assignments worth the effort: questions are key

TIS EASY FOR ADULTS TO ASSUME THAT KIDS CAN MAKE THE CONNECTION BETWEEN THE ENERGY AND ENTHUSIASM THAT THEY FEED INTO A PROJECT AND THE RESULT, BUT STUDIES HAVE DEMONSTRATED THAT SOME STUDENTS ARE NOT AWARE OF THE FACT THAT THE EFFORT THAT THEY PUT INTO A TASK HAS A DIRECT EFFECT ON THEIR SUCCESS RELATIVE TO THE TASK.

In their book Classroom Instruction That Works, Marzano, Pickering, and Pollock (2001) review these studies and assert that educators need to find ways to reinforce effort and help students realize the connection between effort and achievement. The authors offer some practical suggestions for teachers, one of which is sharing with students the stories of super achievers. Teacher-librarians can join the effort campaign by sharing inspirational stories, planning book talks and book displays centered on the theme of personal effort, and introducing students to real superheroes, such as Canada's Terry Fox, who raised an awareness for cancer research in his Marathon of Hope, and Craig Keilburger, who battles for children's rights on the international stage through his Free the Children organization. Although there is no doubt that we need to impress on our students the positive effects of a solid effort, they also need time management skills and task contracts, research portfolios, rubrics, checklists, and other devices to help them stay on task and keep track of their effort and progress.

GUIDING QUESTIONS

Teacher-librarians can help students develop their metacognitive skills by providing them with checklists in the form of guiding questions that they can use throughout the research process. Examples of guiding questions include

- What is the purpose of your research?
- What do you think you will discover?
- How will this assignment be assessed?
- What is important if you are to be successful?
- How do project due dates mesh with your other school and personal commitments?

A simple reflection tool that can be used to build metacognition is a split-page organizer. Have students fold a paper into three columns. Ask them to record in the first column, What was I supposed to do? In the next column, How did I do? In the last column, What can I do better next time? With older students who seem to lack accountability, try giving them practice with a strategy that comes from the business world, called QBQ, or question behind the question. QBQ is based on a great little motiva-

G. Miller (2004). The subtitle of this brilliant text says it all: What to Really Ask Yourself to Eliminate Blame, Complaining, and Procrastination. Good QBQ questions to use with students include

- Why didn't the teacher give me more time for this assignment?
- How am 1 expected to do this if there are no good books in the library?
- Why did I get stuck with this topic, group, or the like?

If you frequently hear these "poor me" or victim-type questions from your students at assignment time, then try teaching them to turn their questions into personal actions by having them ask themselves

- How can 1 schedule my time better?
- Where can 1 look for more resources on my topic?
- How can I better understand what my teacher wants me to do?

Having explored some strategies for spurring student effort and personal accountability for that effort, we suggest that there may very well be some legitimate reasons for lack of student effort on research assignments.

LET'S PLAY "WHAT IF?"

- What if the work that was assigned was less than inspiring?
- What if students truly cannot grasp the relevance of the topic that they were assigned?
- What if the only motivation to complete the assignment was the marks?
- What if after the presentations the kids systematically filed their projects in

by carol koechlin and sandi zwaan

the waste can as they left the classroom?

How would these scenarios be different if the students were personally motivated? Just how do we accomplish this? We know that, regardless of how hard students work, if their actions are not well focused on the outcome, the job will be onerous and unrewarding for them. We are also aware that a task becomes less onerous if students "buy in"—that is, if they are truly interested. So what can we as educators do to help create that interest and fine-tune the focus to ensure that students make the effort required to achieve?

We believe that effective student and teacher questioning can play a huge role toward accomplishing this student buy-in. Motivation is part of our rationale for teaching students to question. We need to revitalize student curiosity, capture their interest, and focus their enthusiasm on the current topic. Curiosity is a critical factor in the learning process, both as a motivator and as a facilitator (Koechlin & Zwaan, 2006). To stimulate curiosity, develop a culture of inquiry in your school by providing an information- and technologyrich environment accessible to all through the school library. Then, design engaging effective "hands-on, minds-on" learning experiences that enable students to build understanding (Wiggins & McTighe, 1999, p. 21).

