of a learning objective contains a **verb** (an action) and an **object** (usually a noun).

- The **verb** generally refers to [actions associated with] the intended **cognitive process**.
- The **object** generally describes the **knowledge** students are expected to acquire or construct. (Anderson and Krathwohl, 2001, pp. 4–5)

In this model, each of the colored blocks shows an example of a learning objective that generally corresponds with each of the various combinations of the cognitive process and knowledge dimensions.

Remember: these are learning objectives—not learning activities. It may be useful to think of preceding each objective with something like: “Students will be able to . . .”

*Anderson, L.W. (Ed.), Krathwohl, D.R. (Ed.), Airasian, P.W., Cruikshank, K.A., Mayer, R.E., Patrich, P.R., Rolhe, J. & Wirtrock, M.C. (2001). *A taxonomy for learning, teaching, and assessing: A revision of Bloom's Taxonomy of Educational Objectives* (Complete edition). New York: Longman.



Semi-Generic versus Specific Questions

Brainstorm a list of sample questions that you might find yourself asking frequently in the area in which you teach.

Classify your questions according to one of the ways of thinking about questions we have just been discussing.

What are some additional questions you might add/fill in to your list?

Courage	Courage	Integrity
<p>How do characters show courage in the book? In what ways do their acts of courage differ?</p> <p>Tell about a brave act that surprised you as you read. Why would it be surprising for the character to act that way?</p> <p>Tell about a way that a character showed courage by NOT doing something. Do you agree with the character's decision? Why or why not?</p> <p>Describe a character's courageous act. Predict how other characters might be inspired by this.</p>	<p>Describe a courageous act by the main character. What made this act courageous?</p> <p>Think about the challenges that caused characters in this book to show courage. Which challenge would you be most willing to face, and which would require the most courage for you? Why?</p> <p>What events earlier in the story helped a character to be brave at a later point? How do you know?</p> <p>In what ways does the book show that someone can be scared and be courageous at the same time? What does that tell you about courage?</p>	<p>A person shows integrity by sticking to what he or she believes to be right, even if there is pressure to do something he or she doesn't believe in. Describe a character in the book who shows integrity.</p> <p>Give an example of a time when a character had to decide between following his or her beliefs about what is right or choosing some other option.</p> <p>In what ways did a character have to give something up in order to stick to what he or she believed was right?</p> <p>What advice would you give to a character facing a tough decision in this book?</p>
<small>Project SEM-R (Elementary) University of Connecticut www.gfred.uconn.edu</small>	<small>Project SEM-R (Elementary) University of Connecticut www.gfred.uconn.edu</small>	<small>Project SEM-R (Elementary) University of Connecticut www.gfred.uconn.edu</small>
T-1	T-2	T-3



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What Behaviors do we Foster?

Aspects of the environment that support wonder, asking questions, and taking time to explore questions

Aspects of the environment that support fast-paced answers, closing off inquiry, and valuing knowing over asking

Structure of the Question

Ways of asking for elaboration:

“do you agree” versus “what would you like to add”

Not just “why” but “how did you come to that answer”

“what does that tell us about _____”

Avoidance of questions that will give one-word or surface answers

Use of “pressing”

