

Giving, Prompting, Making: Aligning Technology and Pedagogy Within TPACK for Social Studies Instruction

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Abstract

Technological pedagogical content knowledge (now known as technology, pedagogy, and content knowledge, or TPACK) has become a widely referenced conceptual framework within teacher education. It provides a common language to discuss the integration of technology into instruction (Koehler & Mishra, 2008) and builds upon the concepts of pedagogical content knowledge (Shulman, 1987) and teacher as curricular “gatekeeper” (Thornton, 2001a, 2001b). This paper describes a three-part pedagogical model—giving-prompting-making—to explicate the relationship between pedagogy and technology within the social studies classroom. This model is intended to enhance the TPACK framework by providing a clear and intuitive comparison between social studies teachers’ pedagogical aims and their choices with technology. The giving-prompting-making model can be used to guide social studies teacher education students to make the most appropriate use of technology.

In 1997, Peter Martorella wrote, “Arguably, technology is a sleeping giant in the social studies curriculum” (p. 511). In the ensuing years, this metaphor has been used as a touchstone for numerous discussions of technology and social studies (e.g. Berson, Lee, & Stuckart, 2001; Bolick, Berson, Coutts, & Heinecke, 2003; Bolick, McGlinn, & Siko, 2005; Crowe & van t’Hooft, 2006; Diem, 2000; Doolittle & Hicks, 2003; Freitas & Solé, 2003; Friedman, 2006; Friedman & Heafner, 2007; Friedman & Hicks, 2006; Lee, Doolittle, & Hicks, 2006; Lee & Hicks, 2006; Mason et al., 2000; Milman & Heinecke, 2000; Waring, 2007).

Perhaps the durability of this image is due to its continued relevance – technology typically plays a marginal role in most social studies instruction (e.g., Becker, Ravitz, & Wong, 1999; Hicks, Doolittle, & Lee, 2004; vanFossen & Waterson, 2008). As Doolittle and Hicks (2003) wryly noted, “The sleeping giant has been having quite a long nap” (p. 74). The technologies that have been widely adopted in the social studies—slideware (Dynarski, Honey, & Levin, 2002; Hofer, Ponton, & Swan, 2006), drill-and-practice software (Kingsley, 2005), and proprietary digital video (Boster, Meyer, Roberto, Inge, & Strom, 2006), to name three—have reinforced rather than challenged the existing curriculum (Crocco, 2001).

Since 1997 new tools have been introduced into social studies classrooms: social studies educators use wikis (Friedman & Heafner, 2007; Miller, 2007; Richardson, 2006; Solomon & Schrum, 2007), digital documentaries (Hofer & Swan, 2006; Manfra & Hammond, 2008; Swan, Hofer, & Levstik, 2007), online games (Lee, 2007; vanFossen, Friedman, & Hartshorne, 2008), Geographic Information Systems (Alibrandi & Sarnoff, 2006; Keiper, 1999; Shin, 2006; West, 2003; Wigglesworth, 2003), and structured resource collections (Brush & Saye, 2002, 2005; Lee & Molebash, 2004; Molebash, 2004; Molebash & Dodge, 2003; Saye & Brush, 2006, 2007).

Social studies journals such as *Social Education* and *Theory and Research in Social Education* devote annual issues to technology integration. Social studies education associations such as the National Council for the Social Studies’ College and University Faculty Assembly have standing technology committees. These efforts are complemented by social studies-themed issues in journals of instructional technology, including the *Journal of Computing in Teacher Education* and *Contemporary Issues in Technology and Teacher Education*. Instructional technology associations such as the Society for Information Technology and Teacher Education have social studies committees that interlock with social studies education groups (Bull, Bell, & Hammond, 2008).

Despite the growing interest in exploring technology-mediated instruction, rates of technology integration in social studies education have remained low. Social studies teacher educators are slow adopters (Bolick, Berson, Friedman, & Porfeli, 2007), as are K-12 classroom teachers (Becker, Ravitz, & Wong, 1999; vanFossen & Waterson, 2008), which has led to questions about whether the social studies as a field is suited to the use of technology. According to Milman and Heinecke (2000), “the social sciences...[do] not traditionally embrace technology” (p. 547). Historian Ed Ayers (1999) wrote, “The...writing of history has remained virtually untouched and unchanged,” despite the changes in technology available to academia. On the other hand, he noted, “The irony is that history may be better suited to digital technology than any other humanistic discipline” (para 3-4).

Theory, Purpose, and Practice in Technology Integration Into the Social Studies

Debates about the potential role technology will play in the social studies are grounded in deeper discussions about the purpose and meaning of schooling. Stanley (2005) described three foundational philosophies of social studies education—John Dewey’s pragmatism, George Count’s social reconstruction, and Walter Lippman’s conservatism. Similarly, Barr, Barth, and Shermis (1977) summarized perspectives of the social studies into three categories: cultural transmission, social science, and reflective inquiry. According to Stanley, the existential question remains, “What should be the role of teachers, especially social studies teachers, with respect to the social order—transmission or transformation?” (p. 282).

It appears that preservice (Adler, 1984, 1991) and in-service teachers (Goodlad, 1984; Ross, 1997; Zevin, 1999) align with more conservative answers (e.g., Hirsch, 1987), which is not surprising given the practical, day-to-day concerns of teachers (Thorton, 1991). Standardized curricula, high stakes testing, and competing curricular mandates in math and reading have marginalized authentic social studies instruction (Grant, 2003; Heafner et al., 2007; Rock et al., 2006). In addition, teachers' working conditions force them to contend with large classes, multiple preparations, and little time for planning (Sizer, 1985). Young teachers, in particular, are susceptible to the demands of curricular coverage and classroom control (Barton & Levstik, 2004), school culture and organization (Cuban, 1993), and the "deep-seated regularities of the classroom" (Friedman & Hicks, 2006, p. 249).

To respond to Martorella's (1997) call to awaken the sleeping giant and use technology as an "agent for change in the social studies curriculum" (p. 512), social studies educators and researchers must take into account the current state of affairs while providing "images of the possible" (Thorton, 1991, p. 247). Social studies teacher educators cannot, in the short term, reinvent the social studies, rewrite the curriculum, redesign assessment practices, or wish new, intuitive technologies into being. However, we can enter into dialogue with novice and experienced teachers about the affordances and limitations of technology integration. This dialogue must bridge pedagogy and technology by placing them within the same conceptual framework. As one preservice teacher noted, "Punching buttons is easy to learn. Thinking like a teacher about that button is really different" (in Kajder, 2005, p. 18). Meaningful discussion of technology integration should privilege "thinking like a teacher" ahead of "punching buttons."

Mishra and Koehler's (2006) framework, technological pedagogical content knowledge (referred to in this paper as technology, pedagogy, and content knowledge, or TPACK), provides a suitable starting point in our search for the "conceptual home" of technology in the social studies (Martorella, 1997). Mishra and Koehler conceived of instruction as a Venn diagram made up of three overlapping circles or bodies of knowledge: pedagogical knowledge, content knowledge, and technology knowledge. Their emphasis fell on the center—"the complex interplay" of these three circles—TPACK (p. 1025). Importantly, in their Venn diagram Mishra and Koehler equalized the three bodies of knowledge; all three play equally important roles in "good teaching."

TPCK is the basis of good teaching with technology and requires an understanding of the representation of concepts using technologies; pedagogical techniques that use technologies in constructive ways to teach content; knowledge of what makes concepts difficult or easy to learn and how technology can help redress some of the problems that students face; knowledge of students' prior knowledge and theories of epistemology; and knowledge of how technologies can be used to build on existing knowledge and to develop new epistemologies or strengthen old ones. (p. 1029)

Mishra and Koehler's diagram of content, pedagogical, and technological knowledge (see www.tpck.org) is subtly different from the figure first devised by Pierson (2001). Mishra and Koehler arranged content, pedagogy, and technology in three identically sized circles. Pierson arranged the three variables as ovals, with the oval representing technology considerably smaller than the other two. Our own thinking of the variables (see Figure 1) more closely corresponds with Pierson's.

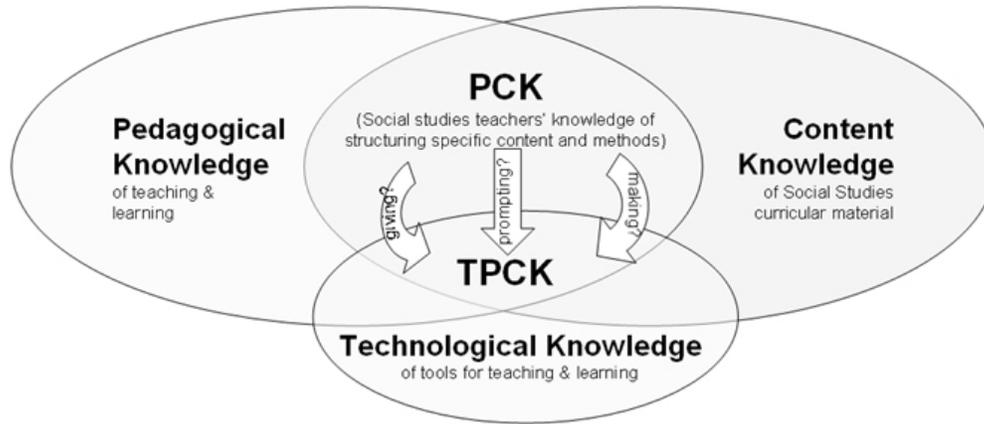


Figure 1. TPCK within social studies with sequencing (PCK before TPCK) and structure (giving, prompting, or making as the intended instructional strategies and requested technological affordances).

