Independent Thinking:
Initiating Inquiry in American History

A collaborative technology tool that links children to the past.

Masters’ Project Proposal

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Learning, Design and Technology
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School of Education

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Abstract

True historical understanding requires students to engage in *historical thinking* through critical examination of artifacts and records and the construction of historical narratives and arguments of their own. In order to build this understanding we plan to develop a curriculum and a collaborative interactive software tool that promotes student investigation of primary sources, teaches them the practice of being a historian and guides them through the process of historical inquiry. Consisting of three sequential components, our design will first nurture students in understanding the process of historical investigation through participation in activities modeled after the authentic practices of a historian. The second piece of the design will scaffold students in data collection and analysis of primary sources through the use of an interactive software framework based on the cognitive model of an expert. The final component will include suggested activities to support students in the organization, presentation and discussion of the evidence they have collected in answer to the historical question “What is independence?”

Our challenge is to design an effective framework of activities and problems that promote higher order thinking skills as well as allows students to facilitate their own learning through practice and collaboration with classmates. To address these challenges, we will consult experts in the field of history, learning and instructional design. In addition, we will conduct extensive ethnographic research in the form of literature review, field observation (classroom), and student and teacher interviews to determine needs and gather examples of best practices. Coupled with expert consultation, careful examination of this data will provide us with the necessary tools to build an effective prototype for teaching and learning historical content.
Background & Learning Problem

Learning Problem:
The overall achievement of American students in the core subject of social studies is unacceptably low. Fewer than fifteen percent of eighth grade students are performing at or above the proficient level in their understanding of significant events, ideas and documents related to American History. They are unable to communicate ideas about historical themes or cite evidence from primary or secondary sources to support their conclusions.

The National Assessment of Educational Progress reports that as students advance through grade levels, they score progressively lower on history performance tests, to the point where over fifty percent of America’s twelfth graders are graduating high school with knowledge below a basic level of understanding of American history.

Research has shown that learning environments that foster collaboration and problem-based inquiry into the investigation of primary documents can significantly impact student achievement. By placing the student in the role of researcher the process of understanding history becomes relevant and meaningful. Technology can play a vital role in this process by supporting collaboration, access and historical inquiry.

Background:
U.S. students reveal serious gaps in their knowledge of major events and themes in American History. (Patrick, 1991, 1995) According to findings in the 1994 National Assessment of Educational Progress in History thirty-six percent of fourth-graders, thirty-nine percent of eighth-graders, and fifty-seven percent of twelfth-graders were below the basic level of history performance. The study also reports that students who participate in the authentic activities of a historian and who are required to interpret and apply knowledge to the completion of projects, score much higher than students who reported that their lessons were limited mostly to reading and recalling the contents of textbook chapters. Despite these factors associated with higher performance, the majority of students reported that they used textbooks on a daily basis, and twenty-three percent of eighth graders had teachers who reported that they never or hardly ever used primary documents in their teaching. After reviewing the results of the assessment the NAEP concluded: “The current levels of student achievement are unacceptably low for our country’s needs and aspirations and for the personal goals of its citizens.” (NAEP, 1994)

True historical understanding requires students to engage in historical thinking: to raise questions and to marshal evidence in support of their answers; to go beyond the facts presented in their textbooks and examine the historical record for themselves; to consult documents, journals,
diaries, artifacts, historic sites, works of art, quantitative data and other evidence from the past, and do so imaginatively. (National History Standards, 2000) Students who actively generate questions and seek answers are far more likely to retain knowledge and be able to apply it outside of the classroom. As John Dewey states, people learn when they seek answers to the questions that matter to them; their understanding changes only when they become dissatisfied with what they know. (Dewey, 1933, 1956) Courseware that challenges students to form questions and to seek answers in primary documents, uncovering the human stories and concepts behind the dates and events in history, puts the student in the role of the historian and makes history come alive. This process of finding information, drawing conclusions, and reflecting on possible solutions, known as inquiry, leads to a deeper understanding of history and makes it relevant to the lives of students. (Levstik & Barton, 1997) From this perspective, one of the most common suggestions for teaching social studies is to have students “do research”, an authentic activity of a historian. In this teaching model, students must form and answer questions, yet, simply sending students off on their own to engage in the vague activity of research rarely results in anything positive or productive.” (Levstik & Barton, 1997) The development of a problem-based learning curriculum that supports the investigation of primary sources, has the potential to improve student achievement.

