



by Barbara Stripling, September 2008

The old yellow journalism adage, "Inquiring minds want to know," actually has more than a kernel of truth to it. Both experience and research tell us that students engaged in inquiry are more motivated to pursue learning on their own than students who are fed pre-organized information that they are expected to remember. Inquiry lies at the heart of the new standards issued in 2007 by the American Association of School Librarians, entitled *Standards for the 21st-Century Learner*. To understand and implement the new standards, library media specialists need to have a clear conception of "inquiry" and its implications for teaching and learning through the library media center.

Inquiry is a process of learning that is driven by questioning, thoughtful investigating, making sense of information, and developing new understandings. It is cyclical in nature because the result of inquiry is not simple answers but deep understandings that often lead to new questions and further pursuit of knowledge. The goal of inquiry is not the accumulation of information; it is the exploration of significant questions and deep learning.

What is the difference between inquiry and information literacy?

The American Association of School Librarians (AASL) and the Association for Educational Communications and Technology (AECT) issued standards for information skills called *Information Literacy Standards for Student Learning* in 1998. These standards clearly outlined the skills necessary for students to access, evaluate, and use information; become information literate and independent learners; and display social responsibility in the use of information. The new 2007 standards broaden the concept of information literacy by incorporating the skills necessary for a more constructivist view of learning, in which students are empowered to ask meaningful questions and follow a path of discovery to construct their own understandings, draw conclusions, create new knowledge, and share their knowledge with others. These new standards emphasize that the questioning, critical thinking, and creative generation of new knowledge are as important to students' learning as their information finding.

Inquiry, as defined by the new standards, is a way of learning that involves more than the application of skills. Also necessary for inquiry are dispositions (attitudes toward learning), responsibilities, and self-assessment or reflection.

Together, all of these domains encompass a full picture of the requirements for the 21st-century learner.

Why focus on inquiry?

The emphasis on inquiry is a natural extension of John Dewey's ideas of learning through experience—that learners draw meaning by connecting one experience to another and to the future and by reflecting on and organizing the ideas that emerge from the experiences (Dewey 1938, 20, 27, 43, 45-7, 49, 87). Dewey's ideas are the basis of what is now called constructivism, in which learners are expected to construct their own meaning and teachers are expected to frame an environment that stimulates learners to question and discover rather than passively to receive information delivered to them (Brooks and Brooks 1993,30).

Increasingly, educators in all subject areas are recognizing the power of inquiry to provoke deeper learning. Selected books on the subject of using inquiry as the core concept are listed in the references. Library media specialists, whose primary focus is helping students learn the process skills to read and discover the world, have often struggled in the past to gain recognition from their education colleagues about the importance of process skills for learning content. With the rising emphasis on inquiry-based teaching and learning in all content areas, classroom teachers are accepting more readily the integrated teaching of process and content. In fact, as information explodes and teachers recognize that they can never deliver all the important information in their subject area, a new consensus is forming about the necessity of teaching students how,

rather than what, to learn. Linda K. Jordan probably expressed the views of many teachers when she said this about science inquiry: "Although inquiry may not be the only way to teach science, many science educators believe that it may be the best way for students to learn science" (Audet and Jordan 2005, 43).

What is the underlying process of inquiry and what skills are most important?

Most models of inquiry follow the same general cycle (Audet and Jordan 2005, 14; Stripling 2003, 7; Kuhlthau, Maniotes, and Caspari 2007, 17-20; Shorttetal. 1996,18,157):

- Tap into prior experience, background knowledge
- Generate intriguing questions or problems that can be investigated
- Develop a plan for investigation
- Select resources—select, analyze, and evaluate information that addresses the questions or problems
- Organize information, find patterns, draw conclusions and new understandings
- Create demonstration of learning and share with others
- Reflect on the process and product of learning; generate new questions

All research is messy and recursive; inquiry is more so because no one knows the end. Even if students are inquiring about a topic that has been studied before, the new understandings that are gained are unique to those students and to the connections that they make. Throughout the process, students reflect on what they are observing and finding out. They may change direction, ask new questions, challenge the inconsistencies they discover, seek new perspectives, and fill gaps in their information.

The skills included in the AASL *Standards for the 21st-Century Learner* outline an active discovery process for all learners as revealed by the verbs used in the indicators—*inquire, use, think critically, apply, create, share, read, pursue, develop, evaluate, make sense of, demonstrate, organize, listen, collaborate, conclude, connect, respond, and seek* (2007). The attitudes toward learning, called dispositions in action, are also stated in active terms (e.g., *display, demonstrate, maintain a critical stance, employ, use, and show*) so that educators can gauge the degree to which students are displaying the habits of mind that lead to successful inquiry and learning. Because the aim of inquiry is active discovery, library media specialists and classroom teachers can employ formative assessment to track the actions of students and assess their progress in attaining and using skills and dispositions throughout the inquiry cycle.