Based upon our research, our reading of the literature, and our own practice as teachers and teacher educators, we have focused our attention on pedagogy as the most promising starting point for considering technology use in social studies. Mishra and Koehler's predecessors (i.e., Shulman, 1987; Thornton, 2001a, 2001b) placed the teacher, and specifically the teacher's role as a curricular-instructional gatekeeper and "manage[r] of ideas" (Shulman, 1987, p. 1), at the center of curricular questions.

Our research to date, working within the TPACK framework, has suggested that teachers' classroom practices are contingent on the teacher's pedagogy more than the technology or content (Manfra & Hammond, 2008). Teachers' instructional practices emerge from and conform to their internalized paradigms of teaching and pedagogical aims (Eisner, 2002; Schurman, 1998). In understanding and improving classroom practice, Mishra and Koehler's (1996) mention of "pedagogical techniques that use technologies in constructive ways to teach content" (p. 1029) seems the most promising starting point.

A three-part model for discussing social studies teachers' use of technology for a range of pedagogical techniques—giving, prompting, and making (see Table 1)—emphasizes the role of the teacher as the curricular gatekeeper. It is intended to illustrate various modes of instruction, including transmission and transformation (Barr et al., 1977; Stanley, 2005) and to provide social studies teachers and teacher educators a common language with which to articulate their pedagogical aims.

Each part of the model focuses on a different expectation for student learning in the social studies classroom. To elicit and support the targeted student behavior, the teacher adopts a complementary stance. The appropriate inclusion of technology in the classroom is dependent on the pedagogical aims of the teacher. The pedagogy should lead the technology, not technology lead the pedagogy. This assertion is supported by the literature on social studies and technology integration.

Table 1 <i>Giving, Prompting, and Making in Social Studies Instruction</i>			
	Giving	Prompting	Making
Expected Student Behavior	To absorb and retain information; passive (or internally active)	To observe, detect patterns, create associations or make inferences; active	To generate a product, create order, describe and support a conclusion; active
Teacher Stance	To create structure, impart meaning, assign significance; active, authoritative	To present, contextualize, paraphrase, invite elaboration, juxtapose statements or evidence; active, facilitative	To supervise, challenge, offer feedback, model; active, collaborative
Example	Didactic lecture about migration in the Great Plains	Examination of a set of maps showing waves of migration, transportation routes, and relevant ecological issues	Students produce a digital documentary about successive waves of Migration to the Great Plains, drawing upon maps, photographs, documents and other digitized archival resources

Giving: Tell It to Me Straight

The first author (Hammond) still has a cartoon drawn by a student during his first year of teaching. He is portrayed in front of the classroom, coffee in one hand, the other pointing at a map, saying, "No, Chuck, it was 1683, not 1646. Look it up." The artist had accurately portrayed Hammond's first-year teaching style, the classic "frontal" style of teaching (Goodlad, 1984) typical in many social studies classrooms. The teacher stands and delivers information to students, supplementing the delivery with textbook readings and worksheets. Students then reproduce this information on standardized tests and quizzes. Driven by concerns of coverage and control (Barton & Levstik, 2004), many early-career and even veteran teachers do not stray beyond these activities. Teachers who espouse the frontal style described by Goodlad view teaching as a process of *giving* content knowledge.

In our model, giving corresponds to the transmission or direct instruction paradigm of learning (Drake & Nelson, 2009): Teachers impart information to students; students absorb information from teachers (see Figure 2). When the pedagogical aim is giving,

students are to be given clearly and efficiently the information contained in the textbook and other curricular materials, minimizing uncertainty or confusion.

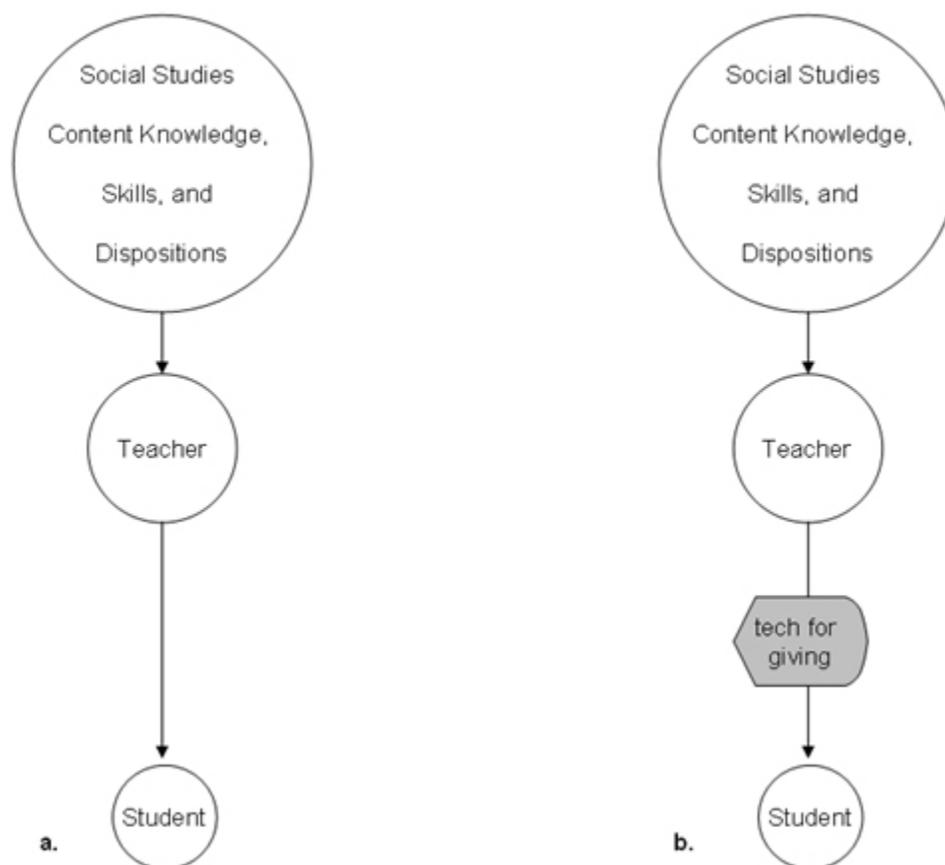


Figure 2. *Teaching via giving. The student’s experience of the content area is completely filtered by the teacher. In version A no technology is used; in version B technology is used to support the teacher’s giving of content to the students.*

Giving students the instructional objective before initiating the lesson is a recognized principle from research on effective teaching (Bloom, 1956; Mager, 1962). Dynneson, Gross, and Berson (2003) recommended short lectures combined with other teaching strategies as a “satisfactory approach to teaching [social studies]” (p. 330). According to Schwartz and Bransford (1998), “‘Teaching by telling’ can work extremely well” (p. 11). By giving students a plain presentation of information, teachers can rapidly cover content, control the classroom, and uphold standards of accuracy and exactness.

For teachers operating in contexts that feature a broad, detailed course of study and high-stakes assessments, instruction via giving may seem to offer the most expedient route. As of 2006, 23 states included social studies in their end-of-year student assessments, and 10 of the 23 use these test results to make decisions regarding student promotion or graduation (Grant, 2006; Vogler & Virtue, 2007). Teachers who face these pressures may very well favor giving as their preferred—or only—method of instruction.

Teachers have historically used technology to give or “cover” content. The programmed instruction movement of the 1950s, thanks to significant federal funding via the National Defense Education Act, brought television into American classrooms buoyed by “great confidence in our ability to design effective and replicable instruction” (Heinich, 1995, p. 67). In the subsequent decade, the developers of the New Social Studies also sought to apply technology to classroom instruction. Bruner’s (1960) seminal *The Process of Education* devoted a chapter to “Aids to Teaching.” His enumeration of these aids includes not only books but “Films, TV, micro-photographic film, film strips, sound recordings, and the like” (p. 81). According to Fenton (1967), film strips and sound tracks “bombard the senses with data” and “cover a wide range of material in very short order” (p. 72). Indeed, “if the sole objective is the mastery of a pre-selected body of facts and generalizations, then a film or a sound filmstrip designed for expository teaching may be appropriate” (Lichtenberg & Fenton, 1969, p. 396).

