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Designing Web-Based Educative Curriculum Materials for the Social Studies

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Abstract

This paper reports on a design experiment of web-based curriculum materials explicitly created to help social studies teachers develop their professional teaching knowledge. Web-based social studies curriculum reform efforts, human-centered interface design, and investigations into educative curriculum materials are reviewed, as well as examples of previous efforts to develop educatively scaffolded teaching resources. Three teachers piloted the materials created by the authors, and their experiences are described. The authors then make recommendations for the design of future educative curricula.

Curriculum designers have begun to re-envision affordances that planning materials can present to teachers. Along with presenting a lesson and all of the ancillary materials needed for powerful student learning, some curriculum designers are including overt opportunities for teacher learning. These resources have been called educative curriculum materials (ECMs) because of their explicit attempts to help teachers develop better understanding of a lesson's pedagogical rationale (Davis & Krajcik, 2005).

Although several studies in other disciplines report that teachers planning with print-based ECMs tend to develop a better understanding of instructional strategies and their impact on student thinking (Collopy, 2003; Grossman & Thompson, 2004; Lloyd, 1999; Remillard, 2000, 2005; Schneider, Krajcik, & Marx, 2000), little is known about the effects of technology-enhanced ECMs or those designed for teaching in the social studies.

Because of teachers' familiarity with traditional curricula and the associated planning tasks, ECMs could have little or no effect on teachers' professional development. On the other hand, teachers' reliance on curriculum—especially those repurposed to be educative—may make planning resources a potentially effective vehicle for teacher-learning.

Although researchers employ many different theories to frame discussions of teachers' learning and development, this paper draws from the notion of professional teaching knowledge. Professional teaching knowledge integrates practitioners' grounded understanding of orchestrating classroom events with the wise-practice suggestions that researchers derive from scientific studies (Hiebert et al., 2002). We designed ECMs to support the development of teachers' professional teaching knowledge as it related to a specific pedagogical approach called problem-based historical inquiry and its principles for social studies instruction, that learning should be purposeful, connected, active, and scaffolded (Saye & Brush, 2004). This study was informed by other work in web-based social studies curricula and the design of effective user interfaces.

This design experiment draws from a larger study investigating web-based ECMs and the influence they may have had on social studies teachers' conceptions of practice (Callahan, 2009; Callahan, Saye, & Brush, in press). Although our ECMs had limited effects on teacher thinking, our results suggest ways that ECM design might be improved and, thus, be more effective. This paper describes a proposed next generation of ECMs: How they might be constructed, what might they look like, and how might teachers interact with them. Results from our completed research study are used as a basis for proposing strategies, providing illustrative models, and positing recommendations to the field on the optimal design and use of future web-based ECMs.

Review of Relevant Work

ECM Research

Investigating the possible effectiveness of curriculum resources explicitly designed for teachers' learning is relatively new for researchers (Schneider et al., 2000). Science, mathematics, and English curriculum designers have pioneered investigations of teachers' interactions with resources overtly designed to first promote teacher learning then promote student learning. No comparable work has been done in the social studies.

The studies introduced participating teachers to educational reform through the curriculum resources the teachers used to plan classroom events. The researchers found that teachers acted upon the materials: They actively read, selected, and considered various passages and made conscious decisions according to their respective learning contexts. Emerging from the investigations' findings are the following implications for effective ECM design and implementation:

1. Although ECM resources attempt to stand alone as professional development tools, teachers may need further support, supplemental discussions, and additional explanations (Schneider et al., 2000).
2. Designers should anticipate teachers' skepticism about progressive teaching trends and build into the materials opportunities for dialog and answers to common questions (Collopy, 2003).
3. Teachers tend to have fewer problems enacting ECMs in ways consistent with their intended use when the materials are more comprehensive, including what to teach *and* how to teach it (Grossman & Thompson, 2004).
4. ECMs may need to address explicitly the perceived disconnect between researchers and teachers; the so-called gap between academic theory and classroom practice (Lloyd, 1999).
5. Novice teachers may demonstrate more interaction with and learning from the ECMs than do veteran teachers (Schneider et al., 2000).

6. Designers should both emphasize the materials' most significant elements and provide teachers opportunities to make decisions about enacting the materials in their respective learning environments (Remillard, 2000, 2005).

Design of Online Learning Environments

Our design of web-based ECMs is informed by Csikszentmihalyi's (1997) concept of "optimal experience," or "flow," as it has been applied to computer-mediated environments and the study of users' online experiences (Ghani & Deshpande, 1994; Hoffman & Novak, 1996; Nakamura & Csikszentmihalyi, 2009). When in *flow*, people will "shift into a common mode of experience when they become absorbed in their activity. This mode is characterized by a narrowing of the focus of awareness... and by a sense of control over the environment" (Csikszentmihalyi, 1977, p. 72).

The following three components of flow identified in research are particularly valuable to the design of online learning environments:

1. **Intrinsic enjoyment:** Online activities should be inherently engaging. They should engage learners because of their perceived relevance, the way they are presented, and ease of use (Novak, Hoffman, & Duhachek, 2003; Novak, Hoffman, & Yung, 2000). Engagement, the "inner quality of concentration and effort to learn" (Newmann, Wehlage, & Lamborn, 1992, p. 13), may be cultivated when learners perceive a task to have "personal, utilitarian, or aesthetic value" (Newmann, 1991, p. 412).
2. **Perceived control:** Learners should feel empowered with a sense of autonomy to explore the activity freely. Conditions where learners have more control of their learning tend to produce increased online learning outcomes (e.g., Dinov, Sanchez, & Christou, 2008; Gao, 2003; Zhang, 2005); thus, they should control the pace at which they work through activities and the particular paths by which they experience them.
3. **Concentration/attention focus:** Online learning environments should structure users' experiences to promote attentiveness and reflection. Online prompts featuring guiding questions have been found to lead to more fully developed consideration and improved work products (Golanics & Nussbaum, 2008; Suh, 2009). Features prompting users to monitor and reflect on their learning have been effective in improving online learning outcomes (e.g., Chang, 2007; Nelson, 2007).

Web-Based Social Studies Reform Curriculum

Although we identified no social studies curriculum explicitly designed or marketed as educative, we found several websites with potentially educative *features*. These sites stimulated our thinking about our own educative design.

1. Civics Online, [re]Envisioning the Democratic Community (<http://www.civics-online.org/introduction.php>; Michigan State University's College of Education, MATRIX & H-Net) provides teachers "a rich array of primary sources, professional development tools, and interactive activities to help in the teaching of civics." Civics Online attempts to promote "teachers' thinking about how to design effective learning environments" by providing (a) a search engine to locate multimedia resources, (b) detailed lesson plans, and (c) access to textual case studies where classroom teachers describe their students' experiences with the resources.

The website also provides a type of professional development worksheet for teachers to complete when reviewing its resources. The worksheet concentrates mostly on “questions to ask yourself when exploring each case” such as “how could you adapt and use one or more of these approaches in your own teaching?” It was this final feature—promoting teachers’ reflection upon their craft—that was most characteristic of resources attempting to be educative.

2. Picturing Modern America, 1880-1920: Historical Thinking Exercises for Middle and High School Students (<http://cct2.edc.org/PMA>; Center for Children and Technology, & Education Development Center), features primary sources from the American Memory collection from the Library of Congress to help students “practice history the way historians do.” Picturing Modern America attempts to “build students’ skills in analyzing primary sources, especially visual sources.”

The website’s homepage features a hyperlink leading to a multipage, text-only document that explains the rationale behind promoting historical thinking and visual literacy skills. Also, within many of the website’s suggested activities there is a “More About the Method” hyperlink offering additional explanations of the project’s motivations. The website has potential for teacher learning, as it provides curriculum resources, their underlying rationale, and explanations of the merits of students developing the skills they promote.

