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TECHNOLOGY AND THE HISTORY-SOCIAL SCIENCE FRAMEWORK

A Project
Presented to the
Faculty of
California State University,
San Bernardino

In Partial Fulfillment
of the Requirements for the Degree
Master of Arts
in Education, Instructional Technology Option

by
Mark N. Watkins
November 1992

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11/19/92

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11/19/92

ABSTRACT

This project combined two approaches to address the problem of how to implement the California State Framework for History/Social Science in Secondary Schools using technology as an instructional vehicle.

The JFK, The Final 100 Hours project was an exploration into the realm of using hypertext and hypermedia as a learning tool for other students. The concept was to create a stack using materials from newspapers, books and primary sources to create a new look at a historical event.

The author's part in this project consisted of image acquisition, digitization and management. Various technologies were utilized to provide quality images for the project stack. Those same technologies happen to interface well with the problem of infusing technology into the history/social science framework.

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My appreciation is extended to Dr. Susan Cooper and her tireless efforts to launch the Instruction Technology Option at California State University, San Bernardino. My thanks also to Dr. Robert Senour and David Neighbours. Finally, I would like to thank my dear wife Kathy Barton for her help in the preparation of this manuscript and enduring my pursuit of this degree.

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CHAPTER I
INTRODUCTION

CHANGES IN SOCIAL SCIENCE EDUCATION

California high schools have undergone significant changes in social science curricular areas. The new state framework stresses a non-linear approach to social studies. Students now are exposed to several curriculum strands, ranging from the sequencing of historical events to the exploration of scientific and cultural events of the time. (California State Board of Education, 1987). Students were once led through a curriculum which emphasized chronology and events. The new framework mandates a multi-faceted examination of events, culture and geography, all subsumed into the process of moving through the course work. The prevailing philosophy is to leave students with an understanding of the events, individuals and ideas that shaped the events and to recognize the conditions and forces that maintain continuity with our society (California State Board of Education, 1987). This new emphasis has forced many in the social science field to rethink the tried and true conventions that ruled the way they taught. Many now find their current materials are useless in this new framework. Teachers must turn away from the methods of the past and embrace newer methods and technologies to meet the demands of the framework.

The history and social science framework has three goals designed into the curriculum from kindergarten through 12th grade.

The first goal is knowledge and cultural understanding. Subsumed under this goal are the strands: sociopolitical literacy, economic literacy, geographic literacy, cultural literacy, ethnic literacy and historical literacy. These strands emphasize development of historical, cultural and ethnic empathy. Learning the nuts and bolts of economics, geography and political science is another major emphasis.

The next goal is to develop an understanding of democratic and civic values. National identity, constitutional heritage and civic values are major strands within this goal and currently the only major premises of the old framework and philosophy of social studies education.

The final goal is skill attainment and social participation. The major strands of this goal are those mirrored in other curricular areas: basic study skills, critical thinking skills and participation skills.

PROBLEMS WITH IMPLEMENTING NEW CURRICULUM

With the suggestions for more diverse and wide-ranging curriculum, texts and materials must be changed to reflect new ideas in the framework. Examining a suggested outline of a sophomore World History, Culture and Geography course, students will need material about unresolved problems in the

modern world, the rise of democracy, the rise of Imperialism and Colonialism in India, totalitarianism in Nazi Germany and Stalinist Russia and nationalism in Syria (California State Board of Education, 1987). One book simply cannot fill these disparate needs.

Another dilemma facing the social studies educator is how to present cultural and sociological materials. A teacher of eleventh grade United States History and Geography needs to acquire material about the Jazz Age, The Cold War, the Civil Rights Movement, the Women's Rights movement, swing music, and inventions that led to the Industrial Revolution. These events are too vital to the collective American psyche to just lecture and read about them from a text.

Educators can display the increased numbers of maps and geographical materials by using this technology. Pull down maps and drawings on an overhead projector cannot adequately present the amount of data required in the new framework. The classroom teacher will need methods of quickly presenting and comparing visual data.

