

Building Guided Inquiry Teams for 21st-Century Learners

by Carol C. Kuhlthau and Leslie K. Maniotes

How can students learn to think for themselves, make good decisions, develop expertise, and become lifelong learners in a rapidly changing information environment? How can students learn, create, and find meaning from multiple sources of information? These are fundamental questions facing educators in designing schools for 21st-century learners. Guided inquiry is a practical way of implementing an inquiry approach that addresses these 21st-century learning needs for students.

Guided Inquiry

Guided inquiry is based on extensive studies of the Information Search Process (ISP) in assigned research projects (Kuhlthau 1985, 2004). These studies clearly show that learning through research is more than simply collecting information. The ISP or inquiry process is complex and requires guidance, instruction, modeling, and coaching. The implementation of ISP depends on a flexible team of educators, including the school librarian who serves as the resource specialist, information literacy teacher, and collaborator.

Studies of the ISP identify six stages of learning that provide insight into how to guide students in the inquiry process:

- ▶Initiating—opening the inquiry;
- ▶Selecting—selecting a general topic;
- ▶Exploring—exploring for background information and ideas;
- ▶Formulating—forming a focus;
- ▶Collecting—synthesizing information about the focus; and
- ▶Presenting—organizing information and ideas to share with others.

The resource, *Guided Inquiry: Learning in the 21st Century*, adds a seventh

stage: Assessing—reflecting on the learning (Libraries Unlimited 2007). The book further states that the principles and foundation of guided inquiry are grounded in a constructivist approach to learning. Additional research and more information about this approach can be found in the book.

In a constructivist learning environment, the instructional team needs keen observational skills to teach and assess learners as well as to notice when a learning need arises. When the team observes confusion and uncertainty, they need to be ready to intervene. For example, when students get frustrated in the exploring stage, they need to be encouraged to take time to read and reflect, as well as guided in making sense of information and strategies for working through the learning process. Providing targeted intervention in each stage of the inquiry process deepens students' learning experiences. Through an accumulation of these timely experiences in the learning process, students learn to recognize changes in their feelings and thoughts. They learn "how to learn" in a lasting and transferable way from a variety of sources.

Complex Learning

An important advantage for students who use the guided inquiry approach is the variety of different competencies and knowledge they can develop. Through every inquiry, students accomplish five interwoven, integrated kinds of learning: curriculum content, information literacy, learning how to learn, literacy competence, and social skills (see Figure 1).

Core and Extended Team

Because the implementation of learning through inquiry is complex and multi-faceted, it takes a team to teach and assess. A three-member core team to plan and supervise the inquiry is recommended with an extended team of other experts joining in when they are needed. A team approach takes full advantage of the expertise of the school and community.

Flexible teams change with the learn-

ing needs of students. The core team is built by thoughtfully considering the learning—curriculum standards to be met and the abilities of the students. More is not necessarily better. Too many subject areas with diverse objectives may clutter and confuse the inquiry, serving to obstruct rather than enhance learning. These core teams should include both school librarians and teachers with varied expertise.

Three-member teams provide a synergy of ideas for developing inquiry learning. The third member joining the school librarian and the subject area teacher may be a second classroom teacher, subject area teacher, or a specialist in reading, special needs, technology, or the arts. Teams working together provide the additional guidance and support needed to teach and assess all five kinds of learning.

The extended team may incorporate community members from the public

library and a range of other experts. Personnel from museums, zoos, historical sites, and nature parks offer a wealth of information that is often overlooked or misused. Targeting a specific, related aspect of the resources through a staff expert, such as those listed, is an effective extension of the team (see Figure 2).

Examples of Teams

The following examples illustrate the use of core and extended teams in primary, middle, and high school. After each example, there is a closer look at how the team works together to support the learning and assessment needs through the unit.

Example 1

In a primary school, the classroom teacher teams with the school librarian and reading or learning specialist to meet the science curriculum content objective: to learn different animal traits.

The three-member core team develops students' information search strategies for finding images and interesting facts, reading and writing ability, and social skills for collaborating and critiquing each other. The staff of the local zoo joins the extended team to provide a visit with particular attention on comparing animal groups. The final project is an animal report presented

Figure 1. Five Kinds of Learning in the Inquiry Process

Curriculum Content	gaining knowledge, interpreting, and synthesizing
Information Literacy	locating, evaluating, and using information
Learning How to Learn	initiating, selecting, exploring, focusing, collecting, presenting, and reflecting
Literacy Competence	reading, writing, speaking, listening, and viewing
Social Skills	cooperating, collaborating, flexibility, and persistence

Figure 2. Flexible Teams

What?	Who?	How?	When?
Core Team	Librarian, Subject Area Teacher +1	Flexible depending on ►Unit/curricular need ►Students' interest ►Learning needs Focus on five kinds of learning Assess all levels of learning	From beginning of planning (conception) to end reflection (completion)
	+1 = content area or classroom teacher learning specialist: literacy, gifted, LD resource technology		
Extended Team	Experts on learning Experts on content	Assist with literacy needs, learning needs and differentiation Museum, local /community, wider community—Internet based, university	Dipping in and out as needed throughout the inquiry

from the animal's perspective. Students use a Web 2.0 tool such as *Blabberize.com* for an animated presentation of the animal giving the report. The technology teacher joins the extended team to assist with the Web 2.0 application.