3. Historical Thinking Matters (<http://www.historicalthinkingmatters.org>; Roy Rosenzweig Center for History, New Media George Mason University, & School of Education Stanford University) provides social studies teachers with multimedia resources and professional development tools. The website is designed to teach students how to critique and construct historical narratives and read primary sources as detectives would, and it features four historical topics for investigation.

Teachers can also access lessons, worksheets, alternative source versions, samples of student work, and an annotated webography for each topic. Teachers’ professional development is promoted through a hyperlink labeled “Why” on the homepage that directs teachers to a short movie-presentation where a historian discusses “how historians investigate what happened in the past.” This movie-presentation is a pedagogical tutorial explaining why teachers should invest their efforts in developing in their students the habits of mind that historians employ (Wineburg, 2001). The website is potentially educative in that it offers teachers engaging multimedia opportunities to better understand the intended best practice uses of the materials.

4. The Historical Inquiry Project: Scaffolding Wise Practices in the History Classroom (<http://www.historicalinquiry.com>; Peter Doolittle, David Hicks, & Tom Ewing), offers detailed explanations of the project’s goal “to bridge the gap between research and practice in terms of preparing teachers and students to engage in the doing of history” and its suggested wise practice teaching strategy “SCIM-C: Summarizing, Contextualizing, Inferring, Monitoring, and Corroborating.” The project offers its rationale through tutorials for teachers to read and then provides models in the form of hyperlinks to short video segments of historians demonstrating historical thinking. This website is didactic in its presentation; teachers visiting this website will find no participatory activities. There are no scaffolds embedded in the materials to produce an educative experience, and though the video segments feature historians thinking aloud

about primary documents, the encounter tends to be a passive observation. The design strategy of embedding video segments seamlessly into explanatory text could be educative.

5. The Persistent Issues in History Network (<http://pihnet.org>; John Saye and Thomas Brush) “develops and supports a national community of teachers who are skilled in engaging their students...with rich multimedia resources.” The website provides curriculum materials that model wise practice instruction and offers over a dozen web-based curriculum design tools, a score of fully developed videocases that feature actual classroom footage and teacher reflections and pre- and post-interviews of the recorded lesson (Saye & Brush, 2005). We saw educative potential in the website’s videocases of teaching vignettes and interviews. Researchers have suggested that watching colleagues in live classrooms can create powerful enrichment opportunities for teachers (Fishman, 2003; Lampert & Ball, 1998; Richardson & Kile, 1999; Tochon, 1999).

These websites are a step removed from being ECMs, because the teachers’ lessons and the features that could be considered educative are often disconnected and out of context. Each project attempts to reform social studies education by providing exemplary lessons in one online space while presenting the lessons’ rationale in a different space that is often difficult to find and requires clicks on several links to find. Getting teachers in flow while they interact with their curriculum interaction is perhaps the defining feature of ECMs; however, these sites feature virtually no lesson-specific, in situ questions for teachers that might encourage their participatory interaction with the materials.

To develop professionally from these websites (e.g., to reflect meaningfully on specific aspects of the craft of teaching and enact lessons accordingly), teachers must navigate from the lesson and its resources to pedagogical explanations, often without overt guidance connecting the two.

Our ECM design incorporated ideas from existing projects while adding further educative elements to link resources clearly and directly to the pedagogical rationale motivating their construction and promote participatory encounters between teachers and those resources.

Theoretical Power of ECMs

Although most definitions tend to characterize ECMs rather broadly as teaching resources that are intended for student *and teacher* learning, we conceptualize ECMs more distinctly. We conceive of ECMs as exemplar lessons that strongly illustrate fundamentals of wise practice pedagogy and that educatively scaffold to help teachers develop their professional teaching knowledge. This definition necessarily places a heavy emphasis on the scaffolds designed to support teacher learning. They must be nimble enough to overtly guide the teachers toward educative opportunities and facilitate participation with them, while simultaneously affording teachers the independence to discover information and create new understandings.

We conceptualized teachers’ use of their planning resources through the lens of a sociocultural perspective positing humans employ tools—language, mechanical objects, and a variety of environmental features—to collect and interpret information regarding their experiences. Thus, human behavior can be understood as actions mediated by such tools (Vygotsky, 1978; Wertsch, 1991, 1995).

Scaffolding

The term scaffolding has been used in various ways since Wood, Bruner, and Ross (1976) introduced it to describe the natural process adults tend to employ as they help children learn. Scaffolds have been defined as hard or soft (Saye & Brush, 2002); reciprocal (Holton & Clarke, 2006); cognitive, technical, or affective (Yelland & Masters, 2007); conceptual, metacognitive, procedural, or strategic (Hannafin, Land, & Oliver, 1999); a technique or a tool (Rosenshine & Meister, 1992); and authentic or generalizable (Chen & Hung, 2002). These and other definitions of scaffolds are not necessarily mutually exclusive, which has led some to suggest that the term scaffolding is used to describe virtually everything remotely linked to helping learners develop their knowledge and skills and, thus, has lost much of its utility as a specific concept (Pea, 2004).

Systematic investigations of scaffolding and its effectiveness in technology-enhanced learning environments, especially those nested within inquiry-based contexts, are rare (Kim & Hannafin, 2011). We identified such studies in science (Krajcik & Blumenfeld, 2006), social studies (Saye & Brush, 2002), English (Dreyer & Nel, 2003), and the cognitive sciences (Demetriadis, Papadopoulos, Stamelos, & Fischer, 2008). These works specifically address technology-mediated scaffolding of student, not teacher, learning.

Sharma and Hannafin (2008) suggested that scaffolds in technology-enhanced learning environments should attend to both cognitive and interface concerns. Others have further conceptualized technology-enhanced learning environment scaffolding into three defining categories: purpose, interactions, and source (Kim & Hannafin, 2011). *Purpose* defines the type of goal for the support (procedural, conceptual, metacognitive, or strategic); *interactions* refers to whether the support is static or dynamic; source describes if the origin of the support is a teacher, a peer, or a type of technology, or as Saye and Brush (2004) called them, hard and soft scaffolds.

From this lens, the scaffolds we created for our study are consistent with Kim and Hannafin's (2011) purpose and source categories, but blur the distinction between static and dynamic support. While the ECMs we developed contained fixed, or static, hyperlinks presenting teachers with pedagogical information, the prompts were constructed to promote a dynamic, participatory negotiation between the teacher and the curriculum.

Professional Teaching Knowledge

In meeting the needs of learners who manifest differing personalities and learning styles, teachers tend to develop an evolving teaching knowledge. However, because of the circumstances surrounding their job—isolation from colleagues, and little time for meaningful professional development (Onosko, 1991)—teachers rely almost exclusively on their concrete, context-specific experiences to form their model of practice. This model may be informed by sporadic professional development sessions, sometimes conflicting local, state, and national initiatives, and collaborations with colleagues via formal conferences and informal conversations.

Unless they are extraordinarily motivated and surrounded with powerful resources, teachers rarely have the opportunity or the time to stay abreast of current educational trends, contribute significantly to professional communities (online, face-to-face, or print), or thoroughly reflect on their classroom outcomes and, subsequently, revise their practice. While these conditions may limit teachers' potential to create dynamic classroom experiences for their students, it is the realistic starting point from which ECMs attempt to further develop teachers' professional teaching knowledge.