Technology can play an important role in facilitating these “best-practices” of teaching and learning history, creating new opportunities for curriculum and instruction. It has the capacity to bring real-world problems into the classroom for students to explore and solve. Technology can help to create an active environment in which students not only solve problems, but also find their own problems. (National Research Council, 1999) Through the use of technology it is now easier to create environments where students can learn by doing, receive feedback, and continually refine their understanding and build new knowledge. (Barron et al., 1998; Bereiter and Scardamalia, 1993; Kafai, 1995)

Additionally, technologies provide access to a vast array of information, including digital libraries, data for analysis, and other people who provide information, feedback and inspiration. They can enhance the learning of students and increase connections between schools, the communities, and the past. Computer-based technologies can be powerful pedagogical tools – not just rich sources of information, but also extensions of human capabilities and contexts for social interactions supporting learning. (National Research Council, 1999)
Design & Deliverables

Design Proposal:
The presence of technology alone will not enhance learning it must be tied to empirically grounded learning activities. (National Research Council, 1999) We propose to design a unit of curriculum to scaffold the students’ understanding of expert historical investigation, including a piece of interactive software that facilitates the practice of their data collection and analysis. The framework will support higher order thinking skills, collaboration and understanding of historical events, concepts and ideas.

Creating this tool through the lens of content, context and process, our design team will provide a vehicle and framework for the investigation of historical artifacts and primary documents, placing the student in the role of a historian and changing the traditional process of learning history. Through participation in learning activities and interaction with the software tool we hope to move students’ conceptual models closer to those of experts in the field of historical inquiry. Our goal is for students to understand that:

- History is derived from multiple perspectives.
- Trained historians are investigators who don’t just collect, but interpret and organize evidence to support historical conclusions.
- Every piece of the historical record is biased in some way and should be reviewed skeptically and critically.
- History is a dynamic narrative that relates to each of their lives.

In order to achieve these goals, our design will consist of three major pieces:

1. Authentic Practice Activities:
The first piece of our problem-based curriculum will concentrate on the authentic practices of a historian, including the investigation of primary and secondary sources. Students will be supported through the process of historical inquiry including: use of the time-place rule, the bias rule, corroboration, triangulation, and developing an understanding of the multiple perspectives of history.

2. Software framework:
Students will practice the activities of a historian through the use of an interactive software tool. Modeled after the “conceptual map” of a historian the framework will help students organize source material into meaningful clusters. Within the context of US History, we will focus our content on the theme of independence; more specifically what it means to be independent. Students will be divided into groups in order to collect data.
from a variety of perspectives and times throughout American History. Their data will be placed into the framework for analysis and organization.

3. Presentation Activities:
The final piece of the design consists of suggested activities for the presentation and discussion of student research. By sharing their research and analysis, and hearing those of others, students will build a multifaceted understanding of the concept of independence.

Site Description
For a real-world design experience and to enable the participatory design process, our team will work in conjunction with a local middle school. We will be working with Steve Carothers and his 8th grade US History students in the construction of this curriculum. Mr. Carothers works in the Connections program at the Jane Lathrop Stanford (JLS) Middle School in Palo Alto.

JLS is home to approximately 1188 sixth, seventh and eighth-grade students from Stanford, Palo Alto and Los Altos Hills and 140 adults who provide educational and support services. Of these 1188 students, 20 of them make up the 8th grade connections group. Started as a pilot series in 1997, the Connections Program was developed to meet the needs of a variety of students who will thrive better with individualized pacing and attention to different learning styles; extra challenges in various areas of the Core curriculum; longer blocks of time allowing in-depth, multidisciplinary, and project-based pursuit of the curriculum; accountability stressing documentation of successful achievements and setting goals for next steps, as well as student participation in his/her own assessment; and a few adults who know them well, and whom they know well. Led by a small team of teachers who teach the core subjects to 6th, 7th and 8th grade students; the program focuses on integrated, interactive, multidisciplinary learning, emphasizing connections among the various disciplines. We feel this problem and project based classroom will be the ideal setting for building and testing our curriculum.

