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MULTIMEDIA TECHNOLOGY AS A PRESENTATION AND ARCHIVAL TOOL FOR
TEACHING HISTORY/SOCIAL SCIENCE

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: Educational Technology

by
Patricia Weigel Amicone
September 1997

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September 1997

Approved by:



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8/15/97
Date



Dr. Sylvester Robertson, Second Reader

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ABSTRACT

Students today come to school with different learning styles than those of the past. They are an audiovisual generation who seem to prefer material that is presented in any of the media modalities, that is oral, televisual and enactive (the ability to perform) communication. These students do not necessarily come to school with extensive experience with the written word. Educators need to take this into account and address learning styles in a way that will help students to use their existing skills, as well as help them to incorporate print material into their repertoire.

The most logical curricular area for beginning implementation of multimedia technology is History/Social Science. The Goals and Curriculum Strands of the California History/Social Science Framework fall into three broad categories: (1) Knowledge and Cultural Understanding; (2) Democratic Understanding and Civic Values; and, (3) Skills Attainment and Social Participation. These encompass the development of the basic study skills, critical thinking skills and participation skills essential for effective citizenship. The Skills Attainment and Social Participation Goal specifically calls for students to use multimedia technology to create, select, retrieve, and analyze information; the large amount of materials available in multimedia format is conducive to implementation of this goal.

In order to encourage the use of higher-level thinking skills and the transfer of information from one content area to another, teachers need to address all of the students' learning styles. The use of multimedia materials and programs in the classroom will insure that students are given this option.

This project consists of a demonstration of the use of multimedia both as a presentation and an archival tool. A secondary goal is to present a teacher education model for the principled creation of student multimedia products.

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CHAPTER ONE: INTRODUCTION

A keynote address to the International Conference on Educational Technology in Barcelona, Spain, states the following: "The integration of the new technological environments on education is, first and foremost, the assertion of a right defined by the International Convention on Children's Rights and recognized by the United Nations in 1989: the right of the young to information, culture and knowledge" (Tarrago, 1994). This statement gives credence to rights of children as well as serving as mandate to educators to provide today's students with the ability to make use of technology in the Information Age.

Students today are expected to function in a technology-oriented environment when they leave school. Unfortunately, too often schools and teachers are still functioning as if they were providing an education to children from the Industrial Age. The Chief Executive Officer of the international credit bureau TRW, Joseph Gorman, states that two types of transformational changes are affecting the U.S. economy: global integration and rapid technological advances. Not since the 1890s has such a significant change taken place. Today's students, the workers preparing for the 21st century, must be skilled in the thinking and problem solving skills that are required if one is to design new products or find new ways of providing information services. They need to be flexible enough to adapt from one career and employer to another if they are to take advantage of these changes.

With global integration and technological change, workers today compete with workers around the world for high-skilled jobs that require the ability to produce information and ideas. If today's young people are to be able to compete in the global market place they will need to be strong in the SCANS 2000 (Secretary's Commission on Achieving Necessary Skills) skills identified by the U.S. Department of Labor. These skills are divided into eight areas.

The first of the SCANS skill areas is termed basic skills, comprised of reading, writing, mathematics, listening, and speaking.

The second category, thinking skills, includes creative thinking, decision making, problem solving, knowing how to learn, and reasoning.

The third area consists of the personal skills of responsibility, self esteem, sociability, self-management, and integrity.

The fourth group contains resource skills: planning, organizing, monitoring, assessing, evaluating, and adjusting.

The fifth group of skills encompasses the interpersonal skills of teamwork, teaching, leadership, negotiating, serving client/customers, and working with people of diverse cultural backgrounds.

Sixth are the systems skills which give one the ability to understand social organizational and technological systems, as well as be able to monitor and correct these systems.

The seventh set incorporates the information skills of

acquiring and evaluating, organizing and maintaining, interpreting and communicating, using computers to process information.

The eighth and final group are the technology skills that include the ability to select equipment and tools, apply technology to specific tasks, maintain and troubleshoot technologies, as well as learn new technologies (The Wall Street Journal Classroom Edition, 1996, p. 5).

