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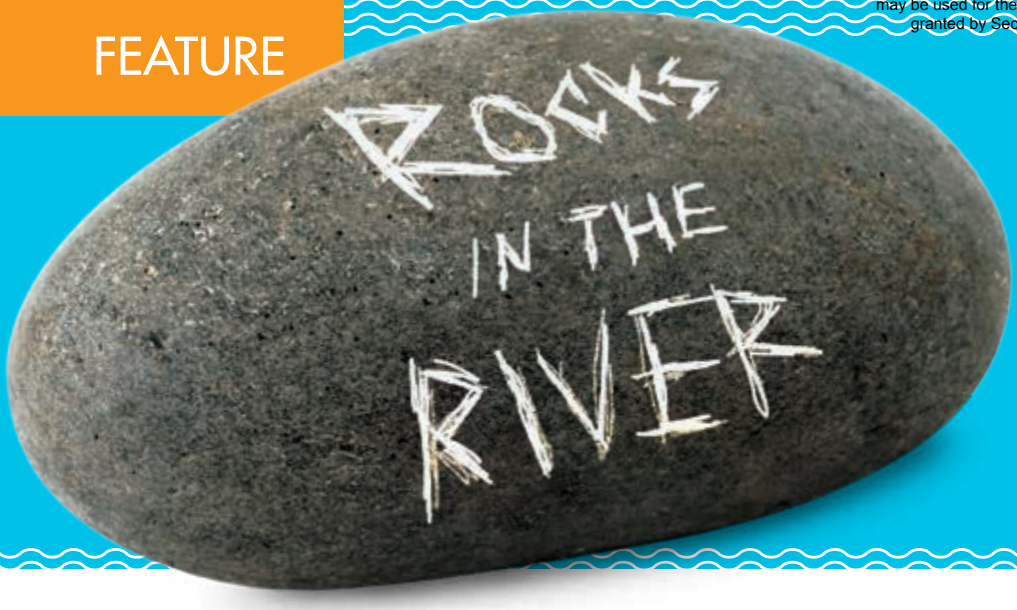


The Challenge of Piloting the Inquiry Process in Today's Learning Environment

Patrice Lambusta
Patrice.lambusta@nn.k12.va.us

Sandy Graham
Sandy.graham@nn.k12.va.us

Barbara Letteri-Walker
bjlwalker@cox.net

School librarians in Newport News, Virginia, are meeting the challenges of integrating an Inquiry Process Model into instruction. This journey to inquiry was first described in the 2009 *Knowledge Quest* article "A District's Journey to Inquiry" by Mary Keeling (Supervisor, Library Media Services, Newport News Public Schools).

In 2009 Keeling noted that Newport News school librarians—after having the opportunity to integrate a district-developed NNPS Inquiry Process Model (see figure 1) into district curriculum—were reflecting on how this integration had worked and were seeking to revise and adapt curriculum units to better match the NNPS Inquiry Process Model. However, in 2012 a focus group of school librarians working to create assessment rubrics had an "ah-ha" moment. It wasn't the curriculum units we needed to revise, but the *structure and language* of the NNPS Inquiry Process Model we were using.

In our original model we began our process by asking students to develop questions to start their inquiry journey. As we taught this model we realized that students often did not have enough background knowledge to generate questions. This realization was the first rock we encountered; many of us individually modified the model in our practices to give students opportunities to search for information on a topic before they began to generate questions.

We tried to work our way around a second rock when a team of school librarians was asked to develop rubrics to assess students' understanding of inquiry skills (see figure 2). We had already developed a scope and sequence document (Keeling 2009). Our next step was to use AASL's *Standards for the 21st-Century Learner* and New York City's *Empire State Information Fluency Continuum: Benchmark Skills for Grades K–12* to determine what successful acquisition of skills in each stage of our inquiry process would look like across grade levels (what students would know and could do). The development of rubrics stagnated at specific stages of the model. These were the same stages that had been revealed through observation and reflection as weak when we used this model in our school library instruction. Students struggled with developing questions, planning their search, and synthesizing information.

We had invested quite a bit of time and research into creating the NNPS Inquiry Process Model that would unify library instruction in our district. Therefore, it was painful to come to the realization that our model might be flawed.

