

From Corn Chips to Garbology: The Dynamics of Historical Inquiry

What can corn chips teach us about history? Quite a bit, as participants learned at a History Education Clearinghouse workshop at the 2011 American Historical Association annual meeting. Upon arriving for the workshop, we found sandwich baggies filled with golden-brown chips on every seat. Historian Laurel Thatcher Ulrich and Harvard Project Zero director Shari Tishman used the chips as artifacts to lead the participants through a See/Think/Wonder exercise. They provided a thinking routine that provokes inquiry about artifacts—even the mundane corn chip—that is useful for learners of all ages (Figure 1). By encouraging detailed observation and turning the ordinary into a voyage of exploration, See/Think/Wonder teases out many historical questions and connections: from corn planters and pickers to ethnobotany and the history of cooking, from African American work songs to Native American creation stories, from agribusiness to manufacturing to ethanol (1).

A month later, one of the authors of this article repeated the same exercise with a cohort of K–12 teachers. They noted how corn chips and the step-by-step thinking process provide a flexible vehicle for moving from personal connections through intriguing questions to investigation. After that workshop, one of the teachers decided to test the exercise with her fourth graders, giving them magnifying glasses to help them inspect the chips in greater detail. “Students came up with the same questions that our cohort came up with back in February,” Teresa Robbins reported. “I was so surprised and proud that they used higher order thinking skills to formulate these questions. They asked about the families that were involved in growing the corn, the brand and its historical significance, the factory that it was produced at, the packaging that was used, and many other questions” (2).

As the corn chip story illustrates, a growing number of teachers are finding ways to cultivate these higher order skills and habits by



Figure 1. In our fascination with the latest computer technology, we can lose sight of how much we can learn from the simplest of household artifacts. Consider the humble corn chip. Educators have used it as the focus of an innovative See/Think/Wonder exercise that can work at any grade level to make connections between science, labor, business, and culture. By placing student (and teacher) inquiry at the center of the history classroom, the exercise points to the value of inquiry-based models of learning. (Courtesy of Jean-François Chénier; Photograph by Jean-François Chénier)

engaging their students in a systematic process of historical inquiry (3). To help teachers think more deeply about the dynamics of inquiry and to foster it in their classrooms, this article presents a theoretical inquiry framework that provides context, purpose, and shape to historical thinking. We construct this framework by combining Barbara Stripling’s existing model of inquiry with our own Dual Inquiry (DI) model. Whereas Stripling’s model focuses on the learner’s inquiry process, the DI model captures inquiry from the teacher’s perspective, describing the dual roles of teacher-as-learner and teacher-as-teacher. With the aim of enabling teachers to draw practical inspiration from our model, we have provided a number of concrete illustrations, including applications to the upcoming year’s theme for National History Day.

The Stripling Model of Inquiry

Several inquiry models exist, but the variations in these models are more about labels, emphasis, and particular content focus rather than fundamental principles (4). A more inclusive model that synthesizes inquiry practices across disciplines and skill levels has been developed by Barbara Stripling, a longtime classroom teacher and librarian who now teaches at the School of Information Studies at Syracuse University (5). Stripling’s model (see sidebar) describes six stages through which the inquiring mind moves: Connect, Wonder, Investigate, Construct, Express, and Reflect (6). The broad framework she provides situates the elements and strategies of historical thinking in a comprehensive process of thinking and learning. This model helps guide and engage students in the process of historical thinking. It invites students to get curious. It honors students’ questions, and it asks for a thoughtful explanation of their answers.

A particularly important aspect of the Stripling model, which we have learned through our own classroom practices and in inquiry workshops with other teachers, is that the Reflection “stage” is not a

Stripling Model of Inquiry

The model developed by Barbara Stripling thoroughly articulates, guides, and benchmarks the learner's inquiry process. Stripling describes six major stages in the process:

Connect: Making connections to self or previous knowledge. Connecting is a means to gain background and context.

Wonder: Develop questions related to the connections. Make predictions; hypothesize.

Investigate: Find and evaluate information that will answer the questions, test hypotheses. Think about this new information in light of new questions and hypotheses.

Construct: Develop new understandings connected to previous knowledge. Draw conclusions about questions and hypotheses.

Express: Apply understandings to a new context or situation. Express new ideas to share learning with others.