Many classroom teachers today are uncomfortable using technology in their classrooms (Hancock & Betts 1994, p. 29). In his book *The Gutenberg Elegies* (1994), Birkerts states, "Next to the new technologies, the scheme of things represented by print and the snail-paced linearity of the reading act looks stodgy and dull. Many educators say our students are less and less able to read, or analyze, or write with clarity and purpose. Who can blame the students? Everything they meet with-in the world around them gives the signal: that was then and electronic communications are now" (p. 119). It is the responsibility of educators to help the students integrate the "then" and "now." Students today learn differently than the students of the Industrial Age, for they have have grown up with television, computers, multimedia, Nintendo games, and a plethora of other electronic devices that have shaped their learning styles. Whereas earlier generations sought information from books and encyclopedias, students today go to the CD ROM and the Internet. Students today typically come into schools with nascent skills in several areas: enactive (the ability to perform), televisual

(the ability to interpret the audiovisual language of television), and oral communication (the ability to communicate in memorable ways, i.e. the use of rhythmic form). Some students begin school with rudimentary skills in reading, although not in writing. The transition from oral to written communication and from handwriting to print is difficult for these students. Marshall McLuhan (1964) predicted that television was replacing typography as the fundamental means of communication. If this assertion was correct, should we not expect that these differences in how we communicate would be accompanied by differences in how we reason? Patterns of reasoning are as much a part of communication as are people, grammar, and vocabulary (*ibid.*, p. 17). Teachers need to take into consideration how much reasoning in the verbal context of the classroom transfers to other contexts.

How much logic and informal logic is rooted in structures of written language which do not correlate directly with those of oral or audiovisual language? If, as Langsdorf (1992, p. 21) contends, a great deal of what is currently practiced and taught under the rubric of critical thinking is rooted in a print culture unfamiliar to the students, then the vital issue of providing alternative modes that support reasoning must be addressed. Teachers today need to acknowledge this paradigm shift and try to change their teaching styles to accommodate today's learners. The integration of multimedia technology into the core curriculum is a way of engaging learners in the medium with which they

are most familiar, thus preparing them to be competitive in the global workplace of the 21st century.

The Purpose of This Project

The influx of audiovisual materials into the classroom curriculum, and its natural progression to the use of multimedia materials, has helped to alleviate the problem of how to teach the Nintendo generation. Students need to be able to incorporate their enactive, televisual and oral communications skills with their more recently acquired written language skills, much as students do when they learn a foreign language. They will then be able to develop their critical thinking skills, which will help them to transfer reasoning abilities from one classroom to another and into everyday life.

The social history of technology shows that technological development is a scientific, social and cultural process at one and the same time, in such a way that society embodies technology, rather than technology being an external element acting upon society (Bijker, Hughes, & Pinch, 1990). One must remember that pupils are not taught by the education system, nor the school, but rather by the professional educator who is in direct contact with them. It is then this professional's attitude toward the infusion of technology as a tool that will permeate the classroom.

This project was created to provide teachers with a model multimedia project that demonstrates the use of multimedia as both a presentation tool and an archival instrument. It provides teachers with a simple guide to help

them teach students how to use multimedia as a productivity tool in the classroom. This outline gives a step by step format that guides teachers and students through the development and presentation process. In addition, an evaluation rubric is provided that offers teachers a concise means to monitor student learning.

The Content of This Project

The subject of this project is the history and culture of the Serrano Indians. The information is provided in the context of the five themes of cultural geography. The project contains information and artifacts that were imported to the computer from photographs, videotape, audio tape, CD ROM and floppy disk. The information was obtained by using scanners, video camera, Video Flex digital camera, CD ROM player, audio tape player, internal and external microphone.

This project contains actual videotaped footage of Serrano Indian village sites, baskets, tools, ceremonial instruments, attire, ethnobotanical samples, and foods; as well as, songs, music, and stories. A CD ROM has been created to provide a way to archive information that may not be available in the future, and provide easy access to students and tribal members as they study the culture.