How does inquiry differ across content areas?

Although the process of inquiry is much the same as it is applied in various content areas, the emphasis may be on different types of thinking. In mathematics, for example, inquiry in the curriculum focuses on problem-solving and reasoning. Students are expected to look for patterns and relationships that explain the physical world. The patterns/relationships exist as truths that are not dependent on the time (when), the place (where), or the reason (why) of the problem; therefore, students must be concerned with accuracy and logical reasoning, not with point of view or context (Stripling 2003, 23-24).

Science students are expected to question, hypothesize, and investigate the natural world. Their inquiry is guided by a search for accurate and replicable evidence in order to confirm or refute a hypothesis and draw conclusions about the truth. Similarly to mathematics, the evidence is evaluated for its credibility and accuracy, not its point of view or social context. Identifying misconceptions is particularly important for science inquiry because most people tend to form theories about the way the world works through simple observation rather than investigation. Fallacious theories are not easily replaced unless they are brought to the surface and countered with more accurate information (Stripling 2003, 21-23).

Inquiry in history and the social sciences focuses on people and their interactions with the world. As a result, students must assess the evidence for point of view, social and historical context, authoritativeness, credibility, and other qualitative factors. In the social sciences, students inquire to find multiple truths as representative of different perspectives and different time periods. Inquiry in the social sciences is concerned with the interplay of "Why?," "Who?," "Where?," "When?," "What caused?," "What resulted?," and "How good or bad?" rather than the "How?" or "What?" of science and math. Interpretation of evidence and drawing conclusions in social-science inquiry are very complex processes that must be based on students carefully evaluating the evidence without succumbing to their own personal biases. It may be important for students to identify their own point of view before social-science inquiry, just as students in science must identify their own misconceptions (Stripling 2003, 24-27).

Inquiry in language arts and literature is based on interpretation of evidence that includes weighing the social context, determining point of view and authors purpose, questioning, identifying main ideas and supporting details, making inferences, and synthesizing. Inquiry about literature (both fiction and nonfiction) must be very text-based with background material used as a context for interpretation of the text. Inquiry in the language arts classroom that is not tied to literature often provides a rich opportunity for students to choose any researchable subject of personal interest. The skills most important for individualized inquiry will vary according to the subject chosen (Stripling 2003, 27-29).

What is the role of the library media specialist in inquiry-based teaching and learning?

The goal of inquiry-based teaching is that all students develop an "inquiry stance" with more emphasis on asking good questions than finding the answers (Cochran-Smith and Lytle 1999). The payoff in terms of in-depth learning is profound: "Students can and do learn about subjects in teacher-centered classrooms, but they learn best in a learner-centered environment that emphasizes inquiry" (Audet and Jordan 2005, xiii).

Every inquiry learning experience should start with a challenging problem or question (often generated by the students) that is meaningful and worthy of deep exploration. Questions that are connected to students' own lives and their prior knowledge are the most intriguing and authentic, and, therefore, motivating to students. Once students have constructed new understandings based on their investigations, they should be given opportunities to apply them to new situations.

To achieve this level of inquiry-based learning, the library media specialists role involves collaboration, teaching, and collection development, as well as leadership and professional development. There are many ways the library media specialist can approach these roles. In terms of collaboration, the library media specialist must work with teachers to help restructure the curriculum, foster cross-curricular connections, and incorporate AASL *Standards for the 21st-century Learner*. Library media specialists as teachers must be able to establish learner-centered environments, foster active and reflective learning, and enhance and support student learning while focusing on AASL *Standards for the 21st-century Learner*. Through collection development, library media specialists must provide the resources (physical and virtual) required to meet the demands of an inquiry approach to learning and teaching. They must also be leaders by fostering and encouraging inquiry throughout the school and by providing and participating in professional development opportunities related to inquiry-based teaching and learning.

Why focus on inquiry?

Inquiry is certainly not a panacea for all of the issues that students, teachers, and library media specialists face in our schools today. Library media specialists who understand the inquiry process and how it contributes to learning across the curriculum, however, will be prepared to integrate inquiry experiences whenever they are appropriate. Each time students participate in a successful inquiry activity and acquire new skills of questioning, investigation, and discovery, the library media center has fostered a culture of inquiry in the school and enhanced the understanding of content and the acquisition of lifelong learning skills—the true intent of AASL's new *Standards for the 21st-Century Learner*.

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