Reflect: Reflect on own learning. Ask new questions.

summative evaluation at the end of the inquiry. Rather, each step or component must include reflection. As they move through the inquiry stages, students may ask themselves, for example, "Does my question (Wonder) concretely identify what it is I want to know?" or "Is my choice for reporting what I'm learning (Express) the most effective way to share my knowledge?" Reflection also invites metacognitive queries: "How do I know I have a good question?" "Why does my interpretation matter?" "What is sufficient evidence?"

Applied Garbology

Based on our experiences working with teachers on inquiry strategies, we have found the Stripling model highly useful, but have also noticed its limitations in fully describing the dynamics of inquiry in the classroom. Consider, for example, the case of Kyle Haynes and Buck Blankenship, two social studies teachers at Sinagua Middle School in Flagstaff, Arizona. Inspired by the results they obtained using the See/Think/Wonder exercise with corn chips, they fashioned an even bolder exercise for helping their students build investigative and interpretive skills. As they began the process of working with students to develop National History Day projects, Haynes and Blankenship asked them to analyze garbage, borrowing the strategy of "Garbology" from history educators and archaeologists at the Arizona Historical Society (7). The two teachers assembled several bags of "clean" garbage and labeled them Household A, B, C, and so on. Then they divided students into groups of four and asked them to sort through

a household's refuse. What did they see? (Connect) What does an object reveal? What is its purpose? What can be said definitively about the household based on the evidence? What can be inferred? What is not there? (Wonder) The students were then encouraged to think about various categories of analysis: age and gender, relationships in the household, occupation, education, religion, hobbies, socioeconomic standing, and political preferences. (Investigate)

After the investigation, each group of students shared its conclusions, using the evidence excavated from the garbage to support their claims. (Construct and Express) As the students did so, Haynes reported that he saw students use "higher reasoning skills" that they "seem to turn off during traditional instruction." Blankenship agreed, saying that he sees students shut down when presented with an "old picture" or "boring letter." He added, "Because the artifacts were things that many of them are familiar with, they were engaged in the conversation with more ownership than usual." The teachers learned, too, that the students were quite astute. "Because the trash was from different teachers in the building," Blankenship noted with a bit of surprise, "the students were pretty much dead on with whose it was." That caused him to think, as the students questioned and offered an economic and nutritional analysis of his eating habits: "On a personal note, I realized I needed to start eating healthier, as I watched students analyze my trash—no more microwave mac and cheese!" Then the whole class discussed the merits of the analysis. Was the interpretation logical? Backed by evidence? What did the group assume? Could there be other interpretations? (Reflect) Haynes was impressed with how fast some students came up with suppositions based on evidence in the trash. They made observations that made the teachers think more about their culture and time. The activity also bolstered student confidence. One student said, "This is what historians do? I can do that" (8).

The Dual Inquiry Model

The strategies that Haynes and Blankenship used reflect a crucial aspect of inquiry that Stripling's model does not address: in order to facilitate powerful and authentic student inquiry, the teacher must be a learner too. Not just learning how to teach inquiry methods and skills, but learning content right along with the students. Even though these two teachers filled the garbage bags, they discovered, through the students' analyses and questions, that the garbage yielded substantially more information about the hypothetical households than they had anticipated. By learning alongside the students, they not only made the learning more engaging for the students, they acquired a precious gift. They became learners in their own classrooms. This shift in the teacher's role turns a classroom into a dynamic arena where the teacher is both a guide for learning and a learner in her own right.

Based on work the authors of this article have done with teachers and the reports of teachers' experiences, the authors have developed the Dual Inquiry model (9) (Figure 2). DI extends the Stripling model by describing a teacher's fluid and multidimensional roles in the inquiry process. The teacher-as-learner inquires about a particular subject (e.g., Theodore Roosevelt as both a hunter and a conservationist); the teacher-as-teacher inquires about how to guide inquiry (e.g., the kinds of questions appropriate to each stage). The helical dual strands of inquiry illustrate the interrelationships of conducting and guiding inquiry.

The horizontal threading on the DI model represents the interweaving of pedagogical considerations in facilitating inquiry—including content standards, learning skills, and assessment strategies. The vertical thread presents the dual thought processes of teacher-as-learner and teacher-as-teacher through each of the Stripling stages.