Investigating teachers' means of developing their pedagogical models of practice, researchers have concentrated on teachers' adaptive expertise (Schwartz, Bransford, & Sears, 2005), their design capacity (Davis, Beyer, Forbes, & Stevens, 2007), their pedagogical content knowledge (Shulman, 1986), and their professional teaching knowledge (Hiebert et al., 2002; Saye, Kohlmeier, Brush, Mitchell, & Farmer, 2009). We used the latter concept to frame our study of ECMs. Professional teaching knowledge suggests that researchers' academic knowledge can be meaningfully integrated with teachers' craft knowledge to form a dynamic model of practice.

Educational researchers develop understandings of schooling from analysis of literature germane to their specific topic, reviews of progressive trends, and repeated scientific field tests. Researchers then publish suggested guidelines for wise classroom practices in refereed journals for critique and revision. Saye et al. (2009) suggested that, when researchers' academic knowledge and teachers' craft knowledge are integrated, the resulting model of practice has the potential to (a) help establish a theoretical frame for teaching activities, (b) facilitate teachers' reflection and revision of practice, and (c) introduce teachers to current trends and progressive strategies (e.g., inquiry-based activities or modern technologies).

Because teachers rarely trust new strategies before seeing them work in classrooms (Cuban, 2001; Lortie, 2002) and because teachers often lack an infrastructure with which to build thoughtful communities (Thomas, Wineburg, Grossman, Myhre, & Woolworth, 1998), developing their professional teaching knowledge can prove logistically challenging. However, because of their unique placement and influence on classroom experiences, curriculum materials maybe a well-positioned vehicle to help develop a professional teaching knowledge that meaningfully integrates practitioners' grounded understanding of the classroom with the findings of researchers.

Researchers within a discipline do not all arrive at the same conclusions or espouse the same vision and purpose of schooling. However, the overall goal of developing professional teaching knowledge is to provide teachers with a sound rationale beyond their anecdotal experiences, to encourage collaboration, and to keep abreast of current movements.

Problem-Based Historical Inquiry

The ECMs we created for this study were designed to support the development of teachers' professional teaching knowledge as it relates to the following four research-based principles of problem-based historical inquiry (PBHI):

Learning Should Be Purposeful. PBHI lessons are centered around recurring societal concerns that are fundamental to human communities. These societal concerns afford students the opportunity to engage in real-world problem-solving where factual, definitional, and value conflicts are deliberated (Oliver, Newmann, & Singleton, 1992; Saye & Brush, 2004; Shaver, 1996).

Instead of memorizing information from a textbook or lecture, which engrosses few people in society, students have a more authentic purpose with PBHI: deep, sustained learning and struggling with problems of the past to more meaningfully address problems of their present and future. Saye and Brush (2004) stated that social studies "activities should be a means to a civic end" (p. 128) and that end should be "reasoned decision making about enduring social problems." This type of purposeful academic work consists of more than the ability to demonstrate minimal competence at learning tasks or passing

a test; it requires students to think at high levels and develop robust understandings instead of engaging in superficial memorization.

Learning Should Be Connected. Researchers in cognitive psychology have suggested that experts and novices tend to think and solve problems differently due to the ability to demonstrate connections in data (Simon, 1976). Experts have larger and more interconnected schema. Novices who develop richer schema may think more deeply and at higher levels, because interconnected data is easier to retrieve and it imparts more complex and sophisticated representations of the world and its problems.

PBHI organizes instruction around profound ideas or concepts that pose major concerns for human societies (e.g., majority will and minority rights or justifiable actions during armed conflict). These profound ideas function as mental-anchors, to which students attach both their previous knowledge and newly learned information. Integrating previous and new understandings and, thereby, creating different, perhaps more robust, connections within their individual schema, students also may recognize links between past and present and causes and effects.

Learning Should Be Active. Because it focuses on attempts to resolve authentic, recurring societal concerns, PBHI is largely collaborative and often includes students discussing their positions with their peers (Newmann & Wehlage, 1993). Problem-based historical inquiry typically employs rich, diverse historical documents as a means for students to discover the past and presents them with the differing sides of a historical event.

No individual alone can perceive the complexity of social reality, thus a student attempting to understand the past needs the help of others who, through discourse and deliberation, can reason together meaningfully about previous (and present) events. This collective rationality (Moshman & Geil, 1998), socially constructing an understanding of reality through public discourse and critically reasoning together, can broaden and deepen students' perspectives, especially when students are attempting to solve ill-structured problems about which they are likely to disagree (Parker & Zumeta, 1999; Parker, 2006).

Learning Should Be Structured. PBHI is also founded on the belief that when properly supported, all students are capable of higher levels of thinking. For students to develop the varied skills and rich knowledge needed to be reasoned problem-solvers, teachers must appeal to each student's individual needs—often at the time the need presents itself. For nearly 30 years educational researchers have used the term *scaffolding* to describe the “role of teachers...in supporting the learner's development and providing support structures to get to that next stage or level” (Vygotsky, 1978, p. 56).

Scaffolding resources allow students diverse avenues for rigorous, sustained thinking. These scaffolds may include hard scaffolds (i.e., static supports that anticipate general difficulties, such as providing definitions for challenging terminology and graphic organizers), and soft scaffolds (i.e., dynamic, situation-specific aids to help learners process data, such as in situ guiding conversations; Saye & Brush, 2002). Because of the socially constructed aspect of PBHI, students are also encouraged to use peers as resources to help them think more deeply.

The Research Study

The Materials

Integrating suggestions from ECMs, online social studies curriculum reform, and the learning sciences, we designed exemplar lessons that strongly illustrated fundamentals of a specific wise practice pedagogy and then grafted educative scaffolds into the hypermedia-rich curriculum materials. We conceptualized teachers' use of their planning resources through the lens of a sociocultural perspective positing that humans employ tools—language, mechanical objects, and a variety of environmental features—to collect and interpret information regarding their experiences. Thus, human behavior can be understood as actions mediated by such tools (Vygotsky, 1978; Wertsch, 1991, 1995).

Operating within these assumptions, we wanted to see what influence, if any, our ECMs could exert to broaden teachers' vision of and deepen their relationship with online planning resources. Could teachers begin to use planning materials as cultural tools in mediated actions to develop their craft?

We developed ECMs with the notion that individual teachers' personally derived craft knowledge alone is not sufficient as a professional knowledge base. Others have suggested a more concentrated effort to develop teachers' professional teaching knowledge that would involve merging teachers' concrete, private craft knowledge with public, propositional, and replicable researchers' knowledge of general principles derived from academic research (Hiebert et al., 2002; Saye et. al, 2009). We hypothesized that because of their unique placement and potential influence on classroom experiences, curriculum materials may be a well-positioned vehicle to develop professional teaching knowledge.

Our ECMs were designed to support the development of teachers' professional teaching knowledge *as it relates* to a specific pedagogical approach, PBHI), and its four characteristics of effective social studies instruction: purposeful, connected, active, and scaffolded (Saye & Brush, 2004).

Because of its well-developed video case database, and because it offers free online web tools to its members, we decided to create our ECMs within the online environment, the Persistent Issues in History Network (PIHNet; <http://pihnet.org>). By repurposing the PIHNet web tools originally intended for teachers to create multimedia resources for their students, we turned our lessons into educative curriculum materials. The basic PIHNet lesson interface we used had two columns: a narrow column on the left side of the screen displaying an outline and a larger column on the right displaying narrative paragraphs that appeared when corresponding terms in the outline were clicked on.

The lessons' educative features were manifest through additional hyperlinks embedded in narrative paragraphs. For example, when a teacher clicked a hyperlink from the right column a new window opened, introducing the teacher to a combination of audio, video, and textual information that comprised educative features. For consistency, every hyperlink from the right column led to an educative feature, and every hyperlink from the left column led to a narrative paragraph. [Appendix A](#) illustrates the differing interfaces.