The Significance of This Project

The information and research provided by this project is an example of how multimedia can be used to preserve artifacts and other cultural items. This project was used to preserve some of the language, songs and stories of the local Serrano Indian culture. The San Manuel Band of Mission

Indians are taking steps to preserve their culture and to teach their children about their history. They are attempting to rekindle the use of their native language through the use of multimedia programs. Dr. Lynne Diaz-Rico has been instrumental in helping the Serrano people to reclaim their heritage. Her two books on Serrano history/culture; *Seeking Santos: The History of the Serranos* and *Stories of the Serranos* have given impetus to a resurgence of interest in the local Indian culture. This project was created as an addendum to the work that she started. It is hoped that the multimedia CD ROM program will be installed in local schools and tribal cultural centers as a means to access this historical and cultural information.

CHAPTER TWO: LITERATURE REVIEW

To understand how better to meet the learning needs of today's students, one must explore the topics of multiple intelligences, learning theory, critical thinking, instructional design, and technology integration. Moreover one must examine closely the California History/Social Science Framework to ascertain how technology can support learning in this area. Finally the issue of teacher education will be addressed. Many classroom teachers today are uncomfortable using technology in their classroom (Hancock & Betts, 1994, p. 29). Inasmuch as today's students will be expected to function in a technology oriented environment when they leave school (Peterson & Orde, 1995, p. 75), it is vital that steps be taken to improve this situation.

Multiple Intelligences

Educators have been espousing accommodation for the seven modular intelligences (bodily/kinesthetic; intrapersonal; logical/ mathematical; linguistic; interpersonal; musical; and spatial) identified by Howard Gardner (1983a, 1983b).

Bodily/kinesthetic learners are students who communicate information by demonstration. They have the ability to control body movements and to handle objects skillfully.

Intrapersonal learners are students who have developed a realistic sense of their own strengths and weaknesses, desires and intelligence.

Logical/Mathematical learners have sensitivity to, and

the capacity to discern, logical or numerical patterns; the ability to handle long chains of reasoning.

Linguistic learners are those who like to read and write and play with words. They are sensitive to sounds, rhythms, and meanings of words; as well as, possessing a sensitivity to the different functions of language.

Interpersonal learners don't like to work alone; they enjoy socialization. They have the capacity to discern and respond appropriately to the moods, temperaments, motivations, and desires of other people. They are the social director of a group and seem to be the natural leaders.

Musical learners possess the abilities to produce and appreciate rhythm, pitch, and timbre, and other forms of musical expressiveness. They like to hum, whistle or sing all of the time. They drum their fingers to rhythms and learn best when things are put to song.

Spatial learners possess the capacities to perceive the visual-spatial world accurately and to perform transformations on one's own initial perceptions. They learn best from videos, pictures, and demonstrations using models and props (Gardner, & Hatch, 1989, p. 6).

It is important for educators to remember that students have preferred ways of processing and organizing information and for responding to environmental stimuli. "Broadly construed, a person's learning style is intelligences put to work" (Armstrong, 1994).

Campbell (1994, p. 166) talks about the results that he has seen in his classroom since implementing the multiple

intelligences approach to teaching. He identifies two reasons for the success: "First, every student has an opportunity to specialize and excel in at least one area of human intelligence. Second, each student is learning material in multiple ways and has a variety of opportunities to understand and retain academic information. Moreover, because of the input students have into the program, their learning experiences are more meaningful."

Learning Styles

In order to ensure students' use of higher level thinking skills and the transfer of information from one content area to another, teachers need to make sure they are teaching to all of the students' learning styles (Healy, 1990, p. 308); auditory, visual, tactile and multisensory. An auditory learner is a student who learns best through verbal presentation of information. The visual learner is one who must see the information, either depicted in film, demonstrated by the teacher, represented in graphic depiction or read via the printed word. The tactile learner, however, is one who must touch and feel or manipulate the material/equipment themselves.