Rephrasing

Wolf, Crosson, & Resnick, 2005

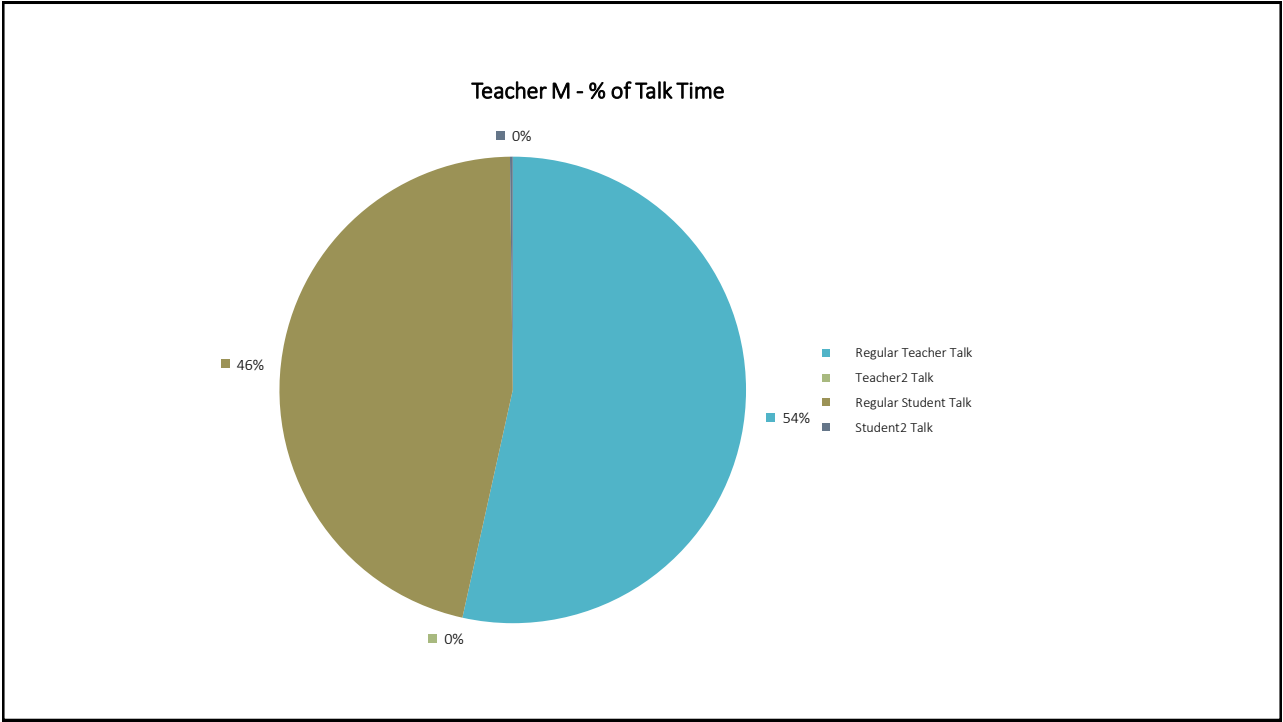
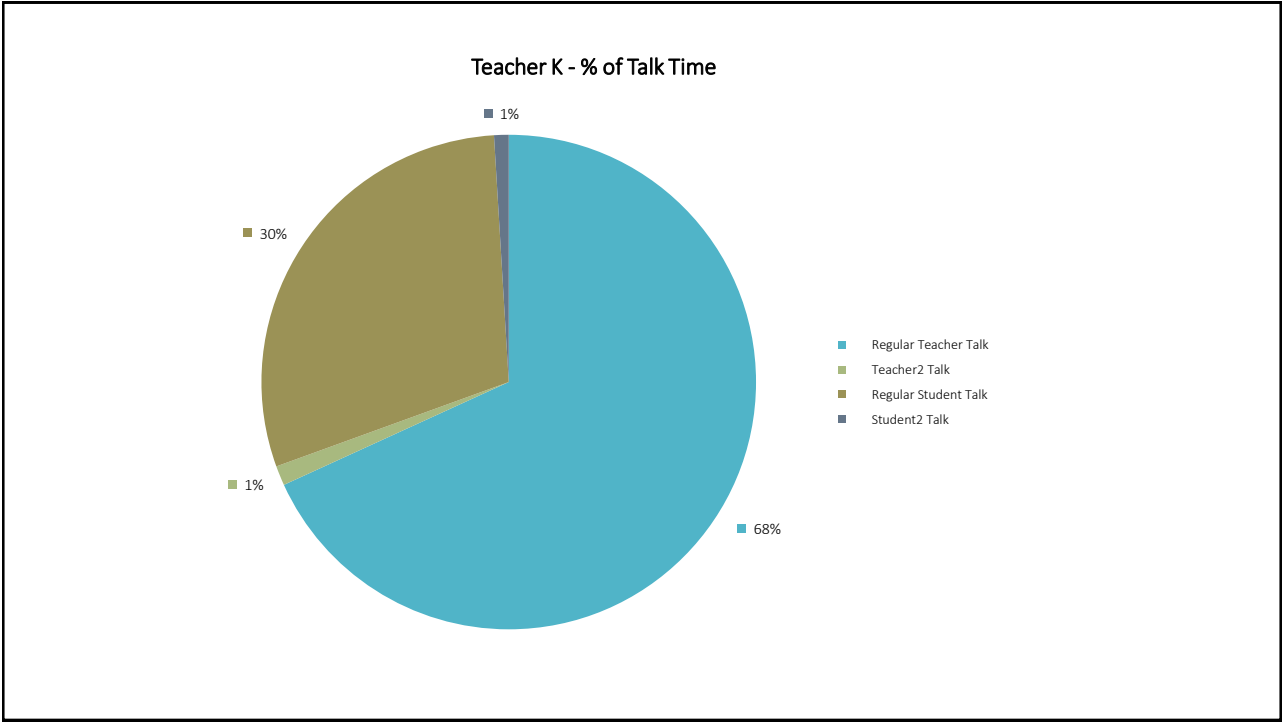
Context for Questioning