Since the era of the New Social Studies, tools for giving students information have proliferated. K-12 social studies teachers have widely embraced PowerPoint and other slideware to support their instruction (Dynarski et al., 2002; Hofer et al., 2006). UnitedStreaming’s video-on-demand service is widely available in K-12 school systems, and at least one study suggested that the service “enhances the examination performance” of the participating students in social studies (Boster et al., 2006). The advent of Web 2.0 technologies has rapidly expanded the pedagogical possibilities (O’Reilly, 2005) by moving slideware onto the Internet (i.e., Google Present) and allowing the creation of large online libraries of user-generated video (i.e., YouTube, TeacherTube, NextVista, et al.). These and many other technologies may be usefully applied to giving students information (Richardson, 2006; Solomon & Schrum, 2007).

However, effective social studies instruction cannot begin and end with *giving*. John Dewey (1916) criticized the practice as too passive and decontextualized. If learning social studies amounts to the “mere amassing of information,” then social studies is reduced to “a large number of statements about things remote and alien” (p. 209). For instance, teachers might give students the date of the battle of the Spanish Armada and then ask them to give it back on a multiple-choice test. Once the transmission and recitation are complete, the teacher moves on to the next concept.

Unfortunately, this type of instruction and assessment provides little evidence that students actually understand social studies content. “Indeed, it is entirely possible that a student could answer certain types of test questions correctly and still lack the most basic understanding of the situation being tested, as a teacher would quickly learn by asking the student to explain the answer” (Pellegrino, Chudowsky, & Glaser, 2001, p. 27). Asking the student to explain the answer disrupts teacher-centered pedagogies and opens up new curricular space. There is a notable pedagogical shift from a student’s directive to “Give it to me straight” to a teacher’s elicitation, “What do you see?”

Prompting: What Do You See?

One aspect of the New Social Studies that made it a “revolution in the social studies” (McElroy & Templeton, 1969, p. 105) was the pedagogical turn from the transmission mode of learning. In transmission learning, students experience content through the filter of the teacher’s understanding and expression. The New Social Studies, in contrast, called for direct contact between the student and the selected raw materials of the disciplines: anthropological films, artifacts, primary source documents, audio recordings, and so forth. Instead of being the central transmitter of knowledge, the teacher became a facilitator of the student’s engagement with the material (Tom, 1997).

The repositioning of teacher pedagogy from giving to prompting is encapsulated in a classroom experiment from the New Social Studies. The researcher provided teachers with materials (a filmstrip, memoirs, audio recordings, transparencies of primary sources, and readings) and instructed them to “refrain from the traditional role of telling” (Lord, 1969, p. 27). Instead, teachers were to ask questions:

The unit [on slavery] began with the filmstrip on the slave trade but instead of the usual statement by the teacher of “we see here,” which is usually followed by an explanation of what is before the students, the teacher asked, “What do you see?” and ‘What do you know about slavery from what you see?’ (Lord, 1969, p. 27)

The recasting of the teacher's statement from “We see here” (an implied imperative) to “What do you see?” (an interrogative) shifts the locus of cognition from the teacher to the students. Rather than accept the teacher-defined meaning of the source (as in *giving*), the students must explore the meanings and assign significance themselves. In other words, the teacher is *prompting* students to interact with the content (see Figure 3). Because the students are actively engaged in concept formation, the instruction is more learner centered and recognizes the “knowledge, skills, attitudes and beliefs that learners bring to the educational setting” (Bransford, Brown, & Pellegrino, 2000, p. 133). Students are called upon to engage in analysis and reflection of their preconceptions about slavery.

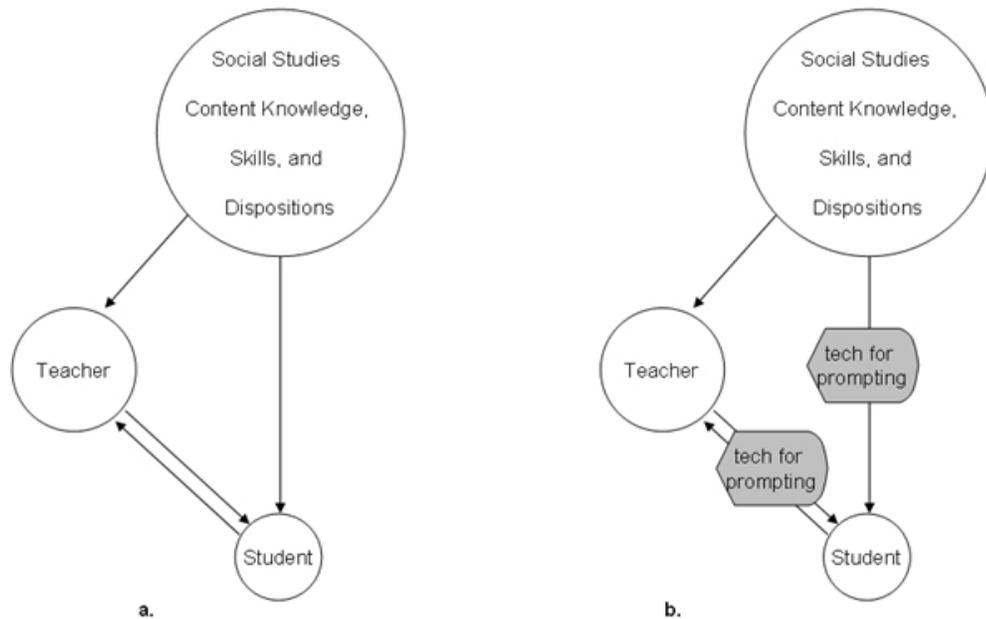


Figure 3. Teaching via prompting. The student experiences the content area as part of a dialog with the teacher. In version A no technology is used; in version B technology is used to present the content to the student or to support dialog between teacher and student.

Prompting aligns with constructivist models of teaching and learning (e.g., the zone of proximal development, Vygotsky, 1978). Through inquiry-based instruction, students develop new understandings. These understandings go beyond rote memorization as students engage in disciplined thinking and meaning making.

Students who think that history is about facts and dates miss exciting opportunities to understand how history is a discipline that is guided by particular rules of evidence and how particular analytical skills can be relevant for understanding events in their lives. (Bransford et al., 2000, p. 155)

Teachers who prompt students through thoughtful questioning help their students develop analytical skills and deeper conceptual understanding.

Such questions also have no right and wrong answers; they emphasize creative thinking rather than memorization; they allow diverse levels of engagement; they allow students to feel less intimidated by adult expertise; and they also lend themselves to the construction of arguments and the mobilization of evidence. (Jenkins, 2006 p. 24)

When engaging students by prompting, the teacher must scaffold the task (Brush & Saye, 2002). This scaffolding includes selecting appropriate materials and providing ongoing support. For instance, students could study John Smith's map of Virginia from 1608 or a simplified modern version. The teacher might provide contextualizing documents alongside the Emancipation Proclamation to either trouble the discourse (e.g., excerpts reflecting Lincoln's views on repatriation and colonization) or support the main point (e.g., only statements addressing the practice of slavery in the United States).

After selecting the learning materials, the teacher must provide strategic, ongoing support to assist students as they consider the material, whether through heuristics—such as SCIM-C (Hicks, Doolittle, & Ewing, 2004) or APPARTS (College Board, 2001)—or guiding questions (e.g., Taba, 1969). Contextual information such as timelines and maps may be provided. When students begin to offer hypotheses, the teacher can guide discussion or wait for classmates to challenge these ideas. With the proper mix of scaffolds, the teacher can make the prompting process challenging and accessible, allowing students to engage in "free-form experimentation and open-ended speculations" (Jenkins, 2006, p. 24) that develop their schema regarding social studies content.

Practitioners of the New Social Studies took advantage of the opportunities afforded by the instructional technology of the 1950s and '60s to engage students in prompting. These technologies included filmstrips, audio players and recorders, projectors, and other media. Many of these technologies were new at the time, or at least new to the K-12 classroom. Transparencies and overhead projectors, for example, were used for military instruction during World War II but did not enter schools until the late 1950s. While the developers of the New Social Studies were wary of viewing technological tools as a "panacea" (Bruner, 1960), new teaching materials were oversold, and they could not live up to their potential. The tendency during the New Social Studies was to promote technology as an "improvement of instruction" (Bender & Conrad, 1983, p. 20) rather than a tool for teaching. Fenton (1991) recognized that the materials developed to support the New Social Studies were unwieldy and "complicated the teachers' lives. These shortcomings in the materials themselves help to account for the demise of the New Social Studies" (p. 86).

Consequently, once the New Social Studies fell out of fashion, the application of emerging technologies as a tool for prompting withered. When computers entered classrooms in the 1980s, drill-and-practice dominated the social studies applications (Ehman & Glenn, 1991; Mike, 1996). When computer-based games and simulations were used, they were typically part of the classroom reward structure and did not approach the level of integration for instructional purposes observed during the New Social Studies (Clegg,

1991; Ehman & Glenn, 1991). One promising area was the emerging use of computer databases to engage students in problem-solving (Ehman, Glenn, Johnson, & White, 1990; Ehman & Glenn, 1991). The predominant use of technology in social studies classrooms, however, was watching media (films, video, filmstrips, television, and the like).