Woolfolk (1995) divides these cognitive or learning styles into five basic categories: Field Dependence, patterns perceived as wholes; Field Independence, separate parts of a pattern are perceived and analyzed; Impulsive, a pattern of responding quickly but often inaccurately; Reflective, responding slowly carefully and accurately; and finally Self-Instruction, talking oneself through the steps of a task

(p. 126-127).

McCarthy (1980) divides learning styles into four major areas: imaginative learners who perceive information concretely and process it reflectively; analytic learners perceive information abstractly and process it reflectively; common sense learners who perceive information abstractly and process it actively; and dynamic learners who perceive information concretely and process it actively. Of the four groups identified she found that only the analytic learners who thrived in traditional classrooms and find school well suited to their needs. The imaginative learners find school too fragmented and disconnected from the personal issues that they find most interesting and struggle to connect the educational content to their need to grow and understand the world. The common sense learners are pragmatists and want to apply what they are learning to the real world. They are frustrated by their inability to put what they are learning to immediate use in their own lives. Since the dynamic learners integrate experience and application, they find school tedious and overly sequential. They too are frustrated with the structure of our educational system.

All students have individual preferences for particular learning environments, as well as ways that they best assimilate information. Renate Caine's research on teaching and the human brain reinforces the idea that no single teaching style meets the needs of all students. Her conclusion is that "Teaching should be multifaceted to allow all students to express visual, tactile, emotional and

auditory preferences" (Caine & Caine, 1994, p. 16). Meeting these needs provides a true challenge to the classroom teacher.

Nickerson (1987) states that the teaching of higher level thinking skills is necessary if students are to: compete effectively for educational opportunities, jobs, and recognition and rewards in today's world; develop good citizenship skills; and become rational thinkers. Learning to work with multimedia equipment and learning multimedia software programs requires students to employ the use of these skills. Students need to know and understand the five components of thinking that Bradford and Stein (in Baron 1987.) identify as being applicable to a wide variety of situations. "These include the ability to identify problems; define and represent them with precision, explore possible strategies, act on these strategies, and look at the effects" (p. 163).

Learning to work with multimedia equipment and learning multimedia software programs requires students to employ the use of these skills.

The use of multimedia materials and programs in the classroom will insure that students are given a variety of options (Malhotra & Erickson, 1994). Multimedia materials and authoring programs incorporate the learning preferences of reading, writing, speaking, visualizing and manipulating that give the students choices in both the way they learn and how they present what they have learned.

Critical Thinking

Critical thinking is defined as "Evaluating conclusions by logically and systematically examining the problem, the evidence and the solution" (Woolfolk, 1995, p. 312). This is a skill that is frequently taught as a part of the history/social science curriculum in an effort to teach students to take an objective look at the past and apply lessons learned to everyday life. Students need to understand that the information that they are given, regardless of the source, is tainted by the point of view of the source of the information. They need to attempt to consider what other points of view might be, and realize that all points of view need to be critically analyzed and assessed. "Though everyone is both egocentric and critical (fair minded) to some extent, the purpose of education in critical thinking is to help students move away from egocentricity, toward increasingly critical thought" (Paul, Binker, Martin, Vetrano, Kreklau, 1989, p. 179).

The 1988 *History/Social Science Framework for California Public Schools Kindergarten Through Grade Twelve*, states the following:

This framework proposes that critical thinking skills be included at every grade level. Students should learn to detect bias in print and visual media; to recognize illogical thinking; to guard against propaganda; to avoid stereotyping of group members; to reach conclusions

based on solid evidence; and to think critically, creatively and rationally. These skills are to be taught within the context of a curriculum that offers numerous opportunities to explore examples of sound reasoning and examples of the opposite.(p. 7, Item 14)

Critical thinking is disciplined, self-directed thinking which exemplifies the perfection of thinking appropriate to a particular mode or domain of thinking" (Paul, Binker, Martin, Vetrano, & Krekiau, 1989, p. 179). Critical thinking comes in two forms: one which relates to the interests of a specific person or group; second, one which relates to the interests of diverse persons or groups. Much of what one sees in an historical context is from a one sided point of view. Critical thinking develops the mental traits that help students to identify bias. The transference of these skills to everyday life situations is reinforced by the students' repeated application of these skills to their school work. The ability to define and clarify the problem, judge/evaluate the information related to the problem, and finally solve the problem or draw conclusions is a lifelong skill.