Participants and Data Sources

Our research study (Callahan, 2009; Callahan et al., in press) was a type of design experiment to investigate the following question: Can educative curriculum materials

help social studies teachers develop professional teaching knowledge related to problem-based historical inquiry?

Design experiments are typically collaborative and iterative, and they collect data from multiple sources that allow a rich data triangulation (Brown, 1992; Collins, 1992; Denzin, 1978). From the investigation's beginning, we incorporated participants' ideas and feedback into the logistical design of successive iterations. For example, during the first iteration each participant (a) visited fewer than half of the lesson's 20 educative scaffolds, (b) mentioned that they were unsure of which hyperlinks to visit, and (c) thought that the lesson took a very long time to plan. Thus, we revised the materials for the second iteration to (a) include the same number of educative scaffolds as opposed to our original plan, which was to have fewer supports as the study progressed), (b) overtly encouraged teachers to "please visit *all* of the hyperlinks," and (c) encouraged participants to schedule planning sessions after school as opposed to during a planning or lunch period.

Three social studies teachers (pseudonyms are used for each) in one southeastern US state participated in the research study: Dill, who had taught for 9 years; and Rose and Fiye who had each taught for 2 years. Dill and Fiye taught in suburban, public secondary schools; Rose taught in an urban, parochial secondary school. Participants were selected through a purposeful, criteria-based sampling that identified teachers who were comfortable with instructional uses of technology, yet were inexperienced using PBHI strategies and practices.

The participants planned and taught three lessons using researcher-designed ECMs. Two participating teachers were traditional novices just beginning their careers; a third participant was an experienced teacher but novice in the sense of being unfamiliar and unpracticed with problem-based historical thinking. They each taught classes with nearly 30 students, oversaw several extracurricular activities, and planned during an off period, at lunch, or immediately after a school day. The teachers were not presented with any form of orientation to aspects of the study's curriculum resources, and they were unaware that the researchers designed the ECMs.

The ECM lessons occurred near the beginning, middle, and end of a semester-long course section of US History. We gathered data from (a) pre- and postintervention interviews, (b) observations and field notes made from a three-iteration intervention, in which teachers used ECMs to plan and implement a lesson, and (c) member checks. Our data analysis template began with multiple readings of the collected data. We then organized the raw data chronologically by case, creating a "case record" for each participant to describe their respective experiences as we observed them.

Analyzing the cases individually, we first looked closely at the participants' words for metaphors, analogies, and concepts to use as emic codes in a description of their experience (Bogdan & Biklen, 1992; Huberman & Miles, 1994). For example, each participant mentioned surprise at how much longer planning with the ECMs took when compared to their usual experiences; we coded this "timespan." We then brought order to the data by winnowing it into basic descriptive units of information.

After a review of literature we deduced a short list of etic codes (Lincoln & Guba, 1985; Patton, 1987). Emerging codes were derived from content analysis, reading and rereading the individual cases looking for a convergence of quotations or observations that expressed the same idea, topic, concept, or issue.

A Next Generation of ECMs

The underpinning goal of our ECMs was to encourage teachers to construct a more robust conception of practice based in PBHI professional teaching knowledge. To better explain how the next generation of ECMs might build from the implications of our research study, we revisit the educative scaffolds. First is a description of how each PBHI principle was manifest in the wise-practice lesson the students experienced, followed by an explanation of how each principle is reinforced through the educative scaffolds. Next is described how the participants reacted to the scaffolds. Finally, recommendations describe how future ECMs scaffolds might be constructed to elicit a more educative experience for teachers. [Appendix B](#) is a summary of specific aspects the ECM's original design with amended features we hypothesize might work more successfully.

Learning Should Be Purposeful

The lessons were purposefully centered around ill-structured, open-ended, topic-specific questions for which students were to investigate and hypothesize plausible answers. The questions and the discussions that introduced lessons were intended to establish an authentic desire to study the past through historical photographs. Instead of listening to a lecture and copying an outline of facts into their notebooks, students were encouraged to think deeply about previous attempts to combat poverty in order to apply that knowledge to modern attempts to do the same. We then created educative scaffolds and prompts to graft onto the lessons that both explained and modeled this type of problem-centered instruction.

The wording of the educatively scaffolded prompts is perhaps the best example of our attempts to manifest a sense of meaningful purpose to the ECM lesson. We thought that the participants would consider working with the interactive, multimedia resources so unfamiliar that simply planning instruction would be interesting or cause mild cognitive dissonance that they would seek to resolve. The ECMs promoted a pedagogy that sharply contrasted with the more traditional dispositions, teaching strategies, and classroom experiences that we observed and that the teachers self-reported.

We worded most of the educative hyperlink prompts as declarative statements written in a professional tone. For example, we included the following hyperlinks in both the first and second iterations: "CLICK HERE to learn why one teacher thinks this type of lesson is worth the time and effort needed to plan it." This hyperlink followed a narrative paragraph encouraging the teachers to introduce students to the topic-specific question. We also included a hyperlink that read: "CLICK HERE to watch an experienced teacher think historically about photograph-one from this lesson." This hyperlink followed a narrative paragraph encouraging teachers to model historical thinking for their students.

Since the teachers agreed to participate in a study concerning progressive teaching strategies, we thought they would be intrigued with these unfamiliar sounding strategies and want to hear from experienced teachers advocating for them—so intrigued that they would take the extra step to learn more about effective teaching strategies.

Curriculum designers—even those claiming to be reformers—tend to prize the pragmatic over the notional. Thus, traditional teaching materials consist of a lesson plan and its requisite resources and occasionally include a summary to further describe certain constituent elements. Beyond providing and explaining an exemplar lesson, we designed our ECMs to scaffold teachers toward developing a more professional model of practice.

However, our study's ECMs did not seem to convey to the participants that the materials' underpinning purpose differed from more traditional resources.

No participant seemed to develop a deep understanding of this idea that struggling with authentic problems of the past might better prepare students to address contemporary problems. In fact, it is difficult to determine to what degree the teachers even understood that idea to be a desired goal of the ECMs. For example, Fiye devoted the fewest minutes to planning with the ECMs and visited the fewest educative hyperlinks. However, one of the few educatively scaffolded features she visited during each iteration was the hyperlink addressing the lesson's purpose. During the first iteration, she read the hyperlink's information and then acknowledged,

Foundational and conceptual knowledge is a part of every goal and course of study, and so we're [the school's social studies department] all geared toward that here. And, of course, civic responsibility is important. It's amazing how many different answers you'll get. And that is really the point. "Why should the government build a fence across the border with Mexico?" and someone calls out something ignorant.

Fiye's comment suggested that she was interested in developing her students' abilities to enter a public debate concerning policy question. However, she was virtually silent when prompted during our interviews with opportunities to articulate a rationale for having students contemplate persisting societal concerns.

Simply put, the teachers did not seem to acknowledge the alternative model of practice that the ECMs sought to support. Perhaps this thinking led them to approach planning with the study's educative materials as though they were doing so with traditional materials. To underscore an emphasis on the centrality of an authentic purpose, a next generation of ECMs could include at the very beginning of its lesson plans a video segment of an exemplar model of a classroom experience based on the principles that the ECMs are attempting to convey (as in Figure 1). With this video the ECMs might keep the teachers in flow by structuring their experience through reflective prompts (e.g., What seems different about this class? How are students' experiences in this classroom different from those you had?). The goal of this proposed new video segment would be to help teachers concentrate on a holistic vision of what is possible when implementing the principles of PBHI.

If teachers perceive an intrinsic value in viewing classrooms where students were engrossed in thinking deeply, we reasoned that they might then be more motivated to engage the ECMs and implement powerful learning activities of that sort.