Since the 1920s, educators have looked to film to convey factual knowledge and heighten student interest (Saettler, 1990). While some researchers pointed toward the use of media for inquiry (e.g., Maynard, 1971; Paris, 1997; Seixas, 1993), most practitioners used it for presenting content or as an affective tool (e.g., Dobbs, 1987; Sabato, 1992). Portraits of social studies teachers using film as prompts to develop students' critical thinking (e.g., Percoco, 1998) are the exception, not the rule.

Contemporary examples of instructional technology being used to encourage problem-solving and inquiry-based learning involve the use of digital history resources. According to Lee (2002) digital history is "the study of the past using a variety of electronically reproduced primary source texts, images, and artifacts as well as the constructed narratives, accounts, or presentations that result from digital inquiry" (p. 504). Clarke and Lee (2004) described the use of digital history resources to encourage students to ask questions about local history and engage in historical investigation. Databases, Web-based resources (Friedman & Heafner, 2007), and digital libraries (Bolick, 2006) have been successfully integrated into the curriculum to encourage students to develop inquiry skills related to social studies concepts.

For example, "WebQuests are developed by teachers and are used by students to structure the process of inquiry-oriented activity defined by the teacher" (Molebash & Dodge, 2003, p. 158). By completing WebQuests, students learn about social studies content in more detail and develop skills of inquiry in a structured, yet student-centered environment (Milson 2002). The "Persistent Issues Forum" (Saye & Brush, 2006) and the "Digital History Reader" (Stephens, Leher, Thorp, Ewing, & Hicks, 2005) similarly prompt students to develop skills of inquiry, including analysis and synthesis.

In our own social studies methods classes, we use a wide variety of technology tools to prompt students, from data visualization (e.g., using Fathom or GIS to generate hypotheses about demographics, agriculture, and urban planning) to user-generated content (YouTube clips to initiate discussions of culture and globalization).

In the past, technology has been used to support traditional, giving-intensive paradigms of social studies instruction. However, it also can provide "the leverage so urgently needed for moving social studies instruction away from passive, teacher-dominated approaches emphasizing recall and regurgitation toward active, student-centered forms of learning demanding critical and conceptual thinking" (Crocco, 2001, para. 5). The exponential proliferation of information on the Internet will only increase the opportunities for social studies teachers to engage students in meaningful prompting (McMichael, Rosenzweig, & O'Malley, 1996).

Dynamic media and visualization tools allow teachers to restructure and package information in accessible ways for student discussion and analysis. However, the success of the instructional strategy hinges upon the instructor's ability to locate appropriate materials and structure their use for students. Technology greatly expedites this process, but—unlike using technology to transmit information in the *giving* mode—the prompt succeeds or fails based on the teacher's ability to manage the students' investigation of the material. Even relatively structured activities, such as WebQuests, cannot be used off the shelf and require significant amounts of adaptation and soft scaffolding from the

teacher. This scaffolding often extends into the third pedagogical mode in our model, *making*.

Making: Show What You Know

The third and final pedagogical strategy in our model extends the constructivist ideas underlying *prompting* into student creation of whole products—*making*. Examples of making include student-produced newsletters, essays, skits, posters, slideshows, and Web sites. Seymour Papert (1991) referred to this learning-by-making as “constructionism.” Signaling a connection to constructivism, he wrote, “Building knowledge structures’...happens especially felicitously in a context where the learner is consciously engaged in constructing a public entity” (p. 1).

We refer to this pedagogical aim as *making*. Students generate a product that provides a representation of their understanding (see Figure 4). For example, when students write an essay that describes tensions between the Sons of Liberty and Loyalists at the time of the Boston Tea Party, they draw upon a large body of interconnected concepts (e.g., boycotts, tariffs, the East India Company, smuggling, the Townshend Acts, etc.) and make their understandings visible to the teacher (Greene, 1994).

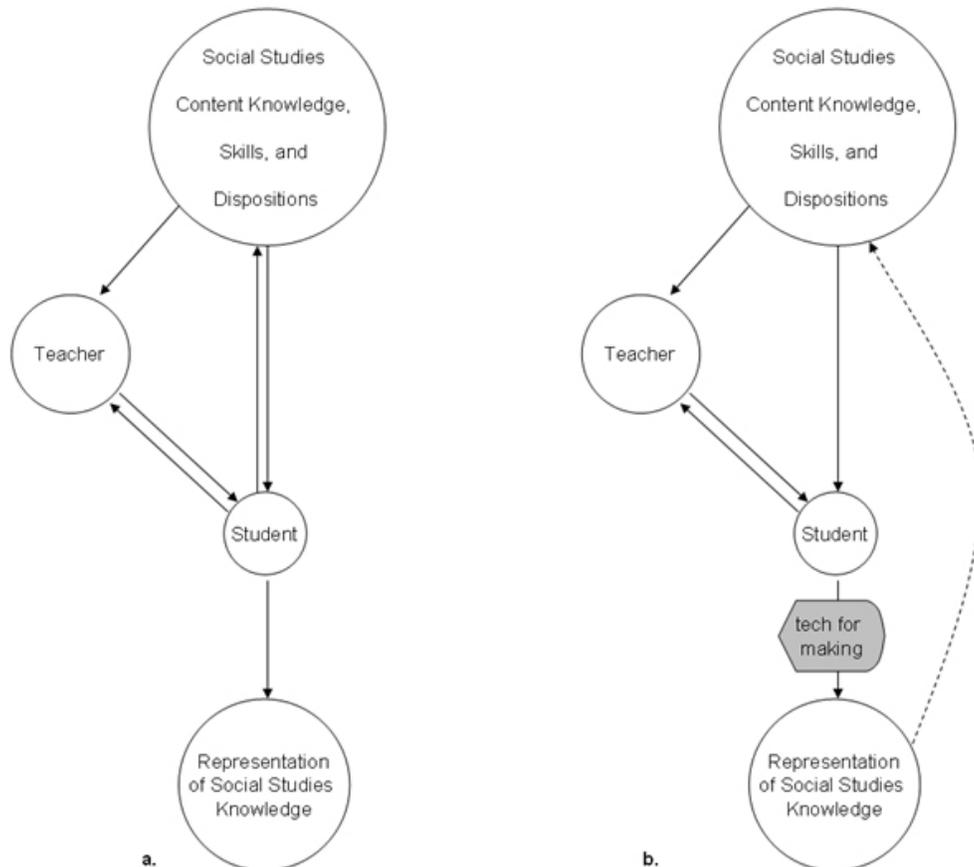


Figure 4. Teaching via making. The student learns while creating a representation of the content area. In version A no technology is used; in version B students use technology while making their product. The dashed line represents the possibility that the student product may, in turn, become part of the general body of social studies content (e.g., a local history project).

Instruction via making is analogous to project work, a staple feature of social studies instruction throughout the grade levels. In elementary grades, for example, students write snapshot autobiographies (Parker, 2005), construct a chronological mural of their city (Zarillo, 2008), conduct a survey about Halloween practices and present a report (Ellis, 2007), and create a population density map of students within the school (Lee, 2008). In middle school, students research organizations that serve people affected by wars and compose a report (Sunal & Haas, 2008) and make oral presentations about historical figures (Chapin, 2007) or assemble Jackdaws about them (Levstik & Barton, 2005).

In high school, students write a research paper or conduct original research on local history (Morell & Rogers, 2006). Creative teachers can invent or adapt combinations of content and activities in limitless ways to engage students in developing their social studies schema, making their understanding public.

Project work, and specifically the act of student creation, provides opportunities for content knowledge formation and skill development—such as research, organization, and writing (Chapin, 2007; Parker, 2005). Heavily scaffolded project work can provide students with guided practice, while less-structured projects allow for independent practice (Parker, 2005). Asking students to make something allows them to practice the transfer of conceptual learning to new contexts (Sunal & Haas, 2008). Many projects involve some element of student choice, allowing students to exercise their independence and increasing their engagement—students will often recall the content and process of their project work, even years later (Chapin, 2007). Finally, project work provides teachers with opportunities to engage students in “powerful and authentic social studies” with a focus on inquiry, problem-based learning, and higher order thinking (Newmann, 1991).

Incorporating technology into the *making* pedagogy mode seems to be a natural outgrowth of the traditional use of projects in social studies instruction. Technology has frequently been integrated into the social studies as teachers increasingly assign research projects using Web-based resources for the construction of a project (Friedman & Heafner, 2007; Lee & Molebash, 2004; Miller, 2007; Molebash, 2004; Molebash & Dodge, 2003). Teachers might also choose to have students create their final product using Web-based applications or computer software (Ferster, Hammond, & Bull, 2006; Friedman & Heafner, 2007). Student-created digital documentaries provide a new format for students to demonstrate their conceptual understanding and skill in a social studies classroom (Hofer & Swan, 2006; Manfra & Hammond, 2008; Swan, Hofer, & Levstik, 2007).