A chart (see Figure 3) details the shared task of the instructional team for teaching and assessing. Although the team understands the entire project and scope of all areas of learning, for assessment purposes they break down the task, which allows them to hone in on the area of their expertise. X1 is a primary area of observation, note taking, guiding, and assessing. X2 is a secondary area. This team utilizes each team member's expertise and carefully tracks student learning through inquiry. All team members agree to monitor social growth and development, and they discuss their documented observations of students during team planning meetings.

Example 2

Upper elementary and middle school students are immersed in inquiry learning. The school librarian joins the social studies teacher and the language arts teacher to form the core team in order to meet the social studies curriculum objective: to gain an understanding and appreciation of local history.

Students are guided through all of the stages of inquiry, particularly concentrating on exploring for formulating a focused perspective. Staff from a local museum joins the extended team to plan for a visit to expand ideas and clarify questions using primary sources. Inquiry circles enable students to work together in each stage, building on the foundation laid in primary school. As a culminating activity they present "I was there" accounts to personalize their understanding. They use Web 2.0 tools to publish and share what they have learned with the school and community. The technology teacher joins the extended team when needed.

A chart (see Figure 4) describes the way that the instructional team shares the teaching and assessment of the five

kinds of learning. Teams offer professional growth opportunities as well. In this example, the language arts teacher is interested in information literacy so she assists the school librarian in assessing students' uptake of information literacy skills. This works in two ways: the school librarian has another set of eyes to assess students' information literacy and the language arts teacher learns more about information literacy through conversations with the school librarian on student growth. Likewise, the social studies teacher, who has attended a workshop on guided inquiry, implements inquiry circles. He also adds to his knowledge of the ISP through interactions with students and the team.

Example 3

Secondary school students employ the full inquiry process in their daily studies to meet standards in subjects across the curriculum and to engage in all five types of learning. Life science investigations center on real world scientific questions that are important to students. For instance, to meet the objective of learning about organisms in the environment and dangers of the global spread of disease, such as an influenza pandemic, the school librarian joins the science teacher and writing teacher to form the core team. An expert from the local hospital joins the extended team to tell about experiences related to contagious disease. Students are guided in conversing, charting, and compos-

Figure 3. Instructional Team Task

5 Kinds of Learning	School Librarian	Reading Specialist	Classroom Teacher
Science Content			X1
Information Literacy	X1		
How to Learn (ISP)	X1		
Literacy		X1	X1
Social Skills	X2	X2	X2

Figure 4. Teaching and Assessing Five Kinds of Learning

5 Kinds of Learning	School Librarian	Social Studies	Language Arts
Social Studies		X1	
Information Literacy	X1		X2
How to Learn (ISP)	X1	X1	
Literacy			X1
Social Skills	X2	X2	X2

Figure 5. Learning about Learning with Flexible Teams

5 Kinds of Learning	School Librarian	Life Science	Writing/ Language Arts
Science		X1	
Information Science	X1		
How to Learn (ISP)	X1	X2	X2
Literacy			X1
Social Skills	X2	X2	X2

ing throughout the stages of the inquiry process. If needed, a technology expert may join the extended team. Students create presentations in Web 2.0 formats and discuss their findings on class wiki discussion threads and on blogs. Additional experts may be consulted online and brought in as speakers to add authenticity to the inquiry. The history teacher joins the team in a follow-up inquiry on the history of pandemics.

In this team, each member takes on a primary (X1) area of focus and a secondary (X2) area. The staff has attended workshops on guided inquiry and they understand the ISP to varying degrees. With the school librarian's help, they all focus on the ISP during this cycle of learning to understand the stages and help each other track learning about learning (see Figure 5, page 20).

This example also highlights the flexible team approach showing that with each inquiry a new team is formed based on the learning goals. As in this case, the history teacher creates a new team for a relevant and timely follow-up inquiry. In this way the entire school works as a learning organism in which one learning event feeds another and expertise is maximized across the board.

Getting Started— Taking Inventory

Teachers and school librarians experienced in collaborative team teaching have a good basis for implementing this flexible team approach. They can effectively build on what is already in place. The first step is for participants to take inventory of the expertise at the school—where are the strengths? What areas need to be developed? How will gaps be filled?


Inventory of the community should also be taken in regard to learning objectives. Is the expertise available being tapped? Who are the experts that might add to the resources in the school and on the Web? How are available and varied resources currently being used to meet the information needs of 21st-century learners?

The challenge of using guided inquiry is to take learning to a higher level—to raise the bar as well as facilitate the sharing of experiences, successes, and obstacles along the way.

References:

- Kuhlthau, C. C. *Teaching the Library Research Process*. The Center for Applied Research in Education, 1985. (Second ed. Scarecrow Press, 1994).
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