INCREASED ACCESS TO COMPUTERS AND VIDEO MEDIA

Over the past five years schools have made substantial progress in acquiring display and computer technology. Moving toward the recommendation of former Secretary of Education Terrel H. Bell that each of this country's schools must

possess one computer for every three students, computers are moving into schools at a rate never heard of previously (Bell and Elmquist, 1992). Along with the computers, available to most teacher in nearly every school are laser disc players, VCRs and camcorders. Teachers, in increasing numbers are learning the new technology and integrating the hardware and media into their classes.

An enormous effort has been made to bring technology to American high schools. In the 1981-82 school year, 16.5% of high schools had computers on campus. By the 1987-88 school year that number had risen to 94.9% (Harris and Harris, 1988) Computers are coming on-line in high schools at a faster rate than ever before.

Exciting progress has been made in the acquisition of laser disc players and their use in schools. In a recently conducted survey, 7,500 schools in the United States use laser disc technology and 2,400 schools plan to purchase laser discs (Bruder, 1991). Usage of laser disc and media such as GTV, a two disc multi-faceted review of United States history, culture and technology, represent the future of social studies and the media to be used.

Perhaps the most popular technology to appear in high schools are video cassette recorders (VCR) and camcorders. In a study drawn from Monte Vista High School, a model technology site in Northern California, 90% of the teachers who employ technology in the courses, use the VCR (Stearns,

1991). The VCR has weaned teachers from dependence on the film projector and has brought a more immediate and timely media to the classroom. Even more exciting is that fact that teachers can create their own broadcasted visual media. Teachers are becoming involved in technology, either by their choice or the choice of their employers. Teachers receiving their credentials since 1988 are schooled in computer and media use. Networks of trained mentors now inhabit most California schools and technology is now being taught in a less formal and more grass roots way.

RESEARCH PROBLEM TO BE INVESTIGATED

The challenge investigated in this project was how to best use technology--computers, laser disc players and video--in the social studies classroom of the 1990s and beyond.

The objective of this project was to examine the current research and writing and to explore what others may suggest as the best technologies and methodologies for their usage. My involvement in the JFK The Final 100 Hours led this research to examine how technology can be successfully used to advance the history/social science framework.

CHAPTER II
REVIEW OF RELATED LITERATURE

GLOSSARY

Aldus Photo Shop shall refer to the program used to enhance and manipulate scanned photographs and images.

California State Department of Education Framework For History/Social Science, History/Social Science Framework, Framework-1987 shall refer to the document produced by the California State Department of Education that serves as the guiding statement on curriculum and teaching strategies for social studies to be employed in California public secondary schools.

Camcorder shall refer to a video recording camera that contains the camera, video cassette recorder and playback monitor in one small, easily held device. (Heinrich, Molenda & Russell, 1989)

CD-ROM shall refer to a mass storage device that allows a learner to access, via computer, massive amounts of data stored on 4.75 inch compact discs. CD-ROM stands for compact disc-read only memory. No material may be recorded on CD-ROM. (Heinrich, Molenda & Russell, 1989)

Editing VCR shall refer to a video cassette recorder that has built-in capacity for interfacing with a controller to allow multiple video edits.

Genlock shall refer to a device that allows graphics and

text from a computer to be merged with a video signal. This device is used in video production to title and apply graphics to presentations.

GTV shall refer to the review of United States history, culture, geography and personality produced on laser disc. GTV is produced by Lucas, Apple Computer and Pioneer.

Hypertext shall refer to the interactivity between text shown on a computer monitor and the computer user. Hypertext allows a non-linear learning environment and user selection of his/her learning path. (Jonassen, 1988)

JFK The Final 100 Hours shall refer to the Hypercard stack created by students at California State University at San Bernardino. This stack examined the final 100 hours of President John F. Kennedy's life.

Laser disc, videodisc shall refer to the video presentation technology that uses 12 inch discs that display full-motion video and audio. Laser discs can be utilized by a teacher in a linear format (CLV-constant linear velocity) or an interactive format (CAV-constant angular velocity). (Bove and Rhodes, 1990)

Ofoto shall refer to the program produced by Apple Computer to run its OneScanner. Ofoto automates the process of scanning, cropping and sizing a scanned image.

OneScanner shall refer to an image digitizer manufactured by Apple Computer to convert photographs, pictures and text into a digitized image for use in other

programs, such as Hypercard.