In our new book, Q Tasks: How to Empower Students to Ask Questions and Care About Answers (2006), we provide an entire chapter to help develop and harness the potential power of curiosity as a catalyst for learning. We revisit some old activities, such as 20 Questions, trivia, and riddles, as relevant kid-friendly starting places for building questioning skills. Of course, it takes more than curiosity about the topic to build an effective learning experience. Students need to learn to turn their curiosity and wonderment into good questions. They also need to be observant as they gather data and watch for patterns as well as conflicts. Questioning also helps with analysis. Because of the volume and complexity of data that are available to students on any given topic or concept, questioning skills must be activated throughout the entire research process.

So, how do questions improve student effort and achievement? When questions belong to the student, he or she is engaged and empowered because now this learning experience is about what the student needs and wants to know. Need, of course, is closely related to effort. Our main objective in teaching students to be effective questioners is the chemistry that takes place between questions and understanding. The number 1 reason that many research projects in classrooms are ho-hum bristol board displays or plagiarized reports is that they are driven by the "all about" syndrome, where students simply hunt and retrieve the data that they discover about a topic and feed it back into the form of a prescribed product with no analysis and with low-level synthesis. It is easy to fix this! If you really want your students to demonstrate their personal growth and understanding through assigned research projects, they must process the data that they have gathered through the lens of a good inquiry question or challenge (Koechlin & Zwaan, 2006).

HOW CAN QUESTIONS AND QUESTIONING ELEVATE THE QUALITY OF RESEARCH PROJECTS?

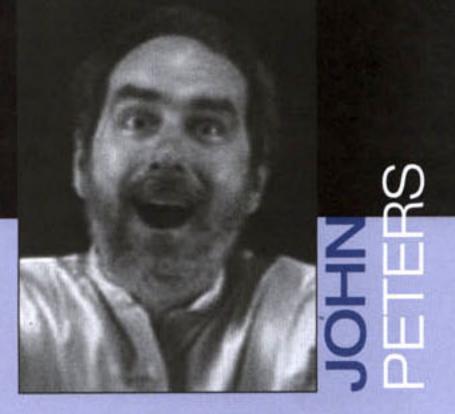
Questioning

- shifts thinking from product to process,
- moves from simply assigning projects to supporting student-directed learning,
 - · builds a culture of inquiry,
- is engaging and relevant because the student owns the project, and
 - deepens student understanding.
 Research based on effective questions
 - stimulates curiosity,
 - demands rich information sources,
 - · guides and focuses research,
 - · provokes deep thought,
 - · prompts analysis and synthesis,
 - enables personal understanding, and
 - encourages transfer.

Research without effective questions is fake research and results in

- · "all about" regurgitation,
- · cut-paste-and-plagiarize,
- fill-in-the-blanks,

BOOKMARKIT



PICTURE BOOKS<

NATURE: MORE FIRST LOOKS

The far-flung adventures of Homer the hummer. Cynthia Furlong Reynolds. III. Catherine McClung. Mitten Press, 2005. \$17.95. 978-1-58726-269-2. Grades 1–3. Demonstrating its truly amazing endurance, a ruby-throated hummingbird travels from a Costa Rican rain forest to meet its mate in a favorite garden on the U.S. eastern seaboard—facing, along the way, dangers as diverse as a hungry frog, hundreds of miles of open water, and a night of deadly cold.

In the garden: Who's been here?

Lindsay Barrett George. HarperCollins, 2006. \$16.99. 978-0-06-078762-2. Grades 1–3. Gathering provisions for dinner out in the garden, two children point out signs of earlier visitors to each other: chewed leaves, gaps in rows, disturbed soil, and more. What animals made them? On alternating spreads, George reveals the identity of each small creature with a finely detailed, realistic portrait.

The stars beneath your bed: The surprising story of dust. April Pulley Sayre. III. Ann Jonas. HarperCollins, 2005. \$15.99. 978-0-06-057188-7.

Grades 1–3. What links the stars, red sunsets, and those bunnies under your bed? Find the answers in this far-reaching, beautifully illustrated look at what dust is and where it comes from.

The sunset switch. Kathleen V. Kudlinski. III. Lindy Burnett. NorthWord Books, 2005. \$15.95. 978-1-55971-916-2. As one set of animals settles down to sleep, another set wakes up in this poetic introduction to the diurnal and nocturnal worlds.



> ADULT BOOKS FOR OLDER TEENS

FOOD, GLORIOUS FOOD

Candyfreak: A journey through the chocolate underbelly of America. Steve Almond. Harcourt, 2005. \$13.00. 0-156-03293-7. A selfconfessed candy addict, Almond travels to America's small candy factories, dispensing fascinating facts in a light, often amusing manner. Laugh and learn about candy with this easy, breezy read.