Since Martorella's (1997) article, two technological watersheds have emerged. First, the Internet became ubiquitous in society and schools—albeit in a read-only mode (Berners-Lee, 1999). Second, Web 2.0 emerged, transforming the Web into a read-write medium (O'Reilly, 2005; Richardson, 2006). A hallmark of the post-Web 2.0 Internet is user-generated content, as attested by the thousands of videos uploaded to YouTube every day. Digital videos provide a useful demonstration of the shifts within technology and technology-mediated social studies instruction. Before 1997, editing digital video required commercial software that cost hundreds or even thousands of dollars. In the ensuing years, however, both Macintosh and Microsoft released free video editors to be installed on all personal computers, and Web-based equivalents emerged during the development of Web 2.0.

Between both Web-based and locally housed software applications, fluent technology users have multiple options for splicing together video clips, still images, audio clips, screen shots or screen captures, sound effects, and text. The assembled collage can be

treated with video effects, uploaded to video sharing services and tagged with descriptors, and commented on by friends and strangers alike. The toolbox for student creations has expanded the curricular possibilities for making content. Students can now share their conceptions beyond the classroom.

The current research on technology-mediated social studies instruction offers numerous examples of students engaging in project work using technology. Friedman and Heafner (2007) researched high school students constructing Web sites to assemble primary and secondary source documents to answer questions about World War II. Dan McDowell has used wikis in a variety of ways, including a branching narrative project on the Holocaust (Richardson, 2006; Solomon & Schrum, 2007). At least two university-level history professors have begun assigning Wikipedia-based projects to teach historiography (Miller, 2007).

We have observed teachers' contrasting implementations of digital documentary projects in history classrooms (Manfra & Hammond, 2008). Brush and Saye (2001, 2002, 2005; Saye & Brush, 1999, 2002, 2004a, 2004b, 2006, 2007) have sustained a decade-long design experiment in civic education via carefully scaffolded student problem solving based in the Civil Rights Era. In each of these instances the classroom teachers chose to integrate technology to encourage students to make something new. This new product was intended to encapsulate student understandings of social studies concepts and their analytical skills. *Making* as a pedagogical mode moved students beyond rote memorization or responding to teacher prompts and allowed them greater latitude to conceptualize social studies subject matter, creating a new, unique product.

The Giving-Prompting-Making Model and TPACK

Since Martorella's (1997) "sleeping giant" the technology tools available for social studies education have expanded. Classrooms have become populated with one or more computers, these computers have been wired to the Internet, and digital projectors (and other large-format displays) have steadily become staple features of classroom equipment. Social studies teachers have already embraced some technologies—such as PowerPoint (or other slideware), WebQuests, and digital video—but teacher-centered, passive pedagogies remain the norm.

Our proposed model—giving, prompting, making—is designed to work with TPACK, specifically addressing Mishra and Koehler's (2006) observation that "Part of the problem...has been a tendency to only look at the technology and not *how it is used*" (p. 1018, italics added). Focusing on these three modes of teaching calls attention to the fit between teachers' pedagogical intentions (informed by their PCK) and their selection and use of technological tools (informed by their TK and TPACK). TPACK does not—or ought not—place the technological cart ahead of the PCK horse. Instead, TPACK is a nested expression: T(PCK). The pedagogical content knowledge is resolved first, and only then is the use of technology considered. The tool selection process is constrained by the desired instructional pattern (see Figure 1).

The TPACK framework can serve as a reminder that technology is not deterministic. As noted by Lichtenberg and Fenton (1969) during the New Social Studies, "Not that the [technological] material is either inductive or expository; it is neutral. The way in which instructional materials are used to attain particular objectives determines whether they are 'inductive' or 'expository'" (p. 396).

In contrast, a statement such as “The Internet promotes problem-solving skills” or “The Internet promotes cooperative learning” (Anderson & Speck, 2001, p. 4) fails to appreciate the role of the content and the teacher. Furthermore, individual tools can be used flexibly within a discipline. PowerPoint, for example, can be used for more than delivering “bullet point after bullet point of text.” Instead “primary sources could be displayed, coordinated, and projected and used as a mechanism for formative and summative assessment” (Hofer et al., 2006, para. 1). As suggested by Table 2, a single technology can be used in multiple modes, depending upon the purpose(s) to which it is applied.

Table 2 <i>Illustration of Technology Tools Being Used in Methods Spanning the Three Modes</i>			
	Giving	Prompting	Making
Video	Teacher shows a documentary about pioneers meant to be absorbed as factual information	Teacher shows excerpts from Hollywood films such as <i>The Searchers</i> or <i>Into the West</i> as texts to be analyzed.	Guiding students through a digital documentary-creation task about westward expansion.
Digitized primary sources	Teacher uses pioneer diary excerpts in a lecture about the hardships and uncertainties faced by settlers.	Students study photographs and newspaper clippings about Exodusters to learn about participation in westward expansion.	Students write a document-based question comparing/contrasting the experiences of Exodusters and other settlers.
GIS	Teacher uses GIS to illustrate the expansion of the railroads and the decline of the buffalo.	Students examine map layers showing Native Americans' pre-colonial territories, treaty boundaries, battle sites, and reservations.	Students create a GIS coverage that traces the migration and dispersion of a single Native American group.

The sequencing and structure proposed here coincide with the work of Harris and Hofer (Harris, 2008; Harris & Hofer, 2008). Working within the TPACK framework, they highlighted “activity structures” as instructional planning units. Instead of giving, prompting, and making, they focused on “knowledge building” and “knowledge expression” as the underlying pedagogical intention. These two structures appear to parallel and complement each other (see Table 3). *Giving* is a pedagogical stance that engenders knowledge building; *prompting* and *making* are techniques for eliciting knowledge expression.

A goal of better or more extensive technology integration does not necessarily require a philosophically transformative agenda....Instead, the

primary goal of such professional learning and reflection could be to develop and act upon TPACK in and to whichever forms and extents...teacher practitioners choose. (Harris, 2008, p. 268)

To be useful, a framework for technology integration must speak to all or many pedagogical stances and models of instruction. Technology is not inherently a behaviorist or constructivist tool. It can be effectively used within transmission models (giving) or for more transformative modes of instruction (prompting and making). Technology integration decisions should follow and extend from pedagogical decisions.

Table 3 <i>Comparison of Giving-Prompting-Making and Knowledge Building vs. Knowledge Expression</i>	
Giving (e.g., didactic lecture)	Knowledge Building (e.g., viewing images)
Prompting (e.g., primary source heuristic)	Convergent Knowledge Expression (e.g., completing a chart)
Making (e.g., student-created digital documentary project)	Divergent Knowledge Expression (e.g., developing a presentation)

We anticipate that TPACK will become a widely referenced conceptual framework within teacher education, particularly as teacher education programs become more deeply interested in addressing teachers' effective use of technology (Honawar, 2008; Thompson, 2007; Thompson & Mishra, 2007). TPACK provides a common language for discussing the integration of technology into instruction while building upon the concepts of PCK (Shulman, 1987) and teacher as curricular "gatekeeper" (Thornton, 2001a, 2001b). Our model of giving-prompting-making is intended to clarify the relationship between PCK and technology within TPACK.

It is also a clear and intuitive model for beginning teacher candidates and experienced teachers to express the importance of designing instruction that makes appropriate use of technology. The discussion of instructional modes can prompt reflection on technology-mediated strategies—"Does the selected tool help or hinder my teaching strategy?"—and about teaching, in general—"Should I prompt and then give or give and then prompt?" (Schwartz & Bransford, 1998).

Finally, giving, prompting, and making may have a special resonance for social studies education as an opportunity to discuss democratic teaching styles. After all, a classroom in which the teacher is consistently engaged in giving is not democratic. A classroom that has a healthy balance among giving, prompting, and making is likely to be more student centered and more democratic and better at preparing students for the "office of citizen" in the advanced sense (Parker, 1996).

Limitations and Next Steps

In statistical modeling, the test of a model is its ability to describe the data. The “best-fitting line” is that which produces the fewest residuals (Hamilton, 1990). Based on our experiences as teachers and teacher educators, and supported by our reading of the literature, giving, prompting, and making may provide a best-fitting line for discussing teaching and technology use. However, these modes are only an initial conceptualization. They do not address the full range of classroom tasks (e.g., assessment), and they do not speak to the intricacies of scaffolding.

Nevertheless, this initial discussion of a three-part pedagogical model can provide a useful extension to TPACK, anchoring it in pedagogy and connecting it with powerful ideas from educational scholarship. We are particularly interested in exploring the model’s utility for social studies methods classes and for conducting classroom-based research. Our aim is to contribute to “conceptualizations and a more fully formed research agenda” observed by Lee and Hicks (2006, p. 414) while also addressing the need for theoretical grounding of technology use and research (Crocco, 2001; Mishra & Koehler, 2006; Roblyer, 2005; Schrum et al., 2007).