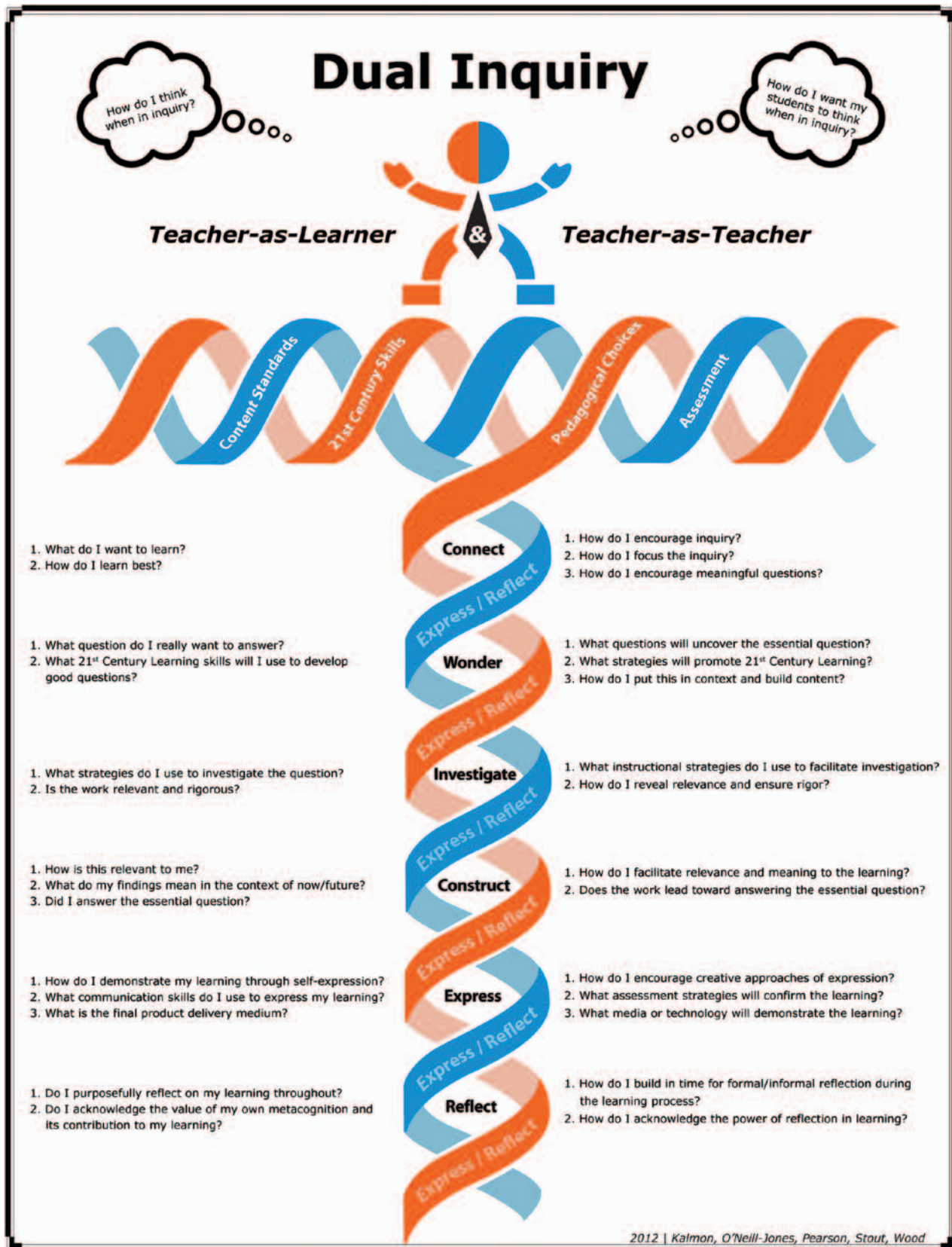


Figure 2. Combining the insights of a model of learning developed by Barbara Stripling with the authors' own classroom and workshop experiences with inquiry-based learning, the Dual Inquiry model suggests that a realistic account of classroom pedagogical dynamics must include both teacher-as-teacher and teacher-as-learner. The teacher not only fosters systematic habits of historical inquiry in her students, but also develops her own thinking through a metacognitive process. (Courtesy of the authors; Design by Peggy O'Neill-Jones)

The questions on the left side of the DI model represent the questions one might have in the role of a learner. For example, in the Investigate and Construct phases the teacher-as-learner—responding to the questions on the left-hand side of the model—asks what strategies to use for investigation, or how the information being explored has relevance. The teacher-as-teacher—using the questions on the right-hand side—considers what strategies will promote both curiosity and rigor. Express and Reflect are shown as both discrete inquiry stages and as interwoven strands through all stages, emphasizing the power of metacognitive learning.