Quick Time shall refer to a software utility produced by Apple Computer to allow the use of full motion video in compatible applications.

PICT format shall refer to a graphics format that allows transfer of graphics from one Macintosh to another (Bove and Rhodes, 1990).

Stacks shall refer to the term used to describe a program created for use with an authoring system such as Hypercard, Linkway or Amigavision (Bove and Rhodes, 1990).

Story boards shall refer to the planning process for a video production where scenes and dialog are written on paper in frames prior to the actual videotaping (Heinrich, Molenda & Russell, 1989).

Titling system shall refer to a video production set-up that involves a computer, titling software and a genlock for the purpose of placing titles and graphics on a video signal.

Video Cassette Recorder, VCR shall refer to a device that records images on video tape and plays back those images on a television or monitor. (Heinrich, Molenda & Russell, 1989)

Video Spigot shall refer to a video capturing system that allows the user to digitize full motion video from any source and convert the video into a digitized set of images.

REVIEW OF RELATED LITERATURE

Instructional technology has been present in schools for over 300 years in one form or another. Simple drawings and illustrations have evolved into computer authoring systems, massive amounts of data easily addressable in the CD-ROM format, full motion video addressable by frame and creation of educational media by students using camcorders and video editing facilities. The growth of technology has been a continuum, but lately the evolution in instructional technology has been occurring at an accelerated rate. (Bruder, 1991)

First, we need a workable definition of instructional technology. An effective definition comes from the Commission on Instructional Technology (1970):

Instructional technology can be defined two ways. In its more familiar sense, it means the media born of the communication revolution which can be used for instructional purposes alongside the teacher, textbook and blackboard....The pieces that make up instructional technology [include]: television, films, overhead projectors, computers and other items of "hardware" and "software"....

The second less familiar definition of instructional technology goes beyond any particular medium or device. In this sense, instructional technology is more than the sum of its parts. It is a systematic way of designing, carrying out, and evaluating the total process of learning and teaching in terms of specific objectives, based on research in human learning and communication, employing a combination of human and nonhuman resources to bring about more

effective instruction. (Reiser, 1987)

The beginnings of instructional technology, or what was called the audiovisual movement, are traceable back to Johann Comenius in the 1600s. Comenius created one of the first illustrated textbooks, Orbis Sensualium Pictus (The Visible World of Pictures). Comenius had very little effect on education with his illustrated text and little changed until the work of Johann Pestalozzi in the 1800s and his teaching via the senses (Reiser, 1987).

Still pictures in schools became moving pictures in the late 19th century. In 1913, Thomas Edison stated "Books will soon be obsolete in schools...It is possible to teach every form of human knowledge with the motion picture." Film and still visuals grew in schools and during World War II, film was the primary method of educating the American people and the armed forces (Reiser, 1987)

In the 1950s the next wave of instructional technology was about to beat upon the shores of American education. Instructional television grew out of a decision by the Federal Communications Commission to set aside 242 television channels for educational use. (Reiser, 1987) Instructional television flourished due to large government and corporate funding.

At this time the work of psychologist B. F. Skinner with his Skinner Box was noticed in the educational community. Skinner experimented with a box that presented educational

material and the material advanced only when a correct response was recorded (Heinrich, Molenda and Russell, 1989). Skinner's programmed instruction techniques were forerunners of today's computer-aided instruction (CAI) and integrated learning systems (ILS). (Heinrich, Molenda and Russell, 1989)

Technology in the classroom stayed fairly stagnant until the early 1980s when the inexpensive Apple II, IBM PC and the Commodore VIC 20 and 64 began to appear in the rooms of the adventurous and curious. Teachers used these early machines for drill and practice, word processing and record keeping, due to the memory constraints of the early machines. As memory and processing speed increased in the 1980s, simulations and authoring systems begin to appear in the classroom and, more importantly, in the hands of students (Reiser, 1987).

In the late 1980s, a new wave of video and computer technology broke over the educational landscape. Cheap and easy to use video now made it possible for students to bring their world into the classroom. It also made it possible for teachers to create their own visual media. CD-ROM is an exciting technology that allows massive amounts of data to be placed onto a compact disc and the data easily retrieved by the teacher and student. Students can now have a miniature library on their desks at home or at school. Laser disc technology allows the user to address a full motion movie or other educational production frame by frame. A teacher can

use this resource to selectively present material and edit less useful scenes (Bove and Rhodes, 1990).