Learning Should Be Connected

At the beginning and end of each ECM lesson teachers were encouraged to connect the lesson's content and skills to other experiences their students had encountered. Nesting the lesson within the particular course section's weekly, monthly, and even yearly context was suggested as a significant factor for helping students connect the day's content and skills to those they had already practiced and refined.

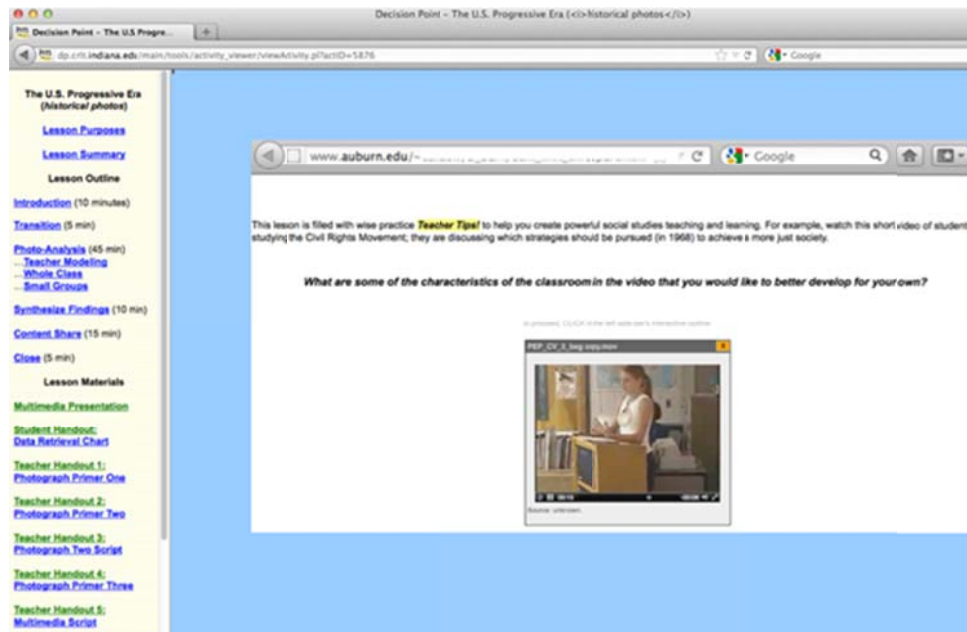


Figure 1. Illustration of initial educatively scaffolded hyperlinked page, a classroom vignette which could be added to establish purpose and to engage teachers.

The educative scaffolds grafted onto the lesson attempted a similar strategy. We designed the historical photographs' primers ([Appendix C](#)) and several hyperlinks to help teachers better understand the historical era and suggested wise-practice teaching strategies to help guide students to think more critically. The participating teachers responded strongly to the lesson's primers. They each devoted a majority of their planning time to examining them, wrote on them, highlighted, or underlined points of interest on them, and claimed they were "insightful," "very helpful," or "taught me something new."

It was also clear that the teachers shared with their students much of the information from the primers, often holding primers throughout the lesson. In short, the teachers' understandings of the era were significantly informed by the historical data included in the primers. The teachers also seemed to grasp the materials' pedagogical foundation: They each cited having done some activities similar to those in the lessons—just not as fully developed.

The teachers may have valued the primers because they more closely resembled traditional instructional resources than did most of the other educative features. From our interviews and observations it was clear that the participants routinely used teachers' guides and annotated teachers' editions to plan classroom events. Their typical planning resources nearly always included visual data with (a) questions to ask students, (b) specific details of the visual image to mention, and (c) historical information to better explain the events portrayed in the photographs. The participants may have valued the primers also because they were familiar paper hardcopies, as opposed to the rest of the lesson, which was web-based with embedded hypermedia.

However, the teachers seemed to have difficulty moving from *recognizing* the more developed strategy and *understanding* why the PBHI strategy might help augment their practice. Future ECMs should be designed to capitalize on the fact that teachers may

value the lessons' teacher handouts. The focused attention our participants devoted to their handouts suggests that those particular resources might be an effective place to embed educative features.

A primer could itself be a webpage with embedded hyperlinks that are worded in a more collegial and interest-piquing fashion. Hyperlinks from the primer could present teachers with educative scaffolds (explanations and demonstrations of historical thinking, testimonials from other teachers who articulate their recommendation for such lesson strategies, or perhaps a video segment from a classroom where a teacher is leading students through this, or a similar, lesson.) Figure 2 illustrates a possible revised hypermedia-based ECM primer for a historical photograph.

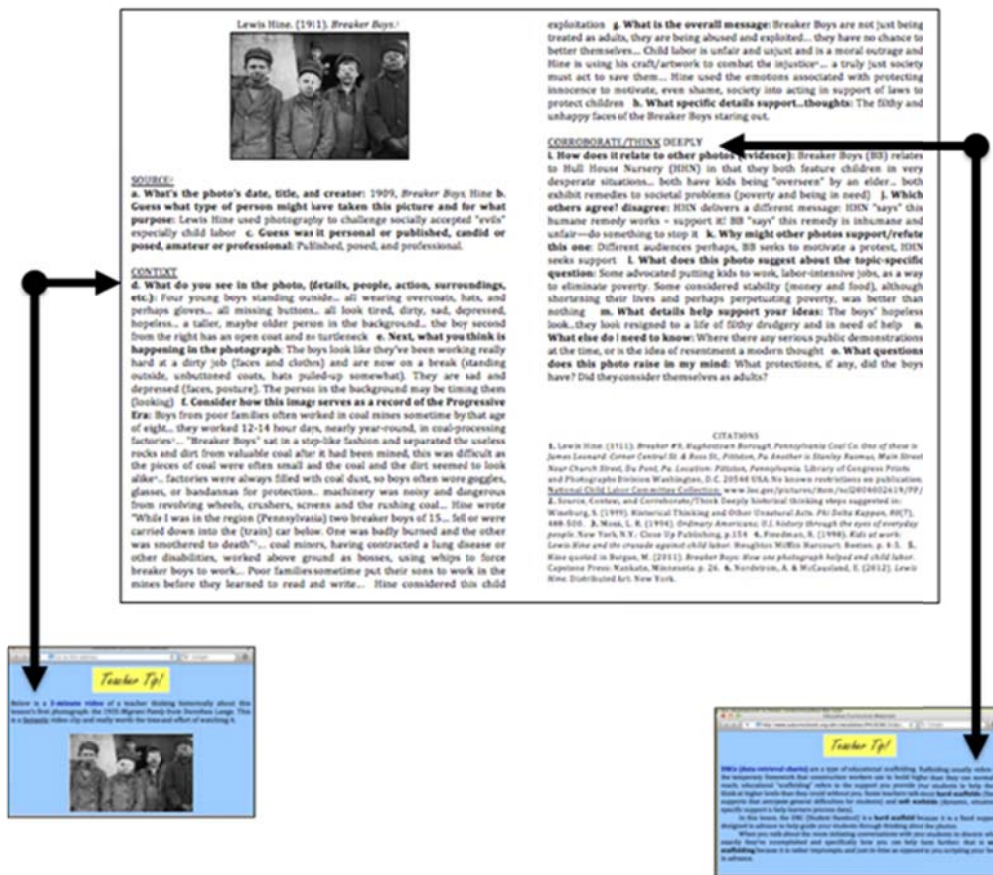


Figure 2. Illustration of proposed revised primer for a historical photograph containing two hyperlinks leading to educative features.

Learning Should Be Active

Students were encouraged to interpret a series of visual documents, synthesize their respective messages, and construct a historically plausible hypothesis to an open-ended central question. The creative reflection that the lessons asked of students contrasts with traditional social studies classroom approaches, where students are often assigned to memorize and recall facts in relation to an already established historical understanding.