Instructional Design

Webster's New World Dictionary of the America Language: Second College Edition (1996) defines design "as a thing planned for or outcome aimed at, a working out by plan. Design is an instrument of organization, a medium for persuasion, a means of relating objects to people, and a method for improving efficiency" (p. 382).

One of the most important factors involved in the success of a multimedia program is its screen design. A good program design is not a cosmetic addition, but rather an urgent requirement, because effective design can save time and money by presenting information more clearly. It enhances communication. It helps more people to understand a given message and helps accelerate learning (Chermayeff, Wurman, Caplan, & Bradford, 1994). It is vital for the teachers to understand and share with their students the importance of good screen design. People working with multimedia authoring programs need to always remember the ten fundamental Human Interface Design Principals as stated in *Human Interface Guidelines: The Apple Desktop Interface* (1989):

1. Use of metaphors: people have more experience with the real world than they do with computers. Take advantage of their experience, by using metaphors in your stacks that correspond to the everyday world.
2. Direct manipulation: users want to feel that they are in charge of the computer's activities. Tell users their options by providing visible choices and ways to make their choices; and give feedback, auditory or textual, acknowledging their choices.
3. See and point (instead of remember and type): users select actions from alternatives presented on the screen. Users rely on recognition, not recall; they shouldn't have

to remember anything the computer already knows. Remember that the average user is not a programmer.

4. Consistency within a stack is essential. Effective applications are both consistent within themselves and consistent with one another. The stack should have a consistent design for the following elements:
 - graphic look
 - grouping of buttons
 - placement of buttons
 - visual and audio feedback
 - card layout
 - backgrounds for cards with similar functions
 - stack structure

Consistency in these elements makes it easier for the user to focus on the stack.

5. What you See is What You Get: there should be no abstract commands; all items should do what they say. What one sees on the screen should be the same as what is printed.
6. User control: the user, not the computer, initiates and controls all actions
7. Feedback and dialog: in order for the user to be in charge, the user must always be informed. This means that the user must be given immediate feedback. Feedback can be a visual display, (highlighted button), audio

(beep) or a message. All communication should be brief, direct and in the users language.

8. **Forgiveness:** everybody makes mistakes. Let the users know that mistakes are reversible. Give the user a way to get assistance if they are confused or lost. Always provide user with a way to escape from the program.
9. **Perceived stability** allows the user to feel comfortable in the computer environment. Consistency of screen design and clear user directions give the user a feeling of security.
10. **Aesthetic integrity** is expressed in color combination, and the use of graphic objects for commands, features, parameters, choices, navigational options and data. An example would be to have the user click on the camera graphic to play a quicktime movie. (p. 176)

Technology Integration

In the nineties, more and more schools are using technology as an instructional tool.

Multimedia technology has exploded onto the scene as the answer for educating the "television generation." "The educational role of multimedia has not been defined and many professional educators are skeptical of the hype surrounding this new panacea; they remember well the days of programmed learning, teaching machines, computer assisted instruction, educational television, etc." (Peterson & Orde, 1995, p. 67).

The concerns and anxiety of many educators regarding the use of multimedia technology in the classroom is summed up beautifully in the above quotation. Many educators are afraid that this is just another one of "those things" to be used for individualized remediation or enrichment and tend to restrict its usage to a level that does not threaten teachers' understanding. The term multimedia, as used in the context of this project, can be defined in many ways. This ambiguity is illustrated by a quote from a leader of the industry:

Talking about multimedia is a lot like talking about love. Everybody agrees that it's a good thing, everybody wants it, wants to participate in it, but everybody has a different idea of what 'it' really is. Right now, the industry reminds me of a bunch of teenagers dabbling in something that instinctively feels right, all the while wondering how and when they'll know for sure if they're really in 'it' and what to do if they really are. (George McCabe, Senior Vice President, Applied Graphics Technologies, in Vaughan, 1994, p. 7.)