Prevalent Modes of Classroom Questioning

IRE/IRF: Initiation, response, evaluation (feedback) – or “triadic dialogue” (Lemke, 1990; Mehan, 1979)

Tendency for student responses to be brief (Chin, 2006), and for teachers to dominate conversations

“passive stance towards learning and non-engagement with text” (Wilson & Smetana, 2011, p. 84).



Responses and Reactions and Feedback

How do we respond and react when students engage in asking and answering questions?

Facial expressions
Wait time
Think time
Verbal feedback
Body language

Science Classroom Study

Types of teacher feedback to student responses:
Correct answer, (a) affirm, reinforce, move on; (b) accept then extend the line of thought with further question(s);
Incorrect answer: (c) explicit correction; (d) evaluative or neutral comments followed by reformulated or new question.

- Chin, 2006

Autonomy-Related Behaviors

Autonomy supporting: included questions asking students to explain procedures, justify answers, or describe thinking

Autonomy-diminishing: teacher answers question for the student, or teacher dismisses student response

(McConney & Perry, 2011)

Teacher Observations of their Listening

I throw out something without letting them finish or making them think harder. Like, line 83. “No, it’s like.” [student words]. And I went, “ok I mean I didn’t give her any reason to go ahead with it. So I talked, spoke too quickly. And I think I’m afraid of silence, that’s why I kind of keep it going.”

Teacher Observations of their Listening

I feel like I was starting to answer the question for her even though she, she was ex, she was doing a good job explaining it, and then I kind of just like jumped in and was like “yeah.” I guess saying it in the way that maybe I wanted her to say it um, cause here I'm like “oh talking the internal conflict.” I think I wanted to hear that word.

More Observations

I'm a talker, and it's like you gotta fill up that empty space . And then, kids will ...kids will understand you're going to do that and then they'll let you do it.

[quotes from Gilson, 2014)

Questioning Sequences

What Kinds of Questions Do We Ask After the Question?

Some more questioning research (reported in Wragg & Brown, 2001)...

Predict – In a study of teachers' questioning practices, what percentage of teachers' questions do you think were stand-alone versus part of a sequence of two or more questions?

53% stand-alone

Of the 47% that were part of a sequence, what percentage were part of a sequence of four or more questions?

10%

Sample Conference Segments...

M: So, what kind of conflicts do you think are going to be in this book? Because I hear a lot.

G: Well, I think Katniss, she's going to have some problems with the mayor's son coming in the Games because they have to kill people to stay in the Games.

M: So it's probably like a character versus character. But what else?

G: Well they're on TV, they're recording them on TV so she told her sister she was scared so she was about to cry but she wasn't going to cry because her sister's there and they were taking a video of her and then everybody that was going to fight against her, they'd know her weakness because they show it to the other players and the other players' video they show it to the other players.

Sample Conference Segments...

M: Okay, but let's go back to conflicts, right. You said a conflict would be a character versus character, a character versus self,

G: Society.

M: Character versus society.

G: Nature.

M: Character versus nature. Which ones do you think might be present in this book?

G: Character versus character and character versus society.

M: Tell me why.

G: I think character versus society because she is fighting against the rules. She goes into the woods to find food for her mom and her sister.

M: Mhmm.

Sample Conference Segments...

G: Like fishes and eggs and birds and rabbits and squirrels and she can't do that, because that's the law you can't go into the woods. But she like, her and her friend...

M: Does she believe in the laws? Does she think they're fair?

G: No she doesn't care at all and she also...

M: Do you think they're fair?

G: No.

M: Why not?

G: Because they should do whatever they want. It's freedom, they should have freedom to do whatever they want and they need food to live.