The educative scaffolds from our study also made specific reference to the fact the curriculum materials were not teacher proof, but rather that they needed to be acted upon to be most effective. For example, one of the lesson's first educative hyperlinks provided the rationale for the lesson's pacing in the following way:

The 10 minutes proposed here for the discussion is only a suggestion. While this lesson plan offers suggested times, the teacher must decide when to extend, stop, or interrupt any specific activity. It may make sense to devote a majority of class time to the skills surrounding interpreting historical photographs, but again that is entirely up to the teacher.

It was our expectation that the teachers would visit the above hyperlink, read its text, internalize the concept being put forth, and begin negotiating a new interpretation of this specific lesson's timing—and perhaps the timing of classroom events, in general.

The ECMs also explained the lesson's teaching strategies and prompted teachers to react. We hoped that the opportunities to internalize the explanations would coax the teachers into a participatory relationship with the ECMs in which they would cocreate a lesson. For example, the ECMs included a hyperlink to a short video clip of an experienced PBHI teacher discussing that, ideally, teachers would organize several connected lessons around a fundamental, recurring societal issue such as, "What is society's responsibility, if any, to the poor and needy?"

In the video, the experienced teacher suggested that this teaching strategy would engage students, especially when combined with encounters with rich, multimedia historical artifacts like digital copies of historical photographs. We hoped that the study's participants would view this short video, notice how their understanding of teaching might differ from that of the experienced teacher, and begin to think of ways of integrating the two. Although the teachers who visited the hyperlinked video tended to find it interesting (e.g., Dill said, "That was pretty cool," and Rose responded, "Wow."), none indicated that they considered integrating its suggestions into their understanding of meaningful teaching.

In short, the teachers were prompted with several detailed alternative perspectives as to what might make for high-quality teaching and then were left to make sense of the data and expand or adjust their respective teaching schema. Therefore, potential teacher learning was subtle, implicit, and self-directed.

To be more effective, perhaps a next generation of ECMs could provide teachers with more overt decision-making control that might help them maintain focus: keeping them in flow. The ECMs could articulate options for teachers to choose from and also communicate possible criteria that teachers may use to choose between the options—all of which could promote a progressive, constructivist teaching philosophy. If teachers must choose between types of classroom events, they may be more likely to genuinely consider progressive pedagogical suggestions, select between activities, and construct a rationale that best fits their respective context.

Additionally, since declarative statements were unsuccessful in enticing teachers to visit the educative hyperlinks, we suggest slightly different phrasing for any future development of ECMs. We hypothesize that a more successful approach might be to present teachers with evaluative questions written in a more collegial tone. For example the "click here" hyperlinks could be rewritten as, "Are you buying THIS TEACHER'S arguments that this lesson is worth all the effort?" and "Do you find THIS VIDEO clip's

explanation of historical thinking ‘quite helpful’ or ‘not so much?’” Perhaps more thought-provoking questions written in a more familiar tone (likewise calling educative features “Teacher Tips” rather than “Pedagogical Strategies”) may help the teachers imagine the ECMs as a collaborative partner. Employing more user-friendly language was consistent with research suggesting such phrasing may be more effective for online users (Molich & Nielsen, 1990; Oviatt, 2006).

By more genuinely engaging the teachers and creating slight cognitive dissonance through struggling with the disparate pedagogies (the teachers’ and the ECMs’), curriculum designers may be more successful in motivating teachers to interact purposefully with the ECMs as a collaborative partner.

Learning Should Be Supported

In each of the first two iterations teachers interpreted a historical photograph *for* their students, then teachers interpreted a historical photograph *with* their students, and finally teachers assigned their students to interpret a historical photograph independently. Along with this three-part cognitive apprenticeship strategy for supporting students’ development of historical thinking and visual literacy skills, teachers seemed to follow the ECMs’ encouragement to move around their classrooms throughout the lessons, helping students with just-in-time formative suggestions. Students were supported with a data retrieval chart to (a) guide their historical thinking about the photographs, and (b) lead their initial thoughts about the question at the problem-centered lesson’s core.

In addition, the three iterations used in the research study mirrored the cognitive apprenticeship strategy that the lessons encouraged. Each iteration was to contain fewer educative supports, allowing the participants more agency in the planning sessions as the supports faded. Also consistent with the lessons for their students, teachers were encouraged to develop their historical thinking and visual literacy skills through their planning with the primers for each historical photograph. Each primer was a deliberate attempt to provide teachers with a contextualized tool to negotiate and construct a robust understanding of both content and pedagogy.

The teachers in our study tended to skim many of the resources’ implicit attempts to promote pedagogical knowledge. The teachers visited few of the educative hyperlinks; thus, we decided to alter the original study design and include as many educative scaffolds in the second iteration as were in the first. This modification significantly limited the possibility that fading of expert support could occur. Also, no participant read through a primer as we had anticipated: top-to-bottom and left-to-right. Having done so, the teachers would have experienced a guided tutorial of thinking critically and historically about a photograph (see [Appendix C](#)). Instead, the teachers in our study tended to skim each primer, pausing at possible points of particular interest to them or at particular factual content that might enliven their presentation of the topic to their students.

However, teachers did begin to use some of the terminology associated with historical thinking (e.g., referring to “sourcing” a document and its creator’s possible biases) and adopt some of the behaviors of teachers more expert in this type of teaching (e.g., strongly encouraging the use of data retrieval charts, moving about the classroom to provide just-in-time assistance to struggling students).

For example, when planning for his third iteration's lesson, Dill decided to employ hard scaffolding, stating, "They can all fill out the [graphic organizers]—just like we've used in the previous lessons....The questions led students to ask about things they usually don't, like who took it and why."

Also, while not calling it soft scaffolding, Dill made a point during his planning to mention that he would visit with each small group he assigned to "make sure they're writing down what they're supposed to." Dill may have meant that his students were supposed to be thinking at higher levels or perhaps merely staying on task; either way, he recognized the value of moving about his classroom to engage and support students. Later, during his postinterview, Dill articulated a nearly precise understanding of soft scaffolding: "You're letting [students] take the initiative to express what's in their mind and gently nudging them in the right direction." Later, he added,

It's not just you spoon-feeding [students]. They are generating things from their head and you're just taking it in a more productive direction....That reinforced with me the importance to go around and monitor, not standing from a distance, but actually engaging them up close to see what they're thinking.

These two comments suggest Dill's paraphrasing of information presented to him through the ECMs. He had clearly engaged the concept of soft scaffolding and contemplated its utility in his classroom.

Perhaps a next generation of ECMs could make more explicit the ECMs' attempts to promote teacher-curriculum interaction. This increased interaction might be possible by conducting orientation sessions for the teachers before they begin planning with ECMs, or perhaps by building into the ECMs an initial scaffold that thoroughly explains the intended participatory relationship. With this deliberate articulation of the materials' overall goal, perhaps resources such as the historical photographs' primers would more successfully mediate the teachers' development of historical thinking and visual literacy skills as well as their content knowledge.

Additional Considerations

A related concern for ECM designers is the precise medium for the ECMs to convey specific suggestions. Designers should contemplate which medium (e.g., short classroom video clips, audio of teachers reflecting on their craft, textual narrative) offers the clearest, most engaging communication that describes the underlying rationale. Perhaps the more information-intensive explanations could be conveyed via multimedia instead of text; watching a minute of a teacher-reflection might be more potentially educative than a several-hundred word narrative paragraph (viz., Paas, Renkel, & Sweller, 2004; Sweller, 1988).