Technology in the classroom is only as good as the learning theory that supports it. An important consideration for any educator employing technology in their classroom is the understanding of the learning theory that the media is based upon.

Robert Gagne, a noted educational theorist, states there are three basic principles that govern the way humans learn. These principles: contiguity, practice, and the law of effect are observable in situations where associations are learned. (Gagne and Glaser, 1987)

Contiguity, or an uninterrupted connection of events (Funk and Wagnalls, 1970), was first stated as a principle of learning by William James in 1890. James observed that "objects once experienced together tend to be associated in the imagination, so that when any one of them is thought of, the others are likely to be thought of also."

Often misused by teachers as an effective learning method, practice has been cited by theorists as an important part of the learning equation. Researchers such as Thorndike have discovered that sheer repetition does not strengthen learning. Practice only has a positive effect when combined with contiguity and reinforcement. (Gagne and Glaser, 1987)

The law of effect may well be called getting feedback or reinforcement for an activity or behavior. Nearly every

learning situation has some sort of feedback and the strength of the learning may well be tied to the effectiveness of the feedback. As a principle of learning, reinforcement appears to be the most dependable (Gagne and Glaser, 1987).

A learning strategy seemingly born from the technology revolution in education is constructivism. Constructivism could be simply defined as construction of knowledge from our experiences, mental structures and beliefs, Constructivism is a learning strategy that finds the mind as important for interpreting events, objects and perspectives about its own world and those interpretations comprise the knowledge base that is unique to each person (Jonassen, 1991).

Constructivist thinkers agree with the following points. Knowledge is constructed from experience. Each person has a unique experience and there is no shared reality. Learning is just a personal interpretation of the world. Constructivists agree that learning is active and should occur in realistic situations. Constructivism shares ground with cooperative learning advocates in the belief that meaning is negotiated from multiple perspectives. Finally, assessment or testing should be an integral part of the constructivist learning activity (Merrill, 1991).

An important tenet of constructivism is goal-free evaluation. To use constructivist learning methods correctly, the teacher must not approach the lesson with any preconceived criterion as to what is right and wrong. An

assessment of the needs of the learner must take place before the evaluation and the final product is weighed against the needs of the learner (Jonassen, 1991).

The constructivist classroom must be based upon BIG (beyond the information given) and WIG (without information given) models. With the BIG and WIG approaches, learning control is emphasized and learner control of information is encouraged. Constructivists want to rid the classroom of linear learning chains. (Dick, 1991)

Critics of constructivism point out there are instances in education where criterion referenced learning has a place and should not be entirely replaced. Peggy Cole presents a scenario where constructivism would run into trouble. She paints a picture of a person trying to make Mrs. Fields chocolate chip cookies with a constructivist methodology. She points out there are some learned behaviors that must be taught by the letter and no room for deviation from a strictly regimented path should be allowed (Cole, 1992).

Several areas of the California State History and Social Science Framework lend themselves very handily to the usage of technology and constructivism.

An outstanding strategy to address the problems posed by the history-social science frameworks is the use of computers with hypertext, simulations and special utilities.

Hypertext, as defined by one of its creators Ted Nelson, is "a combination of natural language text with the

computer's capacity for interactive branching, or dynamic display...of a nonlinear text...which cannot be printed conveniently on a conventional page." (Reynolds and Dansereau, 1990). Hypertext does not follow a strictly linear presentation. It is dynamic and easily accessible (Jonassen, 1988).

Jonassen states several criteria for use of hypertext:

- personal relevance to the reader
- interest level of the reader
- curiosity fulfillment of the information
- experience level of the reader
- information needs of the reader
- task demands causing the reader to access the text

Hypertext encourages the user to explore and even alter the information to make more sense. The goal of hypertext and hypermedia is to encourage knowledge exploration by the user. Another feature of hypertext and hypermedia is its ability to link to other technologies, such as CD-ROM, audio and laser discs. Hypertext can be the gateway to accessing large amounts of data in an easy and nonthreatening way (Jonassen, 1988).