Our final product will include the following pieces:

- Written curriculum plan including:
  - rationale behind the plan
  - major themes and concepts of the design
  - intended goals and learning activities
  - forms of assessment to be used
- Literature Review
- Interactive computer-based tool
- Web-report: containing
- project documentation
- design process
- design & learning theory
- observations
- user testing
**Process**

The project team will ground its process in learner-centered design, also engaging in a modified participatory design practice. We will utilize traditional research methods such as observation, literature review, research, user testing and expert guidance to inform our design. A complete list of steps follows:

Step 1: Targeted Literature Review

Step 2: Define Learning Problem and Identify Audience & Content Area

Step 3: Research and Interview to Determine Expert Historian Model

Step 4: Conduct Concept Mapping Activity with Students at JLS Middle School

Step 5: Brainstorm 3 Stages of Overall Design

Step 6: Develop Curriculum Plan for Learning Best Practices in Historical Inquiry

Step 7: Collect Resources for Primary & Secondary Sources

Step 8: Brainstorm Features for Framework Tool: Storyboarding

Step 9: Build Prototype

Step 10: User-Test Design with JLS 8th Grade Students

Step 11: Consult Experts with Data Collected from User-Test

Step 12: Team Reflection for Redesign

Step 13: Prepare Final Design & Presentation
Timeline

A tentative schedule of the project team’s design calendar, highlighting major milestones and detailing lower-level goals for the completion of the final product.

Jan. 26 – MA Proposal Due
⇒ confirm advisor & teacher resource/project site
⇒ consult experts
⇒ finalize budget
⇒ brainstorming design
⇒ literature review

Feb. 9 – Site visit at JLS Middle School
⇒ perform site technical review
⇒ needs analysis
⇒ determine best practices for teaching history

Feb. 15 – Literature review/Historian Research
⇒ interview historians to determine expert model of historical inquiry
⇒ examine existing products using technology to teach history
⇒ review
⇒ finalize deliverable plan

Feb. 20 – Second Site Visit at JLS
⇒ conduct concept mapping activity
⇒ observe history class
⇒ analyze data from visit

Feb. 24 – Design Review
⇒ present observations and 3 part design
⇒ solicit guidance on framework design plan
⇒ gain expert feedback

Mar. 2 – Organize Research
⇒ consolidate literature review to determine overall design
⇒ finalize design theory practices
⇒ ready to move to stage 2 of design

Mar. 10 – Curriculum Design
⇒ write curriculum plan for stage 1 of design
⇒ get curriculum feedback
⇒ user test curriculum activities at JLS

Mar. 20 – Brainstorm Framework Features
⇒ storyboard using research data
⇒ quick and dirty mock up user test with JLS students
⇒ determine what features should be included

Mar. 28 – Build Prototype
⇒ follow storyboards to develop framework
⇒ design specific features

Apr. 14 – User Testing
⇒ formal user testing
⇒ data collection
⇒ data analysis

Apr. 25 – Redesign
⇒ design iterations including user testing data
⇒ redevelop prototype

May 10 – Project Completion
⇒ finalize project data
⇒ web report production
⇒ prototype completed

May 18 – Expo
⇒ web report produced
⇒ final review by advisor & experts
⇒ finalize project
⇒ reflections

May 24 – Final Submission of Project
**Project Budget**

A project of this scope and detail will entail serious commitment for both members of the project team by way of development and production work as well as other monetary expenses. See the chart below for a budget of estimated costs.

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<th>Item</th>
<th>Est. Cost</th>
<th>Actual Cost</th>
<th>Comments</th>
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<tr>
<td><strong>Staff Hours</strong></td>
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<td><strong>Development</strong></td>
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<td>curriculum construction</td>
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<td>brainstorming design</td>
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<td>user testing</td>
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<td><strong>Work Materials</strong></td>
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**Consultants**

The following people will assist the project team in their research and development of the product.

**Project Advisor**
Prof. Decker Walker, School of Education, Stanford University

**Learning Theory**
Prof. Jim Greeno, School of Education, Stanford University
Assoc. Prof. Shelley Goldman, School of Education, Stanford University

**Design Philosophy**
Dr. Christopher Hoadley, Center for Technology and Learning, SRI International

**History/Social Studies Content Expertise**
Alan Marcus, A.M., School of Education, Stanford University
Steve Caruthers, JLS Middle School
Prof. Kathi Kern, History Department, University of Kentucky

**Curriculum Design**
Assoc. Prof. Denise Pope, School of Education, Stanford University
Alan Marcus, A.M., School of Education, Stanford University
Wendy Campbell, Curriculum Coordinator, Travis High School, Austin, TX
Joy Stratton, Assistant Principal – Curriculum, Marist High School, Chicago, IL