Also during this time district librarians began a professional development training on inquiry with the guidance of Dr. Leslie Maniotes. The 2012 publication *Guided Inquiry Design: A Framework for Inquiry in Your School*, coauthored by Dr. Maniotes, propelled us to revisit the stages of our inquiry. The book study (with personal visits from Dr. Maniotes)—along with the lack of progress in our rubric development and our observations and reflections on student behavior as learners used the original NNPS Inquiry Process Model—resulted in a revised model (see figure 3). This model is closely aligned with Guided Inquiry but reflects what we discovered about how our students learn in our practice.

We made three significant changes in the NNPS Inquiry Process Model.

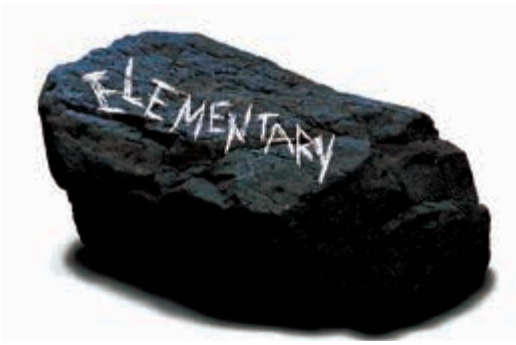
The first was structural, moving from a recursive to linear design. Second, we combined the steps of "Organize" and "Synthesize" into one step: "Understand." This term reflected what we wanted to happen in this stage and was a word that students and teachers understood at a more intuitive level than "Synthesize." After a year of working with the revised model we think the third change was the most significant: starting with an "Explore" step rather than asking students to generate questions. "Explore" incorporates hooking students, immersing them in information designed to connect them to the topic, and helping them begin to formulate their inquiry questions.

Following are the stories of three of the district's school librarians' collaborative experiences with the new NNPS Inquiry Process Model at the elementary, middle, and high school levels.

COLLECT AND CREDIT 6–8

	EXPERT	PROFICIENT	APPRENTICE	NOVICE
COLLECT AND CREDIT **Locate and access efficiently and effectively**	In addition, chooses the best or most appropriate resources from a variety of resources from libraries and the web, depending on the purpose(or need)	With guidance, uses search systems (Google, Bing, OPAC) and strategies (basic, advanced, Boolean) to locate information sources	Knows the distinguishing characteristics of a variety of resources available from libraries and the web	Uses text features in nonfiction books, print references sources, and digital text (E-books and online databases) to predict and categorize information
COLLECT AND CREDIT **Evaluate information sources critically**	In addition, can explain the reason for selection.	Independently, evaluates and selects print sources based on authority, content and point of view.	With guidance evaluates print and web sources with some consideration of authority, content and point of view.	Selects and evaluates information from preselected sources, print or web.
COLLECT AND CREDIT **Extract, take notes, and make sense of information**	Demonstrates effect of point of view on issues/ topics Recognizes how one's own point of view influences interpretation of information	With guidance, questions the information found and uses note-taking strategies, (such as graphic, organizers, etc.) to paraphrase or bullet information found in sources.	Begins to paraphrase information in bullets or short notes and determines whether information is what they need.	With guidance, uses note-taking strategies, such as graphic organizers, etc. to record the information they find. (facts, opinions, point of view)
COLLECT AND CREDIT **Use information ethically and legally**		Gives credit for quotes, ideas, images, or other works by using proper citation	Can explain the concept of plagiarism and its consequences. Understands Intellectual property and that sources that need to be cited.	Does not distinguish between one's own ideas and the ideas of others when communicating what has been learned

Figure 2. Sample rubric for evaluating sources, and finding, collecting, understanding, and interpreting information while using it ethically and legally.



The incorporation of the inquiry process at the elementary school level allows students to begin to take ownership of their learning. Although every step of the Inquiry Process is important, the "Explore" stage is what hooked our students. This step takes precious time, but it is the step that sets the tone for the project. We have learned that this is the stage that really piques the students' interest in the work they are being asked to do and