Another selling point for hypertext and hypermedia is the ease with which a teacher or student can tailor the presentation to suit his or her specific needs (Hutchings, Hall, Briggs, Hammond, Kibby, McKnight & Riley, 1992). With little programming experience, a user can alter links between

data and configure the presentation to more precisely fit their needs. It is a relatively uncomplicated matter to add graphics and text, or link the presentation or stack to another piece of technology.

The University of Southern California has created an interesting hypertext project to assist incoming freshmen with their writing skills. Project Jefferson's hypertext approach is to provide the user with a desktop that incorporates a notebook, information resources and materials to assist in the production of the paper. Students peruse the information and materials and select and save what they find useful for the production of the paper. Students are provided with an on-line notebook for taking notes and finally producing the paper. All materials necessary for the construction of the paper are provided on-line, yet the material is presented in such a way that the user has no specific goals or directions, except for the stylistic constraints of the paper (Kinnell and Richards, 1989).

Teachers selecting hypertext applications need to observe a few considerations. Some hypertext applications require extreme amounts of random access memory to run and vast amounts of space on a hard drive for storage of text and graphics, A hypertext program or stack should include some sort of positive identification between links of data. The teacher should determine whether an acceptable balance between user control and system guidance exists. There must

be an easy user navigation system. Within the stack, key words must be easily and clearly distinguishable. When using the stack, a user should have some way of knowing just how far they have progressed into the presentation. There should be some sort of a note page for a student to jot down observations and collect data from the stack. A teacher should look to see if the stack in question provides discovery or guided discovery methodology. Some feel a pure discovery presentation can confuse the user and prevent the complete use of the stack (Tolhurst, 1992).

For educators writing their own hypertext stacks or using a program to control learner access to other media or technology, there are a few design considerations. Since many stacks are used in a cooperative learning environment, the stack must be designed to allow students to help each other rather than seeking teacher solution. A stack should generate a sense of positive interdependence between users and encourage users to work toward a common goal. However, a stack should have a method for individual accountability between group members. A well-designed stack should help the user maintain his or her particular role while using the program either alone or with a cooperative group. Finally, the well designed stack should have many levels of difficulties to accommodate the various ability levels of potential users (Holden, Holcomb & Wedman, 1992).

For the teacher who does not want to use an authoring

system, like Hypercard, or does not possess the skills to produce his or her own stack, a wide variety of commercial materials are available that address the needs of the history-social science framework. Many of these programs take the form of simulations, time line generators and special publishing programs (Vlahakis, 1988).

The most widely used products in social studies are those from Tom Snyder Productions. Tom Snyder Productions not only produces major social studies simulations, such as Decisions, Decisions and The Other Side. This company produces a guide to using computers in the social studies classroom, The One Computer Classroom (Vlahakis, 1988).

An outstanding program in the constructivist mode is the Computer Infused Social Studies Classroom at Shoreham-Wading River Middle School in Shoreham, N.Y. Teacher Robert Vlahakis has assembled a motley assortment of Macintosh, Apple IIGS and Apple II computers in his classroom. With these computers, students engage in simulations using the Tom Snyder Productions software, construct timelines, create newspapers of the time period they are studying and engage in a final individual project, using tenets drawn from constructivist theorists. The computers are used daily in Vlahakis' classroom and students are encouraged to seek and explore using the available technology (Vlahakis, 1988).

The one innovation in technology that will bring incredible amounts of textual and graphic information to the

fingertips of the student is the CD-ROM disc and player (Bove and Rhodes, 1990). Library Corp. recently placed the English language holdings of the Library of Congress on three 4.75-inch discs (Mageau, 1990).

Schools around the nation are quickly adopting this sophisticated technology (Ray, 1991). More than 6,000 schools currently use CD-ROM technology (Bruder, 1991). Most of the CD-ROM installations have taken place in school libraries, but more are starting to appear in the classroom. Those looking into the future see students coming to school with a battery powered notebook with a built-in CD-ROM player (Lewis, 1991).

One of the larger challenges awaiting those who use CD-ROM is the attempt to organize and access an incredible amount of data. Doyle states "...to apply technology effectively, you must first organize to use it..." (Ray, 1991). Users of CD-ROM are pursuing two routes toward managing the large volume of data- hypermedia and built-in CD-ROM software managers (Bove and Rhodes, 1990).