Editor Note:

We invite discussion of giving, prompting, and making, both formally (e.g., through *CITE journal* commentaries) or informally (e.g., through the blog of the SITE Social Studies SIG: <http://siteblog.aace.org/category/teacher-education-council/social-studies/>).

References

- Adler, S. (1984). A field study of selected student teacher perspectives toward social studies. *Theory and Research in Social Education, 12*(1), 13-30.
- Adler, S. (1991). The education of social studies teachers. In J.P. Shaver (Ed.), *Handbook of research on social studies teaching and learning* (pp. 210-221). New York: MacMillan.
- Alibrandi, M., & Sarnoff, H. (2006). Using GIS to answer the “whys” of “where” in social studies. *Social Education, 70*(3), 138–43.
- Anderson, R.S., & Speck, B.W. (2001). *Using technology in K-8 literacy classroom*. Upper Saddle River, NJ: Merrill-Prentice Hall.
- Ayers, E. (1999). The pasts and futures of digital history. Retrieved from the Virginia Center for Digital History Web site: <http://www.vcdh.virginia.edu/PastsFutures.html>
- Barr, R.D., Barth, J.L., & Shermis, S.S. (1977). *Defining the social studies*. Arlington, VA: National Council for the Social Studies.
- Barton, K., & Levstik, L. (2004). *Teaching history for the common good*. Mahweh, NJ: Lawrence Erlbaum Associates, Publishers.

- Becker, H., Ravitz, J., & Wong, Y. (1999). *Teacher and teacher-directed student use of computers and software* (Technical Report No. 3). Retrieved from the Center for Research on Information Technology and Organizations Web site: <http://www.crito.uci.edu/TLC/findings/computeruse>
- Bender, L.W., & Conrad, L.P. (1983). Colleges bent on computers benefit from NDEA glitches. *Community College Journal*, 53(8), 20-22.
- Berners-Lee, T. (1999). *Weaving the Web: The original design and ultimate destiny of the World Wide Web*. San Francisco: Harper.
- Berson, M. J., Lee, J. K., & Stuckart, D. W. (2001). Promise and practice of computer technologies in the social studies: A critical analysis. In W. Stanley (Ed.), *Social studies research: Problems and prospects* (pp. 209-223). Greenwich, CT: Information Age Publishing.
- Bloom B. S. (1956). *Taxonomy of educational objectives, handbook I: The cognitive domain*. New York: David McKay.
- Bolick, C.M. (2006). Digital archives: Democratizing the doing of history. *International Journal of Social Education*, 21(1), 122-34.
- Bolick, C., Berson, M., Coutts, C., & Heinecke, W. (2003). Technology applications in social studies teacher education: A survey of social studies methods faculty. *Contemporary Issues in Technology and Teacher Education* [Online serial], 3(3). Retrieved from <http://www.citejournal.org/vol3/iss3/socialstudies/article1.cfm>
- Bolick, C. M., Berson, M.J., Friedman, A.M., & Porfeli, E.J. (2007) Diffusion of technology innovation in the preservice social studies experience: Results of a national survey. *Theory and Research in Social Education*, 35(2), 174-95
- Bolick, C. M., McGlinn, M. M., & Siko, K. L. (2005). Twenty years of technology: A retrospective view of *Social Education's* technology themed issues. *Social Education*, 69(3), 155-161.
- Boster, F.J., Meyer, G.S., Roberto, A.J., Inge, C., & Strom, R. (2006). Some effects of video streaming on educational achievement. *Communication Education*, 55(1), 46-62.
- Bransford, J.D., Brown, A.L., & Pellegrino, J.W. (Eds.) (2000). *How people learn: Brain, mind, experience, and school*. Washington, DC: National Academy Press.
- Bruner, J. (1960). *The process of education*. Cambridge: Harvard University Press.
- Brush, T., & Saye, J. (2001). The use of embedded scaffolds with a hypermedia supported student-centered learning activity. *Journal of Educational Multimedia and Hypermedia*, 10(4), 333-356.
- Brush, T., & Saye, J. (2002). A summary of research exploring hard and soft scaffolding for teachers and students using a multimedia supported learning environment. *The Journal of Interactive Online Learning*, 1(2), 1-2. Retrieved from <http://www.ncolr.org/jiol/issues/PDF/1.2.3.pdf>

- Brush, T., & Saye, J. (2005, April). *The effects of multimedia-supported problem-based inquiry on student engagement, empathy, and assumptions about history*. Paper presented at the annual meeting of the American Educational Research Association, San Diego, CA.
- Bull, G., Bell, L., & Hammond, T. (2008). Advancing TPACK through collaborations across educational associations. In AACTE Committee on Innovation and Technology (Eds.), *The handbook of technological pedagogical content knowledge for teaching and teacher educators* (pp. 273-287). Mahwah, NJ: Lawrence Erlbaum Associates, Publishers.
- Chapin, J. (2007). *A practical guide to middle and secondary social studies*. Boston, MA: Allyn & Bacon.
- Clarke, W., & Lee, J. (2004). The promise of digital history. *The Clearing House*, 78(2), 84-87.
- Clegg, A.A. (1991). Games and simulations in social studies. In P. Shaver (Ed.), *Handbook of research on social studies teaching and learning* (pp. 523-529). New York: Macmillan Publishing Company.
- College Board. (2001). *The AP vertical teams guide for social studies*. Retrieved from <http://store.collegeboard.com/productdetail.do?Itemkey=991079>
- Crocco, M.S. (2001). Leveraging constructivist learning in the social studies classroom: A response to Mason, Berson, Diem, Hicks, Lee, and Dralle. *Contemporary Issues in Technology and Teacher Education* [Online serial], 1(3). Retrieved from <http://www.citejournal.org/vol1/iss3/currentissues/socialstudies/article2.htm>
- Crowe, A., & van 't Hooft, M. (2006). Technology and the prospective teacher: Exploring the use of the TI-83 handheld devices in social studies education. *Contemporary Issues in Technology and Teacher Education* [Online serial], 6(1). Retrieved from <http://www.citejournal.org/vol6/iss1/socialstudies/article1.cfm>
- Cuban, L. (1993). Computers meet classroom: Classroom wins. *Teachers College Record*, 95(2), 185-210.
- Dewey, J. (1916). *Democracy and education: An introduction to the philosophy of education*. New York: McMillan.
- Diem, R. (2000). Can it make a difference? Technology and the social studies. *Theory & Research in Social Education*, 28(4), 493-501.
- Dobbs, C.M. (1987, Spring). Hollywood movies from the Golden Age: An important resource for the classroom. *Teaching History: A Journal of Methods*, 12(1), 10-16.
- Doolittle, P. E. & Hicks, D. (2003). Constructivism as a theoretical foundation for the use of technology in social studies. *Theory and Research in Social Education*, 31(1) 72-104.
- Drake, F.D. & Nelson, L.R. (2009). *Engagement in teaching history: Theory and practice for middle and secondary teachers* (2nd ed.). Upper Saddle River, NJ: Pearson.

- Dynarski, M., Honey, M., & Levin, D. (2002). *Designing a study of the effectiveness of education technology: Background material for the first meeting of the Technical Working Group*. Washington, DC: United States Department of Education.
- Dynneson, T. L., Gross, R. E., & Berson M. J. (2003). *Designing effective instruction for secondary social studies* (3rd ed.). Upper Saddle River, NJ: Pearson.
- Ehman, L.H., & Glenn, A.D. (1991). Interactive technology in social studies. In P. Shaver (Ed.), *Handbook of research on social studies teaching and learning* (pp. 513-522). New York: Macmillan Publishing Company.
- Ehman, L., Glenn, A., Johnson, V., & White, C.S. (1992). Using computer databases in student problem solving: A study of eight social studies teachers' classrooms. *Theory and Research in Social Education, 20*(2), 179-206.
- Eisner, E.W. (2002). *The educational imagination: On the design and evaluation of school programs* (3rd ed.). Saddle River, NJ: Pearson.
- Ellis, A.K. (2007) *Teaching and learning elementary social studies* (8th ed.). Boston, MA: Pearson.
- Fenton, E. (1967). *The new social studies*. New York: Holt, Rinehart, & Winston.
- Fenton, E. (1991). Reflections on the "New Social Studies." *The Social Studies, 82*(3), 84-90.
- Ferster, B., Hammond, T., & Bull, G. (2006). PrimaryAccess: Creating digital documentaries in the social studies classroom. *Social Education, 70*(3), 147-150.
- Freitas, M.L.A.V., & Solé, M.G.P.S. (2003). *A integração das tecnologias nos estudos sociais no ensino básico*. Paper presented at the Conferencia Internacional sobre Tecnologias de la Información y la Comunicación en la Educación, Braga, Portugal. Retrieved from the Repositorium Web site:
<http://repositorium.sdum.uminho.pt/bitstream/1822/3930/2/03MariaFreitasCH.pdf>
- Friedman, A. (2006). World history teachers' use of digital primary sources: The effect of training. *Theory and Research in Social Education, 34*(1), 124-141.
- Friedman, A. M., & Heafner, T.L. (2007). Guest editorial: You think for me, so I don't have to. *Contemporary Issues in Technology and Teacher Education* [Online serial], 7(3). Retrieved from <http://www.citejournal.org/vol7/iss3/socialstudies/article1.cfm>
- Friedman, A. M., & Hicks, D. (2006). The state of the field: Technology, social studies, and teacher education. *Contemporary Issues in Technology and Teacher Education* [Online serial], 6(2). Retrieved from <http://www.citejournal.org/vol6/iss2/socialstudies/article1.cfm>
- Grant, S.G. (2003). *History lessons: Teaching, learning, and testing in U.S. high school classrooms*. Mahwah, NJ: Lawrence Erlbaum Associates, Publishers.
- Grant, S.G. (2006). *Measuring history: Cases of state-level testing across the United States*. Greenwich, CT: Information Age Publishing.