Follow-Up Functions

Scaffold

Clarify

Tell me more

Justify/Explain

Go deeper

Promote self-regulation

Checking before instruction

- Little, Massicotte, Kearney, & Ruegg, in revision

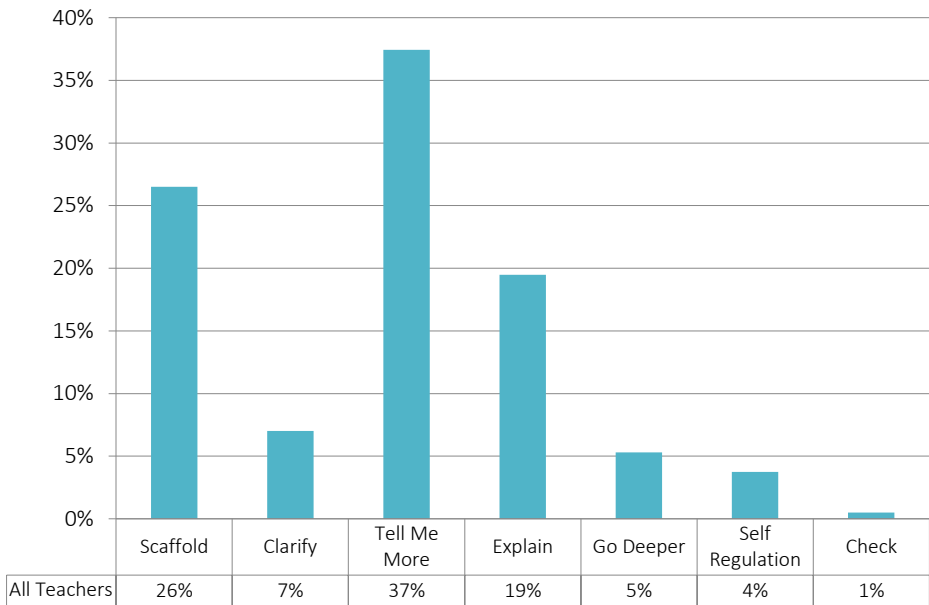


Figure 3. Percentage of each follow-up function out of total follow-up questions, across all teachers and all conferences.