With the assistance of utilities such as the Voyager audio and video stacks, a user can program CD-ROM access commands into their own stack. This allows the stack designer to customize the access to the disc and prevent inappropriate meandering in search of the desired data (Bove and Rhodes, 1990).

Software publishers are working overtime to develop

useful CD-ROM disc and management programs. Tom Snyder produced an exciting social studies/problem solving CD-ROM called Idea Map. Scholastic bundled 200 years of U.S. Census data into a package called Point of View. The package gives students a programmatic context for any time period in U.S. History they may be researching (Mageau, 1990).

Now moving into schools is a CD-ROM format called CD-I. CD-I has an interactive component that allows the user to actively interact with the data or programming displayed on the screen. Major hardware manufacturers such as Commodore, Sony, and Phillips are currently marketing systems.

American schools are rapidly moving into laser disc technology. Over 7,500 schools regularly use videodiscs and 2,400 schools plan to increase their videodisc purchases in 1992 (Bruder, 1991). This video revolution in education is driven by the concepts of teacher and student control of presentations, vast amounts of video media at a relatively low price and rapid access to visual information (Bove and Rhodes, 1990).

Laser discs are pressed in two formats. CLV and CAV. CLV (constant linear velocity) disc track from beginning to end with no easy interactivity built in. CAV (constant angular velocity) discs have a unique number for every frame of video information.

Videodisc presentations come in three levels: level one allows the user access to any part of a CAV disc via bar code

or remote control. Level two presentations allow user control via a touch screen. Computer control is the outstanding feature of a level three laser disc. Apple HyperCard®, Amiga's Amigavision® and IBM's Linkway® are examples of hardware specific software that allows laser disc control.

In the context of a social science class, perhaps among the most useful products is the Video Encyclopedia of the 20th Century. This laser disc collection contains 75 hours of primary source material compiled on videodisc format. More than 2,000 individual units are cross listed numerically, alphabetically and by subject matter. A 2,000-page, four-volume reference set is included along with a scene-by-scene "shot list." The beauty of this laser disc collection is its use to address the history-social science framework. Students can generate video term papers, powers of observation exercises, participation skills, this-day-in-history exercises and select-an-event exercises. Linked with Hypercard, this produces an additional tool for constructivist assignments (Kaminsky, 1990).

Kristina Hooper of Apple Computer (Mageau, 1990) states laser discs provide "rich visual, textual and acoustic domains, can provide learners with unheard of opportunities to actively and efficiently gather new knowledge and create new ideas." Greg Southard of Lucas Film said, "We are targeting a whole segment of the population in the classroom that is completely turned off to education. You've got to

make the classroom interesting to them and you've got to make it meaningful. But first and foremost you've got to make it interesting because we're competing with MTV for the hearts and minds of the kids" as cited in Mageau, 1990.

Perhaps the most pervasive technology in schools is video. Nearly every school in the United States has a television and 24,000 schools use a cable delivered presentation such as PBS, CNN or The Discovery Channel (Bruder, 1991).

The video medium is attractive for social studies instructors for several reasons. First, video is easier to make information more stimulating because settings, actions and characters are dynamic and visual. Social problems take a greater depth when conveyed in a visual medium. Finally, students can more directly conceptualize a deeper image or mental model of a problem situation when the data is displayed in the form of dynamic images (Cognition and Technology Group, 1991).

The video medium has limitless ways to stimulate the learner and demonstrate knowledge of subject matter. Students can use camcorders and VCR to create their own interpretations of the events of a period or of the day. A social studies teacher may assign groups to produce political spot advertisements examining their own perspectives about the political scene. A group may stage a press conference where a group of students representing a nation is forced by

the media to justify their foreign policies. Producing a weekly fifteen minute international news broadcast could be an excellent way to keep students in a world history or government class up on current events locally, nationally or globally (Hovde, 1988).

All a social science teacher would need in the way of hardware to get video projects off the ground is a reliable camcorder, a VCR and a television. This basic set-up would permit simple editing. Advanced set-ups would include editing VCRs, a titling system, a computer interfaced with a genlock into the video editing system and an external audio source.