**Child Development Expertise**
Prof. Brigid Barron, School of Education, Stanford University

**Teaching and Classroom Management**
Nancy McClasky, retired principal, Pasadena Middle School
Steve Caruthers, JLS Middle School

**Organizations**
The Smithsonian Institute, Washington DC
AAHC: American Association of History & Computing
National Archives and Records Administration
National Center for History in the Schools
US Department of Education
Center for Technology and Learning, SRI International
Close Up Foundation

**Project Design Team**
Joanne Kline, School of Education, Stanford University. Please see attached resume.
Laura Malcolm, School of Education, Stanford University. Please see attached resume.
Resources

History/Social Studies Resources:


Learning/Technology Theory Resources:


Concept Mapping/Cognitive Model Resources:


Curriculum Design & Assessment Resources:


Design Theory Resources:


**Web Resources:**
- National Archives and Records Administration, [http://www.nara.gov/education](http://www.nara.gov/education)
- National Center for History in the Schools, [http://www.sscnet.ucla.edu/nchs](http://www.sscnet.ucla.edu/nchs)
- Virginia Runaways Project, [http://www.uvawise.edu/history/runaways/](http://www.uvawise.edu/history/runaways/)
- Engines for Inquiry, [http://www.georgetown.edu/crossroads](http://www.georgetown.edu/crossroads)
- My History is American’s History-A Millennium Project of the National Endowment for the Humanities, [www.myhistory.org/kids/index.html](http://www.myhistory.org/kids/index.html)
- History Matters, [http://historymatters.gmu.edu](http://historymatters.gmu.edu)
- American Social History Project-Center for Media and Learning, [www.ashp.cuny.edu/index.html](http://www.ashp.cuny.edu/index.html)
EDUCATION

Stanford University, A.M., Education, Learning, Design, Technology  
expected June 2001
University of California, Santa Barbara, B.A. Communication Studies  
1990-1994
San Francisco State University, Multimedia Studies Program, Multimedia in Education  
Fall, 1997
Boston University, Study Abroad Program, Madrid, Spain  
Fall, 1992

TECHNICAL SKILLS

• PC/MAC
• MS Office
• HTML
• NetObjects Fusion 4.0
• Dreamweaver 3
• Fireworks 3
• Adobe Photoshop
• WS_FTP Pro
• Flash 5.0
• Quark Express
• Database Software
• Spanish

PROFESSIONAL EXPERIENCE

Content Design Intern, Curriculum Product Development, CCC NovaNet, a division of NCSPearson  
Sunnyvale, California (October 2000-present)
• Design content: e-learning site for courseware used by 16,000 schools & 10mil. students worldwide
• Research and evaluate online learning market, including effective practices in parental, teacher, student technology usage

Website Manager, San Francisco Chamber of Commerce  
San Francisco, California (June 1999-June 2000)
• Manage and maintain all content, design, promotion, marketing, web trafficking for sfchamber.com
• Increased web traffic by 112% in 6 month period
• Business development, formed for-profit/nonprofit strategic partnerships
• Account management: responsible for meeting $24K web advertising budget

Assistant Program Manager, San Francisco Chamber of Commerce  
San Francisco, California (March 1998-June 1999)
• Conceived and maintained content, design, promotion, for sfchamber.com & wibr.com; increased traffic by 32%
• Secured partnership with Excite! & Intuit to conduct online chat, webcast for SF Mayor’s Summit for Women (wibr.com)
• Maintained & designed all content for 1999 SF Mayor’s Summit for Women’s Official website at wibr.com
• IT/IS support for Chamber internal customers

Communications Assistant, San Francisco Chamber of Commerce  
San Francisco, CA (December 1996- March 1998)
• Assistant Editor/Researcher for Chamber publications; monthly newsletter (circ. 9000); weekly Monday Report (circ. 2500)
• Administrative support, database management, event production
• Transitioned sfchamber.com to in-house production, increased traffic by 25%

Casting Assistant, Folger/ Henninger Casting, Nash Bridges, CBS Television Series  
• Administrative support for casting office active in film, television and corporate projects, conducted talent outreach
• Assisted directors and producers in audition sessions, prepared actor deal memos (contracts) & SAG clearances

Production Assistant, Bay Area Video Coalition  
San Francisco, CA. (March -- September 1995)
• Facility operations support, technical trainer for students/clients, customer service
• Production assistance for short films, documentaries and independent video