Designers of ECMs may also consider Yelland and Masters' (2005) argument that a key feature of learners' improved performance is affective encouragement. While the teachers negotiated the resources' educative features, we wanted to provide them with encouragement that might motivate them to continue planning with the ECMs through any unclear portions or times of difficulty that arose. This encouragement was particularly difficult to embed into the ECMs. We may not have succeeded in our efforts to incorporate meaningful praise and motivational excerpts while maintaining a respectful tone. For example, within one educative hyperlink the following phrase was included as a small bit of praise: "Great. Now that you have reached this point in the lesson..."

Finally, our research highlights the critical role of context in the effectiveness of ECMs. The teachers in our study planned alone and in the middle of their busy school day, either during their planning period or after school but before another school-related obligation (e.g., coaching a sport or leading an extracurricular club). Along with significantly limiting the amount of time that the teachers could devote to their planning sessions, it also seemed to sap the teachers of any creative dynamism. They tended to glance through the ECMs and only stopped to concentrate their efforts on content information that they found personally interesting or aspects that seemed similar to their preexisting dispositions and experiences in teaching. In short, they did not seem to be in flow with the ECMs.

Teachers might find a less harried time and place to plan with ECMs; however, we are unconvinced that such a change would lead to the learning outcomes we hoped to achieve, at least for most teachers. The potential for ECMs to serve as stand-alone levers of change for teacher practice may be limited. Inciting conceptual change is difficult and challenges deeply held beliefs about teaching and learning that are grounded in teachers' personal experiences (Cornett, 1990; Posner, Strike, Hewson, & Gertzog, 1982). ECMs may provide teachers with visions of the possible, but integrating such a vision into practice is likely to require a good deal more support, dialog, negotiation, and testing. ECMs may be best utilized as one element of an intentionally deliberative environment, including real-time scaffolding by mentors and collaborative work (face-to-face or online) with peers.

Some research suggests that when teachers participate in collaborative communities of practice, they tend to distribute the cognitive load and use each other as supports to develop shared understandings of theory-based practice (Garet, Porter, Desimone, Birman, & Yoon, 2001; Saye, et al., 2009). ECMs might be integrated into Lesson Study or other types of formal professional development focused on collaborative work that applies professional teaching knowledge principles directly to problems of practice. Used in this way, ECMs might provide valuable support for teachers as they address recognized teaching dilemmas and consider how wise practice reform ideas might be integrated into their instruction to improve student learning.

Conclusion

This paper includes a report of specific pedagogy and user interface design principles of web-based ECMs explicitly created to help social studies teachers develop their professional teaching knowledge. Several online social studies curriculum reform efforts were reviewed, along with human-centered interface design, and ECM investigations that directly informed our work. The theoretical foundation of our educative scaffolding was described, providing both examples as employed in our study and illustrative models that may be more effective in future research. Findings from our investigation were reported to highlight design principles for the future development of ECMs that may better promote powerful social studies teaching.

Limitations of our previous study should also temper our conclusions. We examined the practices of only three teachers while they each taught students in one course section of one class. A wider sample of teachers for a longer window of work with ECMs may have produced different results.

ECMs might be best regarded as supplements or enhancements rather than substitutes for interpersonal professional development experiences. This line of research may also

have broader implications for teacher education, in general. A great push is underway in higher education to offer more online learning for traditional students, nontraditional teaching candidates, and practicing teachers seeking advanced credentials. Our experiences provide some guidance for design of more effective online experiences, but also some cautions about the limitations of technology-mediated learning. Whether learning is online or face to face, complex learning requires careful attention to context and support. Web-based ECMs may add valuable elements to such learning. However, our work suggests the need for instructional designs that provide real-time collaboration in settings that are conducive to focused effort and reflection and feature the guidance of expert mentors who have mastered the professional teaching knowledge that is the focus of the professional development.

There is much that we do not yet know about how we might best incorporate web-based ECMs into effective learning environments. Our work may provide guidance for additional research that explores the potential of interactive ECMs for promoting teacher learning, particularly in the field of social studies.

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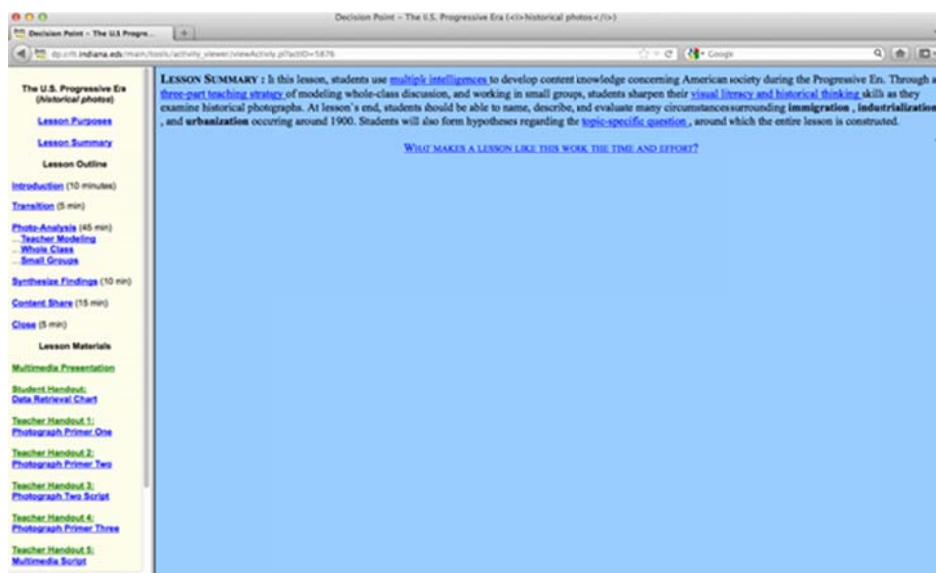
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Appendix A Illustrations of the Three Levels of the ECM User Interface

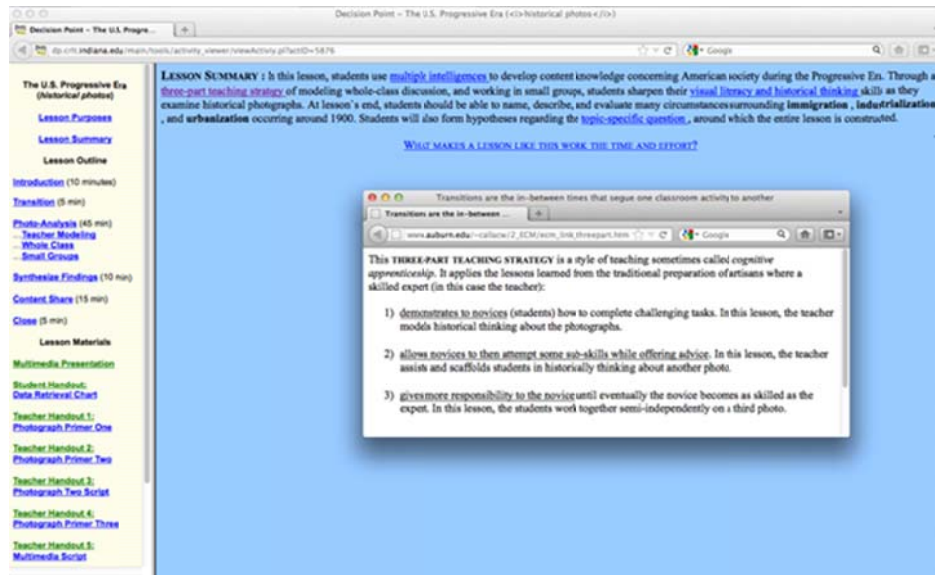
The initial, the lesson outline in the narrow, left column and an open wide, right column:



Next, clicking the *Lesson Summary* hyperlink from the narrow, left column:



Then, clicking the *Teaching Strategy* hyperlink from the wide, right column:




Appendix B
Comparison of Original ECMs With Hypothesized Next Generation ECMs

Design Features of ECMs			
Feature of the ECMs Used in Original Study	Teachers' Reactions to Original ECMs	Revised ECMs Feature Hypothesized to Be More Effective	Highlighted Design Principle to Guide Future Design of ECMs
Textual hyperlinks encouraging a participatory relationship	Did not consider the ECMs a collaborative partner	Introduce ECMs with a powerful video segment to encourage engagement with ECMs	Convince teachers to purposefully engage the ECMs collegially
Primers formatted as tutorial for thinking historically	Skimmed primers without experiencing the tutorial	(1) explicitly mention formatting, (2) embed educative scaffolds into primers	Provide teachers with more explicit educative support
Suggested the lessons were not "teacher proof" but needed to be "acted upon"	Did not consider ECMs interactive	Prompt teachers with options (two wise practice variations) for teachers to choose from	Engage teachers in actively fitting ECMs into their local context
Text naming familiar themes linked to thorough explanations and models of practice	Used terminology from the lessons, but implemented little	Hyperlink video that models transfer from recognizing a familiar concept to practice of it	Overtly connect prior knowledge to new information
Cognitive apprenticeship; fewer educative scaffolds with each lesson	Did not visit many hyperlinked scaffolds	Orientation session to introduce the over-arching goals of the ECMs	Support teachers' initial interaction with new-to-them materials
Occasionally included the phrase "great job"	Considered the phrase inconsequential, disingenuous	A more thorough and meaningful praising of participants	Affective encouragement may help teachers engage ECMs more challenging aspects
Procedural Features of ECM Use			
Feature of the ECMs Used in Original Study	Teachers' Reactions to Original ECMs	Revised ECMs Feature Hypothesized to Be More Effective	Highlighted Pedagogical Design Principle to Guide Future ECMs
Teachers planned alone	Concentrated on familiar aspects; Interested more	Plan collaboratively; share ideas, talk	Encourage a shared responsibility between teachers and ECMs;

	in content, not pedagogy	about educative features	Collective rationality; Collaboration;
Teachers planned during the school day	Seemed rushed, tired, and unfocused	Plan at times more conducive to dynamic creativity and resourcefulness	Negotiating multiple pedagogies

Appendix C Primer for Historical Photograph from our Study's First Iteration

Lewis Hine. (1911). *Breaker Boys*.¹



SOURCE:
a. What's the photo's date, title, and creator: 1909, *Breaker Boys*, Hine **b. Guess what type of person might have taken this picture and for what purpose:** Lewis Hine used photography to challenge socially accepted "evils" especially child labor **c. Guess was it personal or published, candid or posed, amateur or professional:** Published, posed, and professional.

CONTEXT
d. What do you see in the photo, (details, people, action, surroundings, etc.): Four young boys standing outside... all wearing overcoats, hats, and perhaps gloves... all missing buttons... all look tired, dirty, sad, depressed, hopeless... a taller, maybe older person in the background... the boy second from the right has an open coat and no turtleneck **e. Next, what you think is happening in the photograph:** The boys look like they've been working really hard at a dirty job (faces and clothes) and are now on a break (standing outside, unbuttoned coats, hats pulled-up somewhat). They are sad and depressed (faces, posture). The person in the background may be timing them (looking) **f. Consider how this image serves as a record of the Progressive Era:** Boys from poor families often worked in coal mines sometime by that age of eight... they worked 12-14 hour days, nearly year-round, in coal-processing factories'... "Breaker Boys" sat in a step-like fashion and separated the useless rocks and dirt from valuable coal after it had been mined, this was difficult as the pieces of coal were often small and the coal and the dirt seemed to look alike... factories were always filled with coal dust, so boys often wore goggles, glasses, or bandannas for protection... machinery was noisy and dangerous from revolving wheels, crushers, screens and the rushing coal... Hine wrote "While I was in the region (Pennsylvania) two breaker boys of 15... fell or were carried down into the (train) car below. One was badly burned and the other was smothered to death"... coal miners, having contracted a lung disease or other disabilities, worked above ground as bosses, using whips to force breaker boys to work... Poor families sometime put their sons to work in the mines before they learned to read and write... Hine considered this child

exploitation **g. What is the overall message:** Breaker Boys are not just being treated as adults, they are being abused and exploited... they have no chance to better themselves... Child labor is unfair and unjust and is a moral outrage and Hine is using his craft/artwork to combat the injustice... a truly just society must act to save them... Hine used the emotions associated with protecting innocence to motivate, even shame, society into acting in support of laws to protect children **h. What specific details support... thoughts:** The filthy and unhappy faces of the Breaker Boys staring out.

CORROBORATE/THINK DEEPLY
i. How does it relate to other photos (evidence): Breaker Boys (BB) relates to Hull House Nursery (HHN) in that they both feature children in very desperate situations... both have kids being "overseen" by an elder... both exhibit remedies to societal problems (poverty and being in need) **j. Which others agree? disagree:** HHN delivers a different message: HHN "says" this humane remedy works - support it! BB "says" this remedy is inhumane and unfair—do something to stop it **k. Why might other photos support/refute this one:** Different audiences perhaps, BB seeks to motivate a protest, HHN seeks support **l. What does this photo suggest about the topic-specific question:** Some advocated putting kids to work, labor-intensive jobs, as a way to eliminate poverty. Some considered stability (money and food), although shortening their lives and perhaps perpetuating poverty, was better than nothing **m. What details help support your ideas:** The boys' hopeless look... they look resigned to a life of filthy drudgery and in need of help **n. What else do I need to know:** Where there any serious public demonstrations at the time, or is the idea of resentment a modern thought **o. What questions does this photo raise in my mind:** What protections, if any, did the boys have? Did they consider themselves as adults?

CITATIONS

1. Lewis Hine. (1911). *Breaker #9, Hughestown Borough, Pennsylvania Coal Co. One of these is James Leonard. Corner Central St. & Ross St., Pittston, Pa. Another is Stanley Rasmus, Main Street Near Church Street, Du Pont, Pa. Location: Pittston, Pennsylvania. Library of Congress Prints and Photographs Division Washington, D.C. 20540 USA. No known restrictions on publication National Child Labor Committee Collection: www.loc.gov/pictures/item/nc12004002619/PP/*

2. Source, Context, and Corroborate/Think Deeply historical thinking steps suggested in: Wineburg, S. (1999). *Historical Thinking and Other Unnatural Acts. Phi Delta Kappan*, 80(7), 488-500. 3. Monk, L. R. (1994). *Ordinary Americans: U.S. history through the eyes of everyday people*. New York, N.Y.: Close Up Publishing, p.154 4. Freedman, R. (1998). *Kids at work: Lewis Hine and the crusade against child labor*. Houghton Mifflin Harcourt: Boston, p. 4-5. 5. Hine quoted in Burgan, M. (2011). *Breaker Boys: How one photograph helped end child labor*. Capstone Press: Mankato, Minnesota, p. 26. 6. Nordstrom, A. & McCausland, E. (2012). *Lewis Hine*. Distributed Art: New York.

NOTE: Below is the citation for the historical photograph explicated in this primer (this citation is also located on the primer itself, on the lower right):

Hine, L. (1911). *Breaker #9, Hughestown Borough, Pennsylvania Coal Co. One of these is James Leonard. Corner Central St. & Ross St., Pittston, Pa. Another is Stanley Rasmus, Main Street Near Church Street, Du Pont, Pa. Location: Pittston, Pennsylvania. (Photograph)*. Retrieved June, 2005, from Library of Congress Prints and Photographs Division Washington, D.C. 20540 USA <http://www.loc.gov/pictures/item/nc12004002619/PP/> [No known restrictions on publication.]