- Greene, S. (1994). Students as authors in the study of history. In G. Leinhardt, I. Beck, & K. Stainton (Eds.), *Teaching and learning in history* (pp. 133-168). Hillsdale, NJ: Lawrence Erlbaum.
- Goodlad, J. (1984). *A place called school*. New York: McGraw-Hill.
- Hamilton, L.C. (1990). *Modern data analysis: A first course in applied statistics*. Pacific Grove, CA: Brooks/Cole.
- Harris, J. (2008). TPCK in in-service education: Assisting experienced teachers' "planned improvisations." In AACTE Committee on Innovation and Technology (Eds.), *The handbook of technological pedagogical content knowledge for teaching and teacher educators* (pp. 251-271). Mahwah, NJ: Lawrence Erlbaum Associates, Publishers.
- Harris, J., & Hofer, M. (2008, June). *Truly technologically integrated planning for teaching and learning*. Spotlight session presented at the National Educational Computing Conference, San Antonio, TX.
- Heafner, T., Good, A., O'Connor, K., Passe, J., Rock, T., Byrd, S., Oldendorf, S., & Groce, E. (2007). Fact or fiction: Is social studies "history" in North Carolina's elementary schools? *Social Studies Research and Practice*, 2(3), 502-509.
- Heinich, R. (1995). The proper study of instructional technology. In G. Anglin (Ed.), *Instructional technology: Past, present and future* (pp. 61-83). Santa Barbara, CA: Libraries Unlimited.
- Hicks, D., Doolittle, P.E., & Ewing, T.E. (2004). The SCIM-C strategy: Expert historians, historical inquiry, and multimedia. *Social Education*, 68(3), 221-225.
- Hicks, D., Doolittle, P., & Lee, J. (2004). Social studies' teachers use of classroom-based and web-based historical primary sources. *Theory and Research in Social Education*, 32(2), 213-247.
- Hirsch, E.D. (1987). *Cultural literacy: What every American needs to know*. Boston: Houghton Mifflin.
- Hofer, M., Ponton, R., & Swan, K. (2006). Reinventing PowerPoint: A new look at an old tool. *Social Studies Research and Practice*, 1(3), 457-464.
- Hofer, M., & Swan, K. O. (2006). Standards, firewalls, and general classroom mayhem: Implementing student-centered technology projects in the elementary classroom. *Social Studies Research and Practice* [Online serial], 1(1). Retrieved from <http://www.socstrp.org/issues/PDF/1.1.13.pdf>
- Honawar, V. (2008, March 27). Learning to teach with technology. *Education Week*. Retrieved from <http://www.edweek.org/ew/articles/2008/03/27/30teachers.h27.html>
- Jenkins, H. (2006, October 19). *Confronting the challenges of participatory culture: media education for the 21st century* (Occasional paper). Retrieved from the John D. and Catherine T. MacArthur Web site: http://digitalllearning.macfound.org/site/c.enJLKQNiFiG/b.2029291/k.97E5/Occasional_Papers.htm

- Kajder, S. (2005). "Not quite for real": Preservice secondary English teachers' use of technology in the field following the completion of an instructional technology methods course. *Journal of Computing in Teacher Education*, 22(1), 15-21.
- Keiper, T.A. (1999). GIS for elementary students: An inquiry into a new approach to learning geography. *Journal of Geography*, 98, 47-59.
- Kingsley, K. (2005). *A quantitative investigation of American History software on middle school student achievement scores*. Unpublished doctoral dissertation, University of Nevada, Las Vegas.
- Koehler, M., & Mishra, P. (2008). Introducing TPCK. In AACTE Committee on Innovation and Technology (Eds.), *The handbook of technological pedagogical content knowledge for teaching and teacher educators* (pp. 3-29). Mahwah, NJ: Lawrence Erlbaum Associates, Publishers.
- Lee, J. (2002). Digital history in the history/social studies classroom. *The History Teacher*, 35(4), 503-518.
- Lee, J.K. (2007). *Children, economics and casual immersive multiplayer online worlds: a study of children's play in Webkinz*. Paper presented at the Ackerman Colloquium on Technology and Citizenship Education, Purdue University, West Lafayette, IN. Retrieved from http://ackerman.education.purdue.edu/past/colloquium/2007/PPT_files/Webkinz_Lee_Ackerman_July%2023_2007.doc
- Lee, J.K. (2008). *Visualizing elementary social studies methods*. Hoboken, NJ: Wiley.
- Lee, J.K., Doolittle, P., & Hicks, D. (2006). Social studies and history teachers' uses of non-digital and digital historical resources. *Social Studies Research and Practice*, 1(3), 291-311.
- Lee, J. K., & Hicks, D. (2006). Editorial: Discourse on technology in social education. *Contemporary Issues in Technology and Teacher Education* [Online serial], 6(4). Retrieved from <http://www.citejournal.org/vol6/iss4/socialstudies/article1.cfm>
- Lee, J., & Molebash, P. (2004). Outcomes of various scaffolding strategies on student teachers' digital historical inquiries. *Journal of Social Studies Research*, 26(1), 25-35.
- Levstik, L.S., & Barton, K.C. (2005). *Doing history: Investigating with children in elementary and middle schools* (3rd ed.). Mahwah, NJ: Lawrence Erlbaum Associates.
- Lichtenberg, M. & Fenton, E. (1969). Using AV materials inductively in the social studies. In M. Feldman & E. Seifman (Eds.), *The social studies: Structure, models and strategies* (pp. 395-400). Englewood Cliffs, NJ: Prentice Hall. (Reprinted from *Audiovisual Instruction*, 2[5], 330-32).
- Lord, D.C. (1969). Teacher training and the inquiry method: The program at Texas Women's University. *The History Teacher*, 2(2), 24-32.
- Mager, R.F. (1962). *Preparing instructional objectives*. San Francisco: Fearon.

- Manfra, M.M., & Hammond, T.C. (2008). Teachers' instructional choices with student-created digital documentaries: Case studies. *Journal of Research on Technology in Education, 41*(2), 223-245.
- Mason, C., Berson, M., Diem, R., Hicks, D., Lee, J., & Dralle, T. (2000). Guidelines for using technology to prepare social studies teachers. *Contemporary Issues in Technology and Teacher Education* [Online serial], 1(1). Retrieved from <http://www.citejournal.org/vol1/iss1/currentissues/socialstudies/article1.htm>
- Martorella, P. (1997). Technology and the social studies—or: Which way to the sleeping giant? *Theory and Research in Social Education, 25*(4), 511-514.
- Maynard, R.A. (1971). *The celluloid curriculum: How to use movies in the classroom*. New York: Hayden Book Company.
- McElroy, D.F., & Templeton, R.K. (1969). The social studies revolution: Implications for teacher education. *The Social Studies, 60*(3), 105-109.
- McMichael, A., Rosenzweig, R., & O'Malley, M. (1996, January). Historians and the web: A beginner's guide. *Perspectives, 34*. Retrieved from the American Historical Association Web site: <http://www.historians.org/perspectives/issues/1996/9601/9601COM3.CFM>
- Mike, D.G. (1996). Internet in the schools: A literacy perspective. *Journal of Adolescent and Adult Literacy, 40*(1), 4-13.
- Miller, C. (2007). Strange facts in the history classroom: Or how I learned to stop worrying and love the Wiki(pedia). *Perspectives, 45*(5). Retrieved from the American Historical Association Web site: <http://www.historians.org/perspectives/issues/2007/0705/0705vie1.cfm>
- Milman, N. B., & Heinecke, W. F. (2000). Innovative integration of technology in an undergraduate History course. *Theory and Research in Social Education, 28*(4), 537-556.
- Milson, A.J. (2002) The Internet and inquiry learning: Integrating medium and method in a sixth grade social studies classroom. *Theory and Research in Social Education, 30*, 330-53.
- Mishra, P., & Koehler, M.J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teacher's College Record, 108*(6), 1017-1054.
- Molebash, P. E. (2004). Web historical inquiry projects. *Social Education, 68*(3), 226-229.
- Molebash, P. & Dodge, B. (2003). Kickstarting inquiry with WebQuests and Web Inquiry Projects. *Social Education, 67*(3), 158-162.
- Morrell, E., & Rogers, J. (2006). Becoming critical public historians: Students study diversity and access in post "Brown v. Board" Los Angeles. *Social Education, 70*(6), 366-369.