AFFILIATIONS/ORGANIZATIONS

Partnership for Education, Stanford University Student Business-Education Organization
Bay-CHI, Bay Area Chapter of Computer-Human Interaction Special Interest Group, Member
School-to-Career Partnership, Career Mentor to H.S. Student
UCSB Varsity Crew, (Captain, 1993-1994)
LAURA MALCOLM  
Quillen 12E Escondido Village  
Stanford, CA  94305  
(650) 498-1186  
lmalcolm@stanford.edu

**Professional Profile**
Experienced educator with a diverse background in art, design, program coordination and direction. Proven expertise in the areas of administration, curriculum writing and the use of technology in education.

**Education**
*Stanford University, Stanford, CA*
Masters of Arts in Learning, Design and Technology, degree expected 6/2001

*The University of Texas, Austin, TX*
Bachelor of Arts & Bachelor of Fine Arts, December 1991  
*Majors:* Visual Art Studies (Art Education) and Studio Art  
Teacher Certification (Texas and Minnesota): All Level Art: PreK-12

**Work Experience**
*Learning Design Intern, Public Programs Division: 2000-2001*
*The Technology Museum of Innovation, San Jose, CA*
- Design and build an interactive on-line training module for volunteers covering the topic of robotics.
- Observe and evaluate volunteer training programs.

*Assistant to the Director of Billing & Banking: 1998-1999*
*United HealthCare Billing & Banking Department, San Francisco, CA*
- Organized conferences, meetings and training programs for employees. Developed educational materials and training resources.

*Art Instructor, Department Chairperson, Academy Strand Director: 1994-1998*
*Wm. B. Travis High School, AISD, Austin, TX*
- Prepared and presented daily lessons, to 180 students per year, integrating art historical, interdisciplinary, multicultural, and multiple intelligence activities.
- Wrote and implemented aligned art curriculum based on the concept, competencies, and content model. Curriculum adopted as model for the Austin Independent School District, in Austin, Texas, serving over 78,000 students.
- Conducted free weekend workshops and tours of art galleries for students and parents in art history, art media and techniques. Enlisted local artists to provide demonstrations in their areas of expertise.
- Maintained strong partnerships with community leaders, together producing a silent auction of student artwork raising over $6,000 for students and the art program.
- Created school and academy marketing brochures, logos and documents using a wide variety of computer software, including Pagemaker, Word, and Adobe Photoshop.
• Designed, promoted, recruited and launched the Art and Design Pathway for the Travis Communications Academy. Served as strand director, overseeing successful inaugural year.

• Established internship opportunities for students in the fields of illustration, animation and design. Coordinated employment for six advanced level students.

• Implemented Advanced Placement Art program, achieving a 100% passing rate in two years of participation.

• Mentored and formally evaluated art faculty through position as department chairperson. Completed observations and evaluations of classroom management, teaching proficiencies and professional portfolios.

• Drafted plan for dual credit/credit in escrow with the art department of the local community college.

• Initiated positive strategies for student behavior management, including home visits, telephone and written correspondence with parents. Initiatives resulted in improved student attendance and parental participation in school activities.

Art and Humanities (Art History) Instructor: 1992-1993
Bagley High School, Independent School District #162, Bagley, MN

• Wrote first comprehensive art curriculum for the school district, establishing multicultural, interdisciplinary and multiple intelligence activities as part of the core curriculum.

• Prepared and presented seven different daily lessons covering curricular requirements, including art history and multicultural activities, for students in grades 4-12.

• Team taught humanities class, providing the art history component.

• Coordinated the first Bagley Junior/Senior High School art show and band concert. Achieved 100% student participation.

• Adapted lessons and activities to include a wide range of special needs students in

Computer Skills:
Proficient with Windows and Macintosh platforms, including programs such as: Word, Excel, Pagemaker, Adobe Photoshop, Lotus Notes, Painter, Netscape, Microsoft Internet Explorer and various Internet search engines. Web design experience including programming in html, and the use of programs such as DreamWeaver, and Flash.

Selected Accomplishments:
Travis High School Teacher of the Year 1997-1998
Selected as Member of the National Faculty 1997-1998
Elected Member of Campus Leadership Team 1995-1998
Selected to the Art Curriculum Task Force 1997-1998
Strand Director Art and Design Pathway for the Communications Academy
Gifted & Talented and Advanced Placement Certified