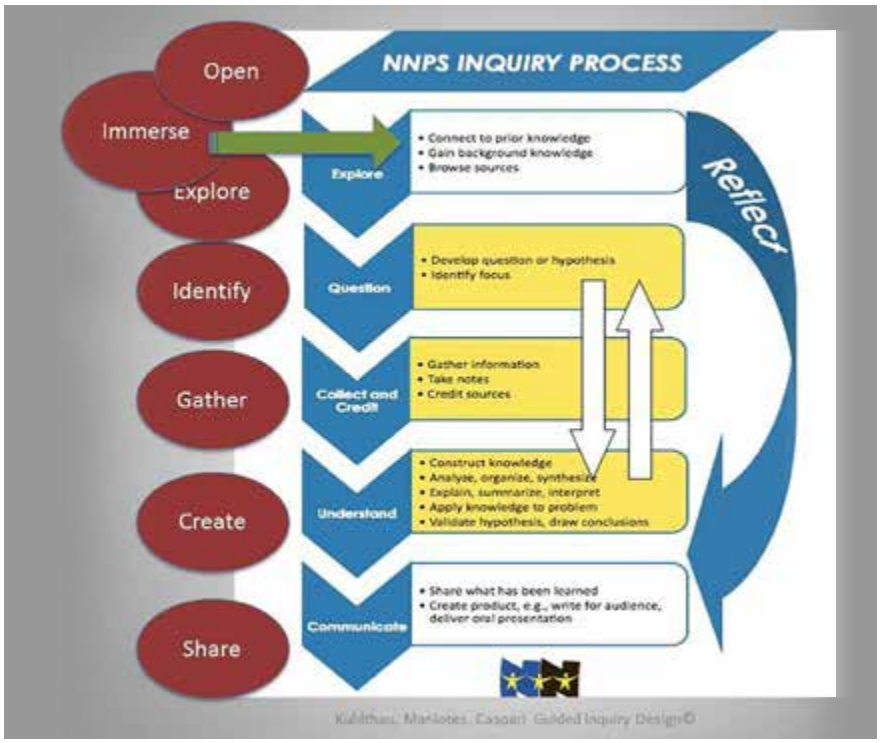


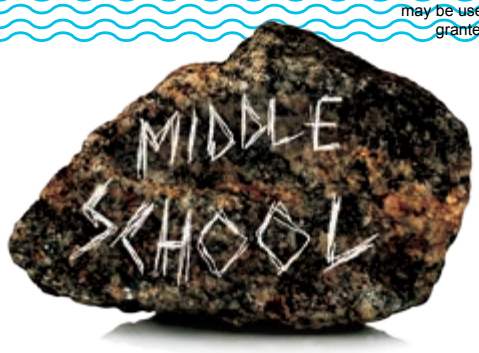
Figure 3. Newport News Public School's revised Inquiry Process Model.

causes them to put more effort into all stages of the process.

This year the explore step was structured the same way for each grade level. No matter the age group, we pulled all of our nonfiction books about a topic out on the tables, and students moved around, snagging and scanning those books that caught their interest (see figure 4).

First-grade students researched animals. Each student was given a chart on which they would write the names of three animals. One choice had to be an animal that was new to them; the other two choices could be animals that were familiar. Students felt in control of their learning because they were given the opportunity to look at all of the animal books and make choices. They also had to explain what they wanted to learn about each animal (the beginning of the questioning stage).

Our fourth-grade students explored historical people and the character traits that made them successful. After a lesson on character traits, using the classroom teacher as a model, students moved around the school library, exploring the biographies piled on the tables. They had to narrow their research choices to three people and on a graphic organizer identify the important character traits of those people. This exploration stage exposed students to a variety of people they might not have known about. It allowed them to make their own choices for research based on the personal connections they made as they browsed the book collection. As the project progressed, students narrowed their choice to one person and then had to persuade their peers to vote for inclusion of that person's portrayal in the Communication stage: a set of *tableaux vivants* that the students viewed as a living "wax museum."



The school librarian in the middle school is fortunate because of the focus on interdisciplinary teaming at her school; teachers already view the school librarian as an instructional partner. At Passage Middle School educators, including the school librarian, often plan units that incorporate two or more academic content areas. In July 2012 a team of educators from our school attended the CISSL (Center for International Scholarship in School Libraries) Summer Institute at Rutgers University. While there, we designed an inquiry unit that focused on collaboration and authentic research of STEM career goals. Among the presenters were two of the authors of *Guided Inquiry Design*: Dr. Carol Kuhlthau and Dr. Leslie Maniotes. They inspired us and gave us much food for thought.