The social science teacher need know only a few basic rules to insure the quality of the student's productions. An instructor must always check lighting and sound and make sure all of the scenes to be shot by a student have been planned and story boarded (Heinich, Molenda and Russell, 1989).

CONCLUSION

The goals and strands of the History-Social Science framework make the involvement of technology in the curriculum almost mandatory. The basic thrust is for the teacher to present the entire picture of a time or event and this may only be possible using constructivist learning techniques and educational technology. Students are rapidly becoming too sophisticated and information hungry to accept a lecture/notes/test approach. If we as educators can empower

learning by giving students the tools to pursue knowledge, understanding and creativity, we will succeed in our mission and the promise of our young people will be optimized.

CHAPTER III
STATEMENT OF GOALS AND OBJECTIVES

NARRATIVE

The goal in this master's project was two-fold. First, this author wanted to participate in the JFK, The Final 100 Hours hypermedia project. The other goal was to produce a document that examined the feasibility of employing current educational technologies in the presentation of the California State History/Social Studies Framework.

JFK The Final 100 Hours social project was an exciting adventure and may well become the prototype of graduate school technology projects. This project represents in many ways what educational theorists say are the strengths of technology in a social studies curriculum. This project successfully combined cooperative learning, constructivism, primary research and technology to create a product that will live in schools around the country. This project will not be relegated to a distant shelf in a university library. This research envisions this stack and the support materials being used to help shape high school students perceptions of what John F. Kennedy was like, what was happening in America during his presidency and, hopefully, to demystify one of the most discussed events in American history.

Another hope for this project is the spin-off effect all of the project staff members hope for. This stack could lead

to a new wave of research and media construction in other areas of history and examination of social concerns. This stack very clearly demonstrates that, with organization and effort, important research could be undertaken by students as well as scholars. The beauty of JFK The Final 100 Hours is the potential for students using it as a starting point to pursue other tangents about the assassination and the life of JFK.

This review of literature centers around the use of technology to assist implementation of the California State Framework for Social Science. The primary goal of this research was to examine the framework and what has been said about it. Theory and ideas behind using technology in education were examined. Finally, useful ideas found in the research were tied in the review of related literature to appropriate areas of the social studies framework.

The intent was to create a document to serve as a guide for others to use to introduce technology as a teaching tool.

Teachers at the author's site are not technologically adept at using computers in their curriculum. It is with that reality that ideas and techniques were included in the literature review. The goal was to produce a set of landmarks for educators to use in their classes.

CHAPTER IV
DESIGN OF THE PROJECT

THE JFK PROJECT

The JFK, The Final 100 Hours project explored primary research and working with a group to create curriculum. The author found the investigative process fascinating and did not realize the amount of data that could be obtained about a historical event. The researcher's involvement with the six other major players in the group demonstrated what cooperative learning and constructivism was about from the inside.

The author discovered the project while attending the multimedia class in the winter quarter of 1992. It was announced that Dr. Susan Cooper was assembling a team to create a hypercard stack about President John F. Kennedy. Dr. Cooper met with potential candidates for the project and explained the concept and how she wanted to select the members of the team.

Dr. Cooper asked all of the prospective members of the project to submit a resume of classes completed in the Educational Technology emphasis. She also requested a listing of experiences and talents that might lend themselves to the project. After reviewing the resumes, she and Dr. Rowena Santiago and Frank Slaton announced the team members and their responsibilities.

Dr. Cooper, Dr. Santiago and Mr. Slaton held an organizational meeting on April 3. Those selected for the project were divided into areas of specialization: design, research, scripting and scanning. The author was selected to handle scanning and Quick Time imaging with Shirley Shaw. This job involved responsibility for scanning photographs and documents and preparing these images for use with Hypercard. The team was also asked to look into the usage of digitizing small snippets of video with the Quick Time and Video Spigot technology.

The original plan was to scan and use many pictures. However, the final version of the prototype stack used only two pictures. Design and scripting members were shocked at how much memory was required to use a high resolution scanned photograph. The author scanned perhaps 20 photographs and converted them for the Hypercard format using an Apple OneScanner digitizer and Ofoto software. Photos prepared for Hypercard use were between 80k and 200k in size, which is substantial considering a regular diskette holds 800k of data. The scanned photographs we eventually used were imported into Aldus Photo Shop. Small flaws in the pictures were corrected and in some cases the focus was sharpened. The image group experimented with different resolutions and different file saving protocols. PICT format was selected due to the sharpness of the image and the ease in which Photo Shop handles the photo.