Teacher-as-Learner: Reflecting on TR

To explore this model more deeply, the teacher-as-learner may have two modalities. In the classroom the teacher-as-learner might—indeed, *should*—learn alongside the students. In addition, the teacher-as-learner may explore a question or topic because she wants to solve a problem or just wants to know more. As a learner, she wrestles with the content by asking questions, reading sources, and doing the work of a historian. To return to the Theodore Roosevelt example, the teacher-as-learner might puzzle over the president's excesses as a hunter and his concurrent interest in conserving nature's bounty. Here, for instance, is an excerpt from Roosevelt's 1883 hunting diary:

- 24 Aug. "Knocked the heads off 2 sage grouse."
- 25 Aug. 6 sharptail grouse, 2 doves, 2 teal.
- 26 Aug. 8 prairie chickens.
- 27 Aug. 12 sage hens and prairie chickens, 1 yearling whitetail "through the heart."
- 29 Aug. "Broke the backs" of 2 blacktail bucks with a single bullet.
- 31 Aug. 1 jack rabbit, "cutting him nearly in two."
- 3 Sept. 2 blue grouse.
- 4 Sept. 2 elk.
- 7 Sept. 2 elk, 1 blacktail doe.
- 8 Sept. Spares a doe and two fawns, "as we have more than enough meat." Kills 12 grouse instead.
- 11 Sept. 50 trout.
- 12 Sept. 1 bull elk, "killing him very neatly . . . knocked the heads off 2 grouse."
- 13 Sept. 1 blacktail buck "through the shoulder," 1 grizzly bear "through the brain."
- 14 Sept. 1 blacktail buck, 1 female grizzly, 1 bear cub, "the ball going clean through him from end to end."
- 15 Sept. 4 blue grouse.
- 16 Sept. 1 bull elk—"broke his back."
- 17 Sept. "Broke camp . . . Three pack ponies laden with hides and horns" (10).

How curious it is that the founder of the Boone and Crockett Club and hunter of nearly extinct bison in North Dakota and big game in Africa was the same individual who set aside wilderness areas as national parks to be preserved for all time? To determine what motivated and explained his actions, the teacher-as-learner might explore Roosevelt's childhood, analyze his speeches, examine photos and films of Roosevelt, and read secondary accounts. Hence, the teacher-as-learner is an inquirer and investigator in her own right. Then the teacher might express her conclusions to students, or if there were a National History Day contest for teachers, the teacher might express her learning in a paper, website, exhibit, documentary, or performance. Meanwhile, a teacher whose students are engaged in various inquiries learns alongside her students. As they investigate and explore and express their learning, the students see the teacher learning with them.

Thus the DI model helps explain and encourage multifaceted inquiry. Moreover, it frees teachers from the fallacy that they have to know it all. An inquiry ethos grants teachers permission to be learners. Teachers who immerse themselves in a topic and model their own learning inspire students to engage in their own quest for knowledge and understanding.

Dual Inquiry for National History Day

A teacher who incorporates National History Day into her curriculum is facilitating inquiry with many possible starting points. The theme for 2013 is *Turning Points in History: People, Ideas, Events*. The teacher may use primary sources rich with symbolism and interpretative potential, such as the political cartoon "School Begins," to ignite curiosity and wonder (11) (Figure 3). Published in 1899, the cartoon shows Uncle Sam as a stern schoolmaster bringing discipline to a recalcitrant group of students (labeled Philippines, Hawaii, Porto Rico [sic], and Cuba). Meanwhile, the "good" students (with the names of states) read quietly. In the corner an Indian student attempts to read, but he's holding the book upside down. A Chinese child stands at the door, seeking admission. And a black child washes the windows. The cartoon initially raises questions relating to the shift in U.S. foreign policy from conti-

Guidelines for Learning and Teaching Inquiry

Working with both inquiry models has provided us with some broad guidelines for how to incorporate inquiry learning into the classroom at every grade level.

1. **Students need to practice the various parts of the model as unique individual components and as an integrated process.** At first, students will need a great deal of instructional and coaching support while they learn and practice new ways of thinking. As students become accustomed to, and more sophisticated in, the tasks of inquiry, their need for scaffolding will be reduced.
2. **Both the subjects of inquiry and the process itself must be authentic to the student.** The connection and wondering must genuinely flow through the student's mind; otherwise, the inquiry is just fancy dressing for the same kind of academic exercises that students are repeatedly asked to perform.
3. **The teacher must share in the student's learning.** The teacher is the expert guide, but the terrain explored may be largely unknown to both the teacher and student. Even when the teacher has substantial content knowledge related to a particular topic, she must join in the student's fresh exploration of this apparently familiar information.