Comfort me with apples: More adventures at the table. Ruth Reichl. Random House, 2002. \$14.95. 0-375-75873-9. Reichl, editor of *Gourmet*, writes about her job as a restaurant critic, her personal life, chefs, and exotic travel. Rich with wonderful tales and recipes, this book will appeal to food fans and those curious about cuisine.

What Einstein told his cook:
Kitchen science explained. Robert
L. Wolke. W. W. Norton, 2002. \$25.95.
0-393-01183-6. Can you fry an egg on a sidewalk? What is cream of tartar?
Obtain the answers to these and other compelling food questions in this educational, entertaining book. Packed with fun facts, this book is great for browsing.

Don't eat this book: Fast food and the super sizing of America.

Morgan Spurlock. Putnam, 2005. \$21.95. 0-399-15260-1. A great codicil to his movie Super Size Me, Spurlock's book teaches and amuses the reader while warning about the dangers of fast food. This book is a valuable primer about the American diet.

Julie and Julia: 365 days, 524 recipes, 1 tiny apartment kitchen. Julie Powell. Little, Brown, 2005. \$23.95. 0-316-10969-X. Join Powell as she cooks her way through a classic Julia Child cookbook in this amusing, revelatory blog turned book.

- · quote-the-experts,
- · line-up-the-facts,
- invitational plagiarism (assignments that invite plagiarism by their design),
 - · disinterested students.

DESIGNS FOR DEVELOPING UNDERSTANDING WITH QUESTIONS

We offer three ideal designs for developing understanding with questions. When the teacher (T) and the teacher-librarian (TL) collaborate in the design of instruction, we know that student (S) achievement is enhanced (Lance & Loertscher, 2002).

DESIGN 1: STUDENT AS QUESTIONER

T and TL provide exploratory activities to build background knowledge.

T and TL instigate activities to spur thinking and help make connections.

S experiments by building questions until S has the "just right" question.

S conducts research with S question as guide.

EXAMPLE

Learning focus. Students identify early European explorers and understand how these explorers affected the development of North America.

Building understanding. Share pictures and video clips of modern-day explorers. Discuss the accomplishments and the challenges of today's explorers, and introduce the European explorers who ventured to North America long ago. In the library, set up discovery stations based on different types of resources, such as books, pictures, videos, Internet sites, and encyclopedias. Provide students with five to six quick-fact trading cards. These cards ask for simple facts that answer the question prompts who, what, when, where, which, how, and why. Have students rotate though the discovery centers to complete as many quick-fact cards as they can in the time available.

Next, have students meet in groups and share and sort their cards into categories. Provide each group with a large question-builder matrix (see Figure 1) and instruct them to build questions about European explorers. Have students select questions that they are interested in, and have them experiment with more questioning until they each have the "just right" question. Conference with each student to ensure that he or she has a question that will be a good guide for research.

For more information, see the Background to Question model from *Ban Those Bird Units* (Loertscher, Koechlin, & Zwaan, 2005, pp. 5–19).

FIGURE 1

	is	did	can	would	witt	might
Who						
What						
When					10	
Where						
How						
Why						
Which						
	Your best question	ns for this project				

Question Model

DESIGN 2: TEACHER AS QUESTIONER

T and TL pose an engaging question.

S builds background knowledge with the question as guide.

T and TL pose a higher-level conceptforming question.

S works with information and ideas to achieve understanding.

EXAMPLE

Learning focus. Students understand the interactions within ecosystems.

Building understanding. Introduce the topic with a good video or picture book that deals with the impact of interference within an ecosystem. Brainstorm for types of ecosystems and build a class web site.

Organize students into ecosystem teams, and pose an engaging investigative question and task to frame their first inquiries—for example, What evidence of life can you find in your ecosystem?

Organize student findings into food chains. Within their ecosystem groups, have students work collaboratively to explore a variety of resources, gather data, and organize data into visual food chains.

Form new groups with students from different ecosystem teams, and pose a new question that allows students to compare their food chains to uncover deeper understanding—for example, What do ecosystems need to remain healthy?

For more information, see the Concept Jigsaw Puzzle model from *Ban Those Bird Units* (Loertscher et al., 2005, pp. 81–89).

DESIGN 3: TEACHER AND STUDENTS AS QUESTION PARTNERS

T and TL design an overarching question to frame the unit.