Along with the image management responsibility, the author was asked to produce a video tape chronicling the process of constructing of the JFK, The Last 100 Hours project. Dr. Cooper requested having the tape ready for her trip to Dallas, Texas, in mid-June, to debut the finished stack. Using a Sony Hi8 camcorder and remote microphone techniques, the researcher interviewed all of the project advisors and nearly all of the project members. The author also shot candids of the project staff working on different phases of the stack. Editing began with 90 minutes of raw tape. The goal was to produce a five minute presentation. The author used the Panasonic AV-AES5 audio/video mixer and an Amiga 2000 to create the effects, audio dubbing and titling. The final tape contained computer generated animation, introduction and closing music.

California State University at San Bernardino's prototype stack consists of an animated introductory screen and helicopter noise as a sound track. Users are then invited to examine maps, a date book, the issues of the day and biographical data about JFK.

The mapline section features an animated preview of the section. The user can then proceed through the available maps and examine each closer if they so desire. The user may follow a pathway called "Tour The Cities" which is a more detailed examination of the streets of the cities JFK passed through during the final 100 hours of his life.

The datebook section gives a minute by minute recap of the Kennedy family's itinerary during JFK's final 100 hours. Users may page through the datebook and select certain people and plans for further study.

A section devoted to issues was included and was constructed to look like a metropolitan newspaper. This newspaper examines issues of the day and events and personalities in the news. The About JFK section opens with an animated time line that leads the user through the notable moments of JFK's short life. The user controls a stream of animated text and digitized photographs.

Finally, students have access to a notebook where they can jot down notes about the lesson they are reviewing or just place their own impressions about JFK's life.

The JFK The Final 100 Hours project accomplished many things that were exciting and innovative, but there were areas that could be improved upon for the next generation of graduate students who work on the next phase of this project. Project members found it exciting to work on a project that would be used in classrooms around the country. This fact alone motivated many on the project staff to go that extra mile. It was extremely convenient having a state of the art Macintosh lab to work in and all of the software necessary to complete the project. Project members also benefitted from having Lab Manager Bret Knight constantly present to answer questions. A great help was Frank Slaton's perspective of the

event being researched and his prowess with the computer. There was an obvious symbiotic effect of having project members working together in the lab. The best moments of the stack were created in this environment.

Several suggestions came to light that might aid those who will turn the prototype into a living , breathing learning tool. Subsequent groups working on the JFK The Final 100 Hours would be well served to work together more frequently to increase the sense of teamness among themselves. Future groups need to assign a leader within the project staff. This may smooth out some of the rough spots in creating a willingness to cooperate with others. Deadlines should be carefully laid out before the beginning of the next phase of the project. The project staff seemed to float along in the early weeks without any real motivation to dig in and complete the stack. It was only in the last three weeks that the concern level seemed to rise and the project staff started to push hard to finish the stack. A final suggestion would be to hold mandatory weekly project staff meetings where the written component of this master's project would be broken down into manageable pieces and methodically completed as the quarter wound down.

For a degree in instructional technology, there exists no better culminating activity than a project involving most of the previous reading, experience and expertise garnering in the master's program coursework. Our goal as educators is

to leave our charges with the ability to make something of value with the resources we expose the student to. The JFK The Final 100 Hours project succeeded in that spirit. The author had to call back on the skills and resources of all previous classes to complete this final project.

The process of selecting a bonafide problem that exists in education today, such as the implementation of the new framework, and using the technological tools that the author developed expertise during my master's experience all merged with the creation of a piece of educational media, designed to address the question. The video tape documenting the process of creating JFK, The Final 100 Hours addressed an additional area of the problem of how to use video technology in the context of a class project. Attaching all of the activities stated above to learning theory and a school of thought added a credibility to the project. Even if JFK, The Final 100 Hours never is shown in a class, the experience of creating it and examining the processes and methodology behind will serve as the most important experience of a master's education.

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