Figure 3. This political cartoon, entitled “School Begins,” was published in *Puck* magazine on January 25, 1899, as the U.S. Senate debated annexation of the Philippines. Offering rich potential for inquiry-based learning, for both teacher and student, its caption reads: “Uncle Sam (to his new class in Civilization).—Now, children, you’ve got to learn these lessons whether you want to or not! But just take a look at the class ahead of you, and remember that, in a little while, you will feel as glad to be here as they are!” (Courtesy of Library of Congress)

mental to global exercises of power. The teacher-as-teacher uses these questions to assist students in finding topics of compelling inquiry.

But the teacher-as-learner may find additional questions in the cartoon. In one workshop, for example, a participant asked, “If you replace Uncle Sam with John Bull (England’s Uncle Sam throughout the eighteenth and nineteenth centuries), who would be sitting on the bench?” Whether as learner or as teacher, an educator could ask “Who might be sitting on the bench now?” What does the exaggerated caricature of the black child’s face suggest—segregation and racism? The Chinese child at the door—Chinese Exclusion Act? The teacher-as-teacher may use these figures to raise questions about racism in the United States. The teacher-as-learner may contemplate the connections between imperialism and immigration.

Learners engaged in inquiry ask critical questions that spark meaningful investigations and personal learning that connect to NHD themes. These examples illustrate how the Dual Inquiry model makes thinking visible, for teachers as well as for learners, as the learning unfolds. The teacher-as-teacher promotes self-directed learning and thinking by students: What do I want to learn? What question do I really want to answer? The teacher-as-teacher is thinking: How do I encourage and focus inquiry around the NHD theme? How do I use this primary source to create context around the theme and to help the students develop historical thinking and knowledge? And,

because the teacher is also a learner, questions will arise that the teacher had not previously thought about, provoking an inquiry of her own. In a culture of learning, historical thinking is much more than an academic skill. As any historian will attest, once historical thinking takes hold, the learning is infectious and persists well beyond the assignment.

Creating a Culture of Learning and Historical Thinking

Beyond completion of individual projects, the larger goal for the teacher is to create a culture of inquiry in the classroom that becomes an essential part of lifelong thinking practices. Content becomes context; habits and skills are the primary learning outcomes that matter most. Fostering a culture of inquiry can and should begin in the primary grades. Students who acquire the habits of inquiry at an early age become more engaged in all learning and can extend their skills with each subsequent year of schooling (12). Obviously, the tasks assigned to students will vary widely at different grade and skill levels. Students in the primary grades might, for example, examine a toy or implement used by children of a similar age in the past to “Wonder” about how it was used, what purpose it served, how it was made, what materials were used, and why. Upper-elementary and middle school students may use documents or facsimiles of items from the past, such as excerpts from travel diaries of homesteaders or gold

seekers, historical maps, or broadsides advertising the sale of land. Students at any age can “Express” their inquiry findings in a variety of ways: scripting and performing a play, assembling items to display in an exhibit, developing a multimedia presentation, or participating in public demonstrations or competitions. While older students will presumably demonstrate greater skill and deeper understanding, the instruments and media of expression can be adapted for all ages.

Conclusion

For all learners (and teachers), development and use of the reflective practices embedded in both the Stripling and Dual Inquiry models are essential (see Guidelines sidebar). Helping learners to reflect during each of the stages enables that stage to contribute unique invaluable aspects to a more comprehensive understanding of the inquiry process. Moreover, a recurrent, systematic practice of reflection is the most effective method for helping students develop the capacity for thoughtful assessment of their learning and thinking.