Currently, there seem to be four dominant definitions of the term multimedia. The definition chosen is determined by the makeup of the audience, the environment in which the equipment is being used and the knowledge level of the people using "it." These four definitions are the following:

1. Multimedia is the simultaneous presentation of

a series of effects in more than two media, as by combining acting, flashing lights, tape recordings, etc. (Guralnik, 1980).

2. Multimedia is woven combinations of text, graphic art, sound, animation, and video elements (Vaughn, 1994).
3. Multimedia is a combination of media, (e.g., audio, video, and print), in which a microcomputer is at the hub of the system (D'Ignazio, 1980).
4. Multimedia, as defined by a person who was setting up equipment for a multimedia demonstration, is "anything that requires more than two trips to the car" (Murie, 1993).

The first definition seems to be the general population's understanding of the word. This definition is commonly used by educators when referring to a presentation that uses more than one form of media.

The second definition defines the term as used by people in the multimedia field, such as educators or multimedia developers. It involves the use of authoring tools (i.e., *HyperCard*, *Hyperstudio*). These two definitions fall into the category of linear multimedia because the person observing the presentation is a passive observer as the presentation goes from beginning to end. Some examples of this are training presentations, museum kiosks, and sales demonstrations.

The third and fourth definitions are more apt to be used

when one is making reference to nonlinear multimedia that require the involvement of the viewer. What gets played back and how it is presented to the viewer is a result of human interface (i.e., *Groliers Multimedia Encyclopedia*, 1992; *Oregon Trail*; *3-D Atlas*). The platform and the environment determine the limits of what can happen. The platform is determined by the hardware (the type and age of the computer, amount of memory, accessories such as CD ROM, scanner, digitizer, A.V. input and output). The software (i.e., *Quicktime*, *America Alive*, *Rap*, *Rock and Roll*, *Living Album*) determines the limits of the environment. It is this last definition that leads to what young people today think of when they hear the term "multimedia." Many students have developed to the level beyond passive multimedia to the world of interactive multimedia in which the viewer of a multimedia project is allowed to control what and when the elements are delivered. They quickly are able to move to hypermedia in which the user is provided with a structure of linked elements through which the user can navigate.

Multimedia needs to be incorporated across the curriculum if students are going to be prepared to meet the real world head-on when they leave the protection of the public school system and face the expectations of the work place. According to Peterson and Orde,

to be prepared for life and work in the 21st Century, students need to experience as many aspects and capabilities of technology as resources will allow. Our experience has shown that students

are capable of using the technology creatively, and, if left to their own devices, they will discover new ways to use technology as a tool for learning. (1995, p. 75)

One goal of this project is to have the learners develop a positive attitude toward the use of multimedia in the classroom. This will require addressing the cultural agendas of technological change. Tarrago (1994) identified the following as the six major aspects to be considered when attempting to establish a positive attitude toward the integration of information technology into the core curriculum.

- The integration of technological environments in education should not be seen as an isolated event but as an ongoing process occurring within an education system of great complexity.
- Educational organizations have a specific structure based on professional autonomy, this being a fundamental variable in innovation processes.
- Technological change is not a mere technical and productivity-related matter: it is a question of culture, an intrinsic part of the evolution of society and therefore of vital importance in contemporary education.
- Not only is the integration of information technology compatible with the overall goals of education, but the two are convergent, especially

when the goals are designed in terms of the development of pupils' abilities.

- Successful innovation based on information technology involves information technology involves adapting organizational structures.
- Staff training and job satisfaction are integral parts of the innovation process.

As stated by Phipps (in Fenwick, 1995), "The use of multimedia is a natural for kids. It is the world they know and live in" (p. 2).