T and TL provide exploratory activities to build background knowledge.

T and TL instigate activities to spur thinking.

S experiments building questions until S has the "just right" question.

S conducts research with the question as guide.

T and TL bring class back to the unit's overarching question.

EXAMPLE

Learning focus. Students explore the major factors that influence healthy living.

Building understanding. The overarching

question is Who is in charge of my body?

Design a web quest where students are investigative reporters who work with partners to research an aspect of healthy living, such as nutrition, substance abuse, dieting, food additives, body image, popular culture, and so forth. The pairs of reporters each write a news column for a teen "zine." During and after sharing the zine, instruct students to record questions about the information shared and its relationship to their personal attitudes and lifestyles. Review levels of questioning and urge students to develop questions that will help them gain deeper understanding.

Provide students with a rubric or criteria checklist for effective inquiry questions—for example, effective questions

- · stimulate your curiosity,
- encourage you to dig deep for your information,
- challenge you to think about your discoveries,
 - prompt you to analyze your findings,
 - · guide your research quest,
 - · keep you on track,
 - · spark your imagination, and
 - · help you to make personal meaning.

When students have built good questions, they are ready to start their independent research. Remind them that their presentations should answer the class question, Who is in charge of my body?

WHAT CAN WE DO WHEN THE TOPIC IS ASSIGNED TO STUDENTS OR WHEN STUDENTS SELECT A TOPIC FROM A LIST?

I know we want the kids to ask questions, but how? How, when research is set by the teacher, out of necessity for content standards and time—when kids have the topic and are ready to begin research, how do we get them to ask the question then?

-Participant's comment after a workshop on questioning

What this participant said is often the reality. Students come to the school library with their topics in hand, topics that are to a large extent preprogrammed by the classroom teachers. Of course, content standards drive what we as teacherlibrarians do in schools, and our job is to help teachers and students meet their objectives. Even though the student has had little or no choice in the topic, we can use many strategies to generate the spirit of inquiry. Take, for example, the ubiquitous "Know Your Province/State" project or the "Select an Animal, Famous Person, or Ancient Civilization" project. The usual demonstration product for this project is a pamphlet, but it can also be a bristol board display, a slide show, or a written or oral report. The point is that these parameters have already been assigned, and now in the school library you have an opportunity to help students buy in, through injecting questioning techniques at the beginning of the exploration stage and later on throughout the research process.

Q TECHNIQUE 1: EXPLORE WITH GUIDING QUESTIONS

HOW CAN TEACHER QUESTIONING HELP STUDENTS BECOME CURIOUS ABOUT A TOPIC?

Take students on an e-tour of their province, state, or city (see Figure 2).

Q TECHNIQUE 2: QUESTION STORMING

HOW CAN STUDENT-GENERATED

QUESTIONS GET KIDS EXCITED ABOUT

A TOPIC?

Question storming is a lively collaborative activity. Teach students how to explore a topic through brainstorming and through webbing lots of questions about it. Model the process by organizing and charting student questions with the students. Use a visual organizer, or have students brainstorm questions on sticky notes and then organize them into a web. Use a software program such as Smart Ideas or Inspiration, and watch the questions and the excitement about the topic grow!

FIGURE 2



Guided E-Tour of Newfoundland

By using this strategy, you will discover that it is much easier for students to narrow a large topic and zero in on a manageable but meaningful inquiry focus. Ask students to highlight the phrases, words, and questions that they are particularly interested in. These subquestions can serve as guideposts or subtopics on which to focus their research. Next, have them develop a list of keywords to help them with online searches.

Q TECHNIQUE 3: PREPARING FOR RESEARCH

HOW CAN QUESTIONING HELP STUDENTS GET ORGANIZED FOR RESEARCH?

Before students embark on a search to find information for their research projects, they need to get their thoughts organized and make some plans. A KWL (know, want, learned) organizer helps students activate prior knowledge, spur questioning, and identify sources and keywords to guide searches. When students complete this organizer, they will be ready to use their searching time efficiently, and they will have time for actually processing the information they find (see Figure 3).

FIGURE 3

Hhat do I Know	what do) Reed to know	Where can I find intermetion
it keywords and proases will	Lead me to information I need?	

Whatel adag

KWL Organizer

Q TECHNIQUE 4: EVALUATING RESOURCES

HOW CAN STUDENT-GENERATED QUESTIONS HELP WITH RESOURCE SELECTION?