- Newmann, F.M. (1991). Higher order thinking in the teaching of social studies: Connections between theory and practice. In J. Voss, D. Perkins, & J. Segal (Eds.), *Informal reasoning and education* (pp. 381–400). Hillsdale, NJ: Lawrence Erlbaum.
- O'Reilly, T. (2005). *What is Web 2.0. Design patterns and business models for the next generation of software*. Retrieved from the O'Reilly Web site: <http://www.oreillynet.com/pub/a/oreilly/tim/news/2005/09/30/what-is-web-20.html>
- Papert, S. (1991). Situating constructionism. In I. Harel & S. Papert (Eds.), *Constructionism: Research reports and essays, 1985-1990* (pp. 1-12). Norwood, NJ: Ablex.
- Paris, M.J. (1997). *Integrating film and television into social studies instruction* (ERIC Digest). Bloomington, IN: ERIC Clearinghouse for Social Studies/Social Science Education. (ERIC Document Reproduction Service No. ED415177).
- Parker, W. (1996). "Advanced" ideas about democracy: Toward a pluralist conception of citizen education. *Teachers College Record*, 98, 104-125.
- Parker, W.P. (2005). *Social studies in elementary education* (12th ed.). Upper Saddle River, NJ: Pearson.
- Pellegrino, J.W., Chudowsky, N., & Glaser, R. (Eds.) (2001). *Knowing what students know: The science and design of educational assessment*. Retrieved from the National Academy Press Web site: <http://www.nap.edu/books/0309072727/html/>
- Percoco, J. (1998). *A passion for the past: Creative teaching of U.S. history*. Portsmouth, NH: Heinemann.
- Pierson, M. (2001). Technology integration practice as a function of pedagogical expertise. *Journal of Research on Computing in Education*, 33(4), 413-430.
- Richardson, W. (2006). *Blogs, wikis, podcasts, and other powerful web tools for classrooms*. Thousand Oaks, CA: Corwin Press.
- Roblyer, M. D. (2005). Educational technology research that makes a difference: Series introduction. *Contemporary Issues in Technology and Teacher Education* [Online serial], 5(2). Retrieved from <http://www.citejournal.org/vol5/iss2/seminal/article1.cfm>
- Rock, T.C., Heafner, T., O'Connor, K., Passe, J. Oldendorf, S., Good, A., & Byrd, S. (2006). One state closer to a national crisis: A report on elementary social studies education in North Carolina Schools. *Theory and Research in Social Education*, 34(4), 455-483.
- Ross, E.W. (1997). *The social studies curriculum: Purposes, problems, and possibilities*. New York: State University of New York press.
- Tom, A. R. (1997). *Redesigning teacher education*. Albany, NY: State University of New York Press.
- Sabato, G. (1992). Movies bring history to life. Take it from experience. *Social Studies Review*, 32(1), 83-88.

- Saettler, P. (1990). *The evolution of American educational technology*. Greenwich, CT: Information Age Publishing.
- Saye, J. (1998). Technology in the classroom: The role of dispositions in teacher gatekeeping. *Journal of Curriculum and Supervision, 13(3)*, 210-234.
- Saye, J., & Brush, T. (1999). Student engagement with social issues in a multimedia supported learning environment. *Theory and Research in Social Education, 27(4)*, 472-504.
- Saye, J., & Brush, T. (2002). Scaffolding critical reasoning about history and social issues in multimedia-supported learning environments. *Educational Technology Research & Development, 50(3)*, 77-96.
- Saye, J., & Brush, T. (2004a). Promoting civic competence through problem-based history learning environments. In G. E. Hamot & J. J. Patrick (Eds.), *Civic learning in teacher education* (Vol. 3, pp. 123-145). Bloomington, Indiana: ERIC Clearinghouse for Social Studies/Social Science Education.
- Saye, J., & Brush, T. (2004b). Scaffolding problem-centered teaching in traditional social studies classrooms. *Theory and Research in Social Education, 32(3)*, 349-378.
- Saye, J., & Brush, T. (2006). Comparing teachers' strategies for supporting student inquiry in a problem-based multimedia-enhanced history unit. *Theory and Research in Social Education, 34(2)*, 183-212.
- Saye, J., & Brush, T. (2007). Using technology-enhanced learning environments to support problem-based historical inquiry in secondary school classrooms. *Theory and Research in Social Education, 35(2)*, 196-230.
- Scheurman, G. (1998). From behaviorist to constructivist teaching. *Social Education, 62(1)*, 6-9.
- Schrum, L., Thompson, A., Maddux, C., Sprague, D., Bull, G., & Bell, L. (2007). Editorial: Research on the effectiveness of technology in schools: The roles of pedagogy and content. *Contemporary Issues in Technology and Teacher Education* [Online serial], 7(1). Retrieved from <http://www.citejournal.org/vol7/iss1/editorial/article1.cfm>
- Schwartz, D.L., & Bransford, J.D. (1998). A time for telling. *Cognition and Instruction, 16(4)*, 475-522.
- Seixas, P. (1993). Popular film and young people's understanding of the history of Native American-white relations. *The History Teacher, 26(3)*, 351-370.
- Shin, E. (2006). Using geographic information system (GIS) to improve fourth graders' geographic content knowledge and map skills. *Journal of Geography, 105*, 109-120.
- Shulman, L.S. (1987). Knowledge and teaching: Foundations of the new reform. *Harvard Educational Review, 57(1)*, 1-22.
- Sizer, T. (1985). *Horace's compromise: The dilemma of the American high school*. Boston: Houghton Mifflin.

- Solomon, G., & Schrum L. (2007). *Web 2.0: New tools, new schools*. Eugene, OR: International Society for Technology in Education.
- Stanley, W.B. (2005). Social studies and the social order: Transmission or transformation? *Social Education, 69(5)*, 282-286.
- Stephens, R.P., Lehr, J.L., Thorp, D.B., Ewing, E.T. & Hicks, D. (2005). Using technology to teach historical understanding. *Social Education, 69(4)*, 151-154.
- Sunal, C.S., & Haas, M.E. (2008). *Social studies for the elementary and middle grades: A constructivist approach* (3rd ed.). Boston, MA: Pearson.
- Swan, K. O., Hofer, M., & Levstik, L.S. (2007). And...action! Students collaborating in the Digital Directors Guild. *Social Studies and the Young Learner, 19(4)*, 17-20.
- Taba, H. (1969). *Teaching strategies and cognitive functioning in elementary school children*. (Cooperative Research Project No. 2404). Washington, DC: US Office of Education.
- Thompson, A.D. (2007). TPACK: A new direction for technology in teacher education programs. *Journal of Computing in Teacher Education, 23(3)*, 78, 104.
- Thompson, A.D., & Mishra, P. (2007). Breaking news: TPACK becomes TPACK! *Journal of Computing in Teacher Education, 24(2)*, 38, 64.
- Thorton, S.J. (1991). Teacher as curricular-instructional gatekeeper in social studies. In J.P. Shaver (Ed.), *Handbook of research on social studies teaching and learning* (pp. 237-248). New York: MacMillan
- Thornton, S. (2001a). Educating the educators: Rethinking subject matter and methods. *Theory into Practice, 40(1)*, 72-79.
- Thornton, S. J. (2001b). From content to subject matter. *The Social Studies, 92(6)*, 237-242.
- Tom, A. (1997). *Redesigning teacher education*. Albany, NY: State University of New York Press.
- vanFossen, P.J., & Waterson, R. (2008). It's just easier to do what you did before...: An update on Internet use in secondary social studies classrooms in Indiana. *Theory and Research in Social Education, 36(2)*, 124-152.
- Vogler, K., & Virtue, D. (2007). "Just the facts, Ma'am": Teaching social studies in the era of standards and high-stakes testing. *The Social Studies, 98(2)*, 54-58.
- Vygotsky, L.S. (1978). *Mind and society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.
- Waring, S. M. (2007). Informing preservice teachers about multiple representations of historical events through the utilization of digital resources. *Social Studies Research and Practice, 2(1)*, 49-57.

West, B. (2003). Student attitudes and the impact of GIS on thinking skills and motivation. *Journal of Geography, 102*, 267-274.

Wigglesworth, J.C. (2003). What is the best route?: Route-finding strategies of middle school students using GIS. *Journal of Geography, 102*, 282-291.

Zarillo, J.J. (2008). *Teaching elementary social studies: Principles and applications* (3rd ed.). Upper Saddle River, NJ: Pearson.

Zevin, J. (1999). *Social studies for the twenty-first century: Methods and materials for teaching in middle and secondary schools* (2nd ed.). Mahwah, NJ: Lawrence Erlbaum Assoc.

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