Because ours is an urban school with a 65 percent free and reduced lunch population and 18 percent special education population, we knew we would have to do a lot of scaffolding to build background knowledge in forensic science. The "Explore" stage was extremely important to this unit. We opened our unit with "Forensics Day," which was a day devoted to interdisciplinary lessons designed to immerse students in a range of forensic activities. Each content teacher taught a lesson that connected his or her subject to a forensic topic. The math teachers worked with proportions using skeleton bones. In the science classes students learned about the science relating to DNA evidence at crime scenes. Our foreign language teachers taught the history of fingerprinting, and English teachers worked on solving a mystery using a commercial mystery kit.

Based on their new knowledge and experiences, students selected three of ten possible forensic careers that they wanted to know more about. That evening the teachers sorted students by interest and companionability into specialty teams. These inquiry circles then explored a variety of materials on the forensic career of choice. Students used inquiry logs to "Dip In" (Kuhlthau, Maniotes, and Caspari 2012) and read about their careers. These logs were used to determine what resources would be useful in learners' research.

Because of its success, this unit became the model for all future inquiry units in this middle school.

Facilitating Guided Inquiry Projects at the high school level is challenging due to the tight curriculum-pacing schedule established by our district in response to standardized testing. It's difficult to collapse original research into a ninety-minute class period and provide the "considerable guidance and intervention that students need throughout the process to construct personal understanding" (Kuhlthau, Maniotes, and Caspari 2012). Our revised 2012 Inquiry Model has led to more opportunities to evaluate how students work when they are in the "Explore" and "Gather" steps (the two stages of the NNPS Inquiry Process Model that are most often facilitated in our school library).

Figure 4. First-graders explore in animal books.

Two successful projects have evolved as a result of our faculty members' interest in collaborating to design inquiry lessons. One is an English Renaissance project with the twelfth grade. Students were placed into groups, and each student in the group was given a different social, cultural, or political topic to explore. As the "Explore" stage came to an end, student groups were given time to share their findings within their groups and establish how individual topics fit together to epitomize an aspect of the time period. Next, students were given a selection of Renaissance poems to study. From this group of poems, learners selected two or three whose themes best reflected the topics explored. Over the next several weeks students continued to expand on what they learned during the "Explore" stage; they further analyzed the poems within the context of Renaissance society and created a group thesis. They also agreed upon the format they would use to present their findings to their classmates. The most surprising discovery for the classroom teacher was how easy it was to guide students through the process when she was able to give a name to the stage of work being done.

The other project is a video project with U.S. History students. Again, exploration of topics within a given time period provided students with the background information necessary to choose an event and craft scripts that were turned into videos using our multimedia production lab. In both projects, students, teachers, and school librarians had a common vocabulary to evaluate progress, address the skills needed to complete the work in each stage, and provide valuable feedback and guidance during the process, when student misunderstandings are much easier to interpret and correct.

While instruction in critical evaluation of sources and appropriate citation of sources remains the bulwark of our high school library work, we believe that as students move up to us from elementary and middle school with an understanding of the NNPS Inquiry Process Model, we will be able to encourage more complex and real life-connected inquiry in our high school students.

Conclusion

We know that students are excited to do research when given choices, but we have since learned that the "Explore" step in our NNPS Inquiry Process Model ensures a deeper understanding of what they learn. Through collaboration with other students and immersion into rich resources, students build background knowledge needed to connect what they already know with new knowledge gained through inquiry.

We will continue to navigate our way around the rocks in the river of inquiry as we make this journey with our students, but we feel confident that our NNPS Inquiry Process Model provides our students with a strong foundation in inquiry skills and fosters a desire for lifelong learning.

Sandy Graham *is a library media specialist at Menchville High School Newport News Public Schools in Newport News, Virginia. She is a co-sponsor of* The Lion's Roar*, the student newspaper at Menchville High School. She is an AASL member.*

Patrice Lambusta *is a school librarian at Passage Middle School in Newport News, Virginia. She was named the 2014 Librarian of the Year for York Region, Virginia. She is currently co-authoring the book* Guided Inquiry Design in Action: Middle School *with Leslie Maniotes and Ladawna Harrington. She is an AASL member.*

Barbara Letteri-Walker *is a retired elementary librarian living in Newport News, Virginia. She was named the Kiln Creek Elementary Teacher of the Year for 2010–2011.*

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