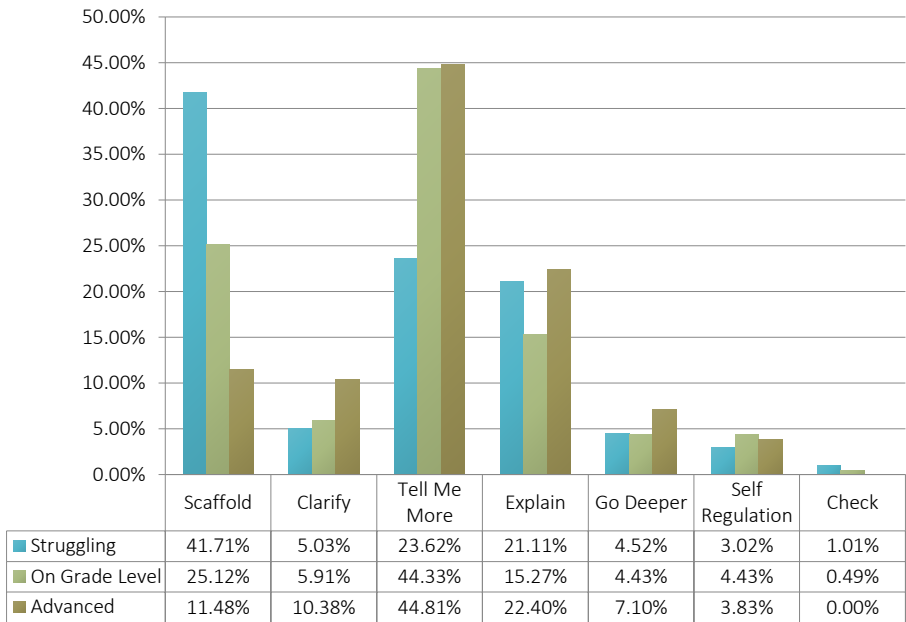


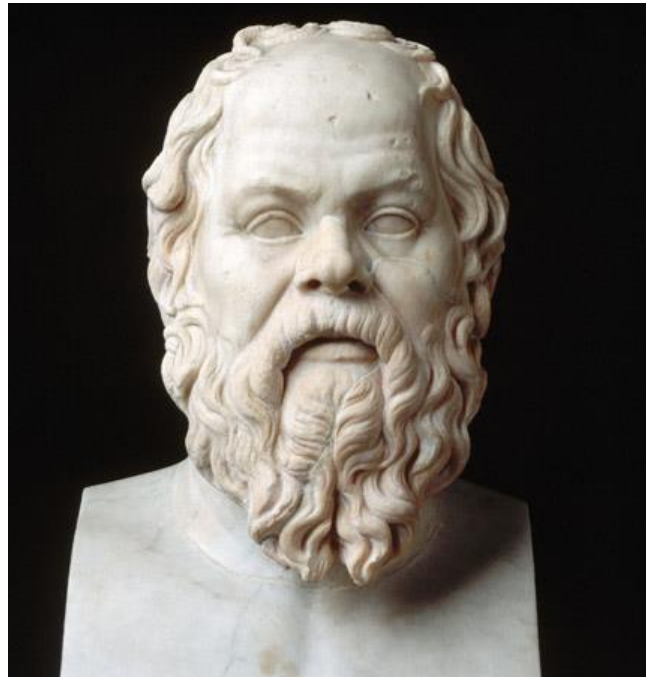
Figure 4. Percentage of follow-up functions within each category for students identified at different reading levels, across all teachers and all conferences.

People change as much
as oceans.

Neil Gaiman, *The Ocean at the End of the Lane*

Our fundamental drive, the
motivational engine that
powers human existence,
is the pursuit of meaning.

(Pink, 2006, p. 217)



Guiding Discussion

Effective Socratic questioners

- allow students to have “wait time” to consider the question and frame an answer before requesting a response,
- maintain an intellectual discussion,
- ask probing questions that stimulate in-depth thinking,
- occasionally summarize what has and has not been discussed, and
- encourage as many students as possible to participate in the discussion. (Paul & Elder, 2008)

Questioning Sequences and Patterns

Extending and Lifting

Circular Path

Same Path

Narrow to Broad

Broad to Narrow

Backbone with Relevant Digressions

- Vogler, 2008

Funneling and Focusing

Funneling:

Teacher asks a series of questions to guide students to a desired end.

Teacher does the “hard work” of thinking, while students are answering questions without necessarily seeing connections.

*Resembles scaffolding – but then should be followed by helping students see the why of the series of questions, and the scaffolding questions should over time be removed.

Focusing:

Teacher listens to student responses and guides them based on what the students are thinking

Types of Questions to Promote Thinking

Probes: Questions asked to obtain further information or ideas

Challenges: Questions that ask students to consider different perspectives

Scaffolds Connections: Questions that link information or ideas to help construct new knowledge

Metacognitive: Questions that encourage thinking about thinking

(Gillies, 2011)

Beyond the Question

Higher-level follow-ups...

foster continued dialogue (Chin, 2006; Dull & Morrow, 2008; Hansen, 2004)

encourage more elaborated student justifications for their thinking (Gillies, 2010; Chin, 2006; van Zee & Minstrell, 1997; Wolf et al., 2005)

extend the discussion – the “reflective toss” (van Zee & Minstrell, 1997)

From Q&A to Discourse

Talk Moves

Revoicing a student's comment

Asking another student to restate someone else's reasoning or idea

Asking students to indicate their agreement or disagreement with something that has been stated and explain why

Prompting for further participation or "adding on" to what has been said

Wait time

(Chapin, O'Connor, & Anderson, 2003)

“Accountable Talk”

Encouraging students to...

- interpret and use one another's statements
- press one another for clarification and explanation
- recognize and challenge misconceptions
- ask for evidence for claims and justification of proposals

(Fisher & Frey, 2007; Michaels, O'Connor, & Resnick, 2008)

Rubric 2: Teacher's Linking

4	The teacher consistently connects speakers' contributions to each other and shows how ideas/positions shared during the discussion relate to each other by revoicing or recapping students' ideas.
3	At least twice during the lesson the teacher connects speakers' contributions to each other and shows how ideas/positions relate to each other by recapping or revoicing students' ideas.
2	At one or more points during the discussion, the teacher links speakers' contributions to each other, but does not show how ideas/positions relate to each other. No follow-up questions are asked after speakers' contributions OR teacher revoices but content is not academically relevant OR only one strong effort is made to connect speakers' contributions to each other.
1	Teacher does not make any effort to link or revoice speakers' contributions.
0	Class discussion was not related to mathematics.
N/A	Reason:

- Matsumara et al., 2006

Rubric 3: Students' Linking

4	The students consistently connect their contributions to each other and show how ideas/positions shared during the discussion relate to each other. (e.g., "I agree with Jay because...")
3	At least twice during the lesson the students connect their contributions to each other and show how ideas/positions shared during the discussion relate to each other. (e.g., "I agree with Jay because...")
2	At one or more points during the discussion, the students link students' contributions to each other, but does not show how ideas/positions relate to each other. (e.g., "I disagree with Ana.") OR only one strong effort is made to connect their contributions with each other.
1	Students do not make any effort to link or revoice students' contributions.
0	Class discussion was not related to mathematics.
N/A	Reason:

- Matsumara et al., 2006

Rubric 4: Asking (Teachers)

4	The teacher consistently asks students academically relevant questions that may include asking students to provide evidence for their contributions, pressing students for accuracy, OR pressing students to explain their reasoning.
3	At least twice during the lesson the teacher asks students academically relevant questions which may include asking students to provide evidence for their contributions, pressing students for accuracy, OR pressing students to explain their reasoning.
2	There are one or more superficial, trivial efforts, or formulaic efforts to ask students to provide evidence for their contributions, OR there are one or more superficial, trivial, or formulaic efforts to ask students to explain their reasoning OR only one strong effort is made to ask students academically relevant questions OR press students to explain their reasoning.
1	There are no efforts to ask students to provide evidence for their contributions, AND there are no efforts to ask students to explain their thinking.
0	Class discussion was not related to mathematics.
N/A	Reason:

- Matsumara et al., 2006

Rubric 5: Providing (Students)

4	Students consistently provide accurate and appropriate evidence for their claims, including frequent references to the text or prior classroom experience, OR students explain their thinking, using reasoning in ways appropriate to the discipline.
3	At least twice during the lesson students provide accurate and appropriate evidence for their claims, including frequent references to the text or prior classroom experience, OR students explain their thinking, using reasoning in ways appropriate to the discipline.
2	In general, what little evidence is offered to back up claims is inaccurate, incomplete, or vague, OR there are one or more superficial or trivial efforts to provide evidence. In general, what little attempt to explain reasoning is inaccurate, incomplete, or vague, OR there are one or more superficial or trivial efforts to explain the speaker's reasoning, OR students only make one strong effort to provide evidence or explain their thinking.
1	Students do not back up their claims, OR do not explain the reasoning behind their claims.
0	Class discussion was not related to mathematics.
N/A	Reason:

- Matsumara et al., 2006

That's a good question...

What makes a good question?

What makes a question *challenging*?

Challenging questions

Lack of clarity

Lack of connection

BUT ALSO....

Causing you to rethink a perspective/take a different perspective

Causing you to consider a different variable

Asking you to explain your rationale or process of thinking

Asking you to provide evidence

Challenging for whom?

Emphasizing depth and complexity

Using assessment data to guide planning

Planning questions in advance

Guiding students away from a one-right-answer approach

Some Key Reflective Questions

Why am I asking this question?

To whom is this question directed?

What do I expect might happen next?

What will my next move be?

How am I listening?

How am I distributing control of this conversation?

What to take back?

Selected Resources

Cotton, *Classroom Questioning* (2001):

<https://educationnorthwest.org/sites/default/files/ClassroomQuestioning.pdf>

NSW Department of Education, *Teacher Questioning*:

http://www.ssgt.nsw.edu.au/teacher_questioning.htm

Questioning for Learning – Issue of *Educational Leadership*

Walsh & Sattes, *Quality Questioning: Research-Based Practice to Engage Every Learner* (2005)

Walsh & Sattes, *Thinking Through Quality Questioning: Deepening Student Engagement* (2011)

Wragg & Brown, *Questioning in the Primary School* (2001)

Wragg & Brown, *Questioning in the Secondary School* (2001)

What challenges you to ask a question?

The “answer” is not the end...

“Mathematicians will tell you that the real mathematics begins after a solution has been found.” (Sheffield, 2003, p. 7)

How can you challenge
your own questioning?