Historical inquiry involves a process of learning and discovering in a cultivated culture of thinking and doing. Facts take on meaning; the learning is pervasive. The Stripling and Dual Inquiry models presented in this article provide a broad framework in concert with definable, describable, and executable activities. The teacher-as-teacher deploys these activities to design and facilitate inquiry learning with students; the teacher-as-learner savors them as loving expressions of lifelong learning. □

Endnotes

1. Thanks to Shari Tishman and Laurel Thatcher Ulrich for the corn chip exercise, “American Historical Association Annual Meeting in Boston, January 8, 2011. The See/Think/Wonder exercise is one of many thinking strategies that may be found at the Harvard Graduate School of Education’s “Project Zero’s Visible Thinking” project. To read more or find other thinking guides, such as Explore/Reflect/Question or Think/Puzzle/Explore go to Harvard’s “Visible Thinking” website at http://www.pz.harvard.edu/vt/VisibleThinking_html_files/03_ThinkingRoutines/03c_Core_routines/SeeThinkWonder/SeeThinkWonder_Routine.html.
2. Teresa Robbins, “Reflections on the Historical Implications of the Colorado Plateau Unit for 4th grade students at Desert View Elementary School, Page, Arizona,” class paper for History 590, Northern Arizona University, April 12, 2011.
3. This essay on inquiry builds, in part, upon the growing scholarship on teaching and learning history. See, for example, Thomas Andrews and Flannery Burke, “What Does It Mean to Think Historically?” *AHA Perspectives* 45 (January 2007): 1. <http://www.historians.org/perspectives/issues/2007/0701/>; Nikki Mandell, “Thinking Like a Historian: A Framework for Teaching and Learning,” *OAH Magazine of History* (April 2008): 55–63; and Sam Wineburg, *Historical Thinking and Other Unnatural Acts* (Philadelphia: Temple University Press, 2001). Articles from past issues of the *OAH Magazine of History* have offered examples from the authors’ own practice for teachers to use in promoting historical thinking. See, for example, Kline Capps and David E. Vocke, “Developing Higher-Level Thinking Skills Through American History Writing Assignments,” *OAH Magazine of History* (Fall 1991): 6–9; Ray W. Karras, “Writing Essays that Make Historical Arguments,” *OAH Magazine of History* (Summer 1994): 54–57; Miriam Forman-Brunell, “Teaching American History with Teddy’s Bear,” *OAH Magazine of History* (Summer 2001): 46–47.
4. See, for example, Carol Kulthau, Leslie Maniotes, and Ann Caspari, *Guided Inquiry: Learning in the 21st Century* (Westport, Conn.: Libraries Unlimited, 2007); Jamie McKenzie, *Learning to Question, to Wonder, to Learn* (Bellingham, Wash.: FNO Press, 2005); Carol Koechlin and Sandi Zwaan, *Q Tasks: How to Empower Students to Ask Questions and Care about Answers* (Markham, Ontario: Pembroke Publishers, 2006); The Great Books Foundation, *An Introduction to Shared Inquiry: A Handbook for Junior Great Books Leaders* (Chicago: The Great Books Foundation, 1999); and M. Suzanne Donovan and John Bransford, eds., *How Students Learn: Science in the Classroom* (Washington, D.C.: National Academies Press, 2005).
5. Barbara Stripling, “A New Year, A New Path in my Journey,” <http://www.barbarastripling.org/a-new-year-a-new-path-in-my-journey/>.

6. Barbara Stripling, “Teaching Inquiry with Primary Sources,” *Teaching With Primary Sources Newsletter* (Summer 2009): 2–4, <http://www.loc.gov/teachers/tps/quarterly/>.
7. Kyle McKoy, *Downtown Underground: Archaeological Clues to Tucson’s Past* (Tucson: Arizona Historical Society, 2002), 35–38, online at <http://www.archaeologysouthwest.org/what-we-do/investigations/to/reports/downtown-underground/>.
8. Conversation between Kyle Haynes and Linda Sargent Wood, January 20, 2012. Email correspondence from Kyle Haynes to Linda Sargent Wood, April 9, 2012, and from Buck Blankenship to Linda Sargent Wood, April 7, 2012.
9. Thanks to the Library of Congress Teaching with Primary Sources (TPS) Western Region staff—Taylor Kendal, Keith Patterson and Todd Wolfe—for the visual design of the model. For the TPS Western Region website, go to <http://www.msdc.edu/tps/>.
10. Edmund Morris, *The Rise of Theodore Roosevelt* (New York: Random House, 1979), 278–79.
11. Louis Dalrymple, “School Begins,” *Puck*, January 1899, 8–9, <http://www.loc.gov/pictures/resource/cph.3b48925>.
12. Ron Ritchhart and David Perkins, “Making Thinking Visible,” *Educational Leadership* 65 (February 2008): 57–61; and Ron Ritchhart, Mark Church, and Karin Morrison, *Making Thinking Visible: How to Promote Engagement, Understanding, and Independence for All Learners* (Hoboken, N.J.: John Wiley and Sons, 2011).

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