You can model effective questioning by providing students with questions that they need to consider when evaluating the reliability and usability of a resource for their projects. Eventually, however, we want the questioning process to become so intuitive that students can assess the quality of a book or web site in their heads—so to speak. Turn over the questioning responsibility to your students and have them generate the questions that they will use to evaluate their resources. You can use an organizer such as question-builder frames to prompt their questions (see Figure 4).

Q TECHNIQUE 5: TEST IDEAS

HOW CAN QUESTIONING HELP STUDENTS TO CLARIFY THEIR THINKING AND TEST OUT THEIR IDEAS?

When students have gathered their data information, they need methods of analyzing it before they finalize their thinking, draw conclusions, and prepare to share their learning. An effective strategy at this stage is to set up peer-to-peer conferences. Instruct the students to prepare the questions that they will ask their partners about the analysis

FIGURE 4

Mho S. Are, was, were did. does Lan. could would, should	
wit, might	
Hituat	
n, are was were did, does can, could	
would, should will, might.	
Nown is, ane, was, were stid, does can, cooks would, should will, might	
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will, might	
now	
S. and, was, word did, does can, could	
world shovid will might	
Which	
S. ane, was, were did, does can, could	
world, should will, might	

Question Builder Frames

of the data that they have gathered. Model the process first so that students understand how the quality of their questions helps to clarify ideas and uncover new possibilities.

Sample questions include the following:

- What was it about this topic that caught your interest?
- What can you tell me about your discoveries?
- What did you find that surprised you? disturbed you? gave you pause for thought? tickled your funny bone?
- What is really important about your findings? Why? To whom is it important?
 - · Who or what might this affect? How?
- How did you come to understand . . .
 (something about the subject)?
- How has your thinking about this changed since you started your research?
- Did you draw any conclusions? find a solution to a problem? make a decision? think of new or different approaches?
- What would you like to see happen now?
 Who should get involved? How do you fit in?

Q TECHNIQUE 6: REFLECTION AND ASSESSMENT

HOW DO WE CULTIVATE THE ABILITY TO SELF-QUESTION?

After a learning experience, students will benefit from recording their questions as well as their thoughts and feelings. Provide prompts for reflection, and have students start or finish their response journals with questions they are pondering.

You can also give students ownership of the assessment process by asking them to brainstorm the criteria that they believe are key to the success of a presentation, such as an oral report or a multimedia presentation. Agree on the general criteria, and have students work in groups to develop questions for a rating scale or checklist to assess presentations—for example, ask, "Did the presenter communicate effectively with the audience?" Collate the questions and prepare the assessment tool.

OVER TO YOU

We hope that these questioning techniques will inspire many other ideas for elevating what appear to be ho-hum assignments. The teacher-librarian's carefully crafted interventions in the school library should ignite the needed spark to spur student interest and consequently affect student effort. Regardless of whether you are working with classroom teachers in ideal environments (where you work together to design learning for students) or you see students only after the project has been assigned, motivation is key to student effort and success. When research assignments are worthy of effort, kids of all levels and abilities will be motivated to strut their stuff. When students own the questionsthey are interested!

Futurists tell us that students will need critical thinking skills and the ability to critically access information in all forms of media. According to Daniel Pink (2005), the future lies with those who possess the aptitude to high concept and high touch. In his book A Whole New Mind, Pink tells us that we are moving from the logical, linear, computer-like capabilities of the information age to the inventive, empathetic, bigpicture capabilities of the conceptual age, and with that comes a whole new set of skills. Intuitive questioning techniques will become essential in this new era.

We need to keep in mind that learning experiences should provide students with skills and processes that will prepare them for life in the 21st century. Assignments and

projects that require students to retrieve only the information and ideas of others belong to the information age, not the conceptual age. We need to think about ways to create relevant real-work tasks that will allow students to engage and grow. If we work on questioning as a major component of assignbehind the question: What to really ask yourself to eliminate blame, complaining, and procrastination. New York: Putnam.

Pink, H. D. (2005). A whole new mind. New York: Riverhead Books.

We need to think about ways to create relevant realwork tasks that will allow students to engage and grow. If we work on questioning as a major component of assignment design, students will find the experience well worth the effort.

ment design, students will find the experience well worth the effort.

BOTTOM LINE

Questions and questioning will elevate the quality of research projects. Questions are the answer to building knowledge and understanding.

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