A technology instruction program is "a key component to engage students in discussion, collaborative projects, and a range of similar interactive activities that reinforce language acquisition while providing much-needed context (Burns, 1996). Computer-assisted instruction (CAI), which is one form of technology instruction, has many advantages. First, it is bidirectional, which means that it provides interactive instruction. In the conventional classroom there is an active teacher and passive learners. Leung (1992) states that "teacher-pupil interaction is crucial to any learning" (p. 4). However, large class sizes create a situation where is very difficult for the teacher to provide all of the one to one interaction that is necessary in order for learning to occur. CAI has a teaching function which can play the role of instructor and provide one-on-one interaction with the student. The nature of CAI is to assume a tutor's role more readily than that of a lecturer (Hancock & Betts, 1994).

The second major advantage of the computer is individualization. In any class, there is a wide variety in student learning level, learning style and ability. Using this method the students can control their own progress. Individualized instruction does not necessarily mean individual instruction. Students working in cooperative groups, doing a role play or reenactment activity, or group research project are not only meeting their individual needs but also motivating other students (LaReau & Vockell, 1989).

Third, CAI has remedial teaching capability and the capacity for immediate feedback. The best time to tell learners whether their answer is right or wrong is when they are still interested in the topic. When the students answer incorrectly, the software can indicate the source of the errors and explain the information to them. Thus, CAI can give positive feedback, which can encourage students' interest and confidence, while negative feedback can help them correct or clarify their misconception. The computer can go back over information that a learner did not understand and help the student build their competence (LaReau & Vockell, 1989).

Fourth, CAI provides the ability to vary the rate of instruction, even within a single lesson. In most traditional classrooms, there is a wide variation in rate at which students learn. In this setting, the brightest students are forced to overlearn, while the slow students do not get enough repetition. Computer-assisted instruction can help students who learn quickly to gain more topic-related

information while providing intense study of the same objective or help in integrating the objectives covered in the unit with other objectives (LaReau & Vockell, 1989).

These factors provide learners the ability to acquire specific information and practice specific skills with comprehensible input, while helping students develop basic tools of learning. These tools can be applied to a wide variety of settings such as tutorials, simulations, word processing, games, problem solving, and drill and practice.

Recent developments in multimedia or hypermedia have simplified the creation of high-quality presentations so that they are becoming a viable instructional option for both teachers and students. The links between media and text can be designed for understanding of specific information on an individual level. An excellent example of this type of application is the Interactive Videodisc.

Interactive Videodisc provides numerous advantages for helping students to learn. Interactive Videodisc (IAV) combines visual and audio function in order to make learning more effective. The role of the computer in an IAV system becomes more manageable because "it accepts students' input, analyses it, and based on the analysis of a student's learning history, decides on appropriate scenes to show" (Chen, 1996, p. 59).

IAV reinforces the computer's function in individualizing instruction by allowing presentation of different versions of the same set of video segments, allowing students to choose their personal path to meet

individual needs (LaReau & Vockell, 1989). Chen (1996) claims that video has the following functions: "It presents realistic slices of life, enforces student's talking, and provides rich target language input" (p. 62).

The IAV system can eliminate learners' anxiety and promote their motivation. Students can depend on personal ability to adjust the pace and sequence of the lesson. Students can use different resources, such as dictionary, encyclopedia, and other on-line systems to meet different needs. An IAV system can help to balance the gap between student ability levels. The less talented students can develop their skills and build their confidence through personal IAV tutoring without asking questions in front of more advanced classmates while the more advanced students are encouraged to expand their skills and build their self esteem by the use of higher level materials (Bush & Crotty, 1989).

Using technology enhances learning because technology instruction provides interactive, individual teaching and supplemental comprehensible input and output which motivates students' learning interests and offers more effective learning.

History/Social Science Curriculum Frameworks

The history/social science classroom was chosen because of the availability of material, mandate of the state framework, and the need for the use of problem solving and critical thinking skills as learners attempt to understand the cultures of the past, their relationship with nature and the impact of change on their lifestyles, language and

beliefs. The Bradley Commission on History in Schools stated in their report entitled *Historical Literacy: The Case For History In American Education*,

Only recently have some important curriculum alternatives emerged, offering promise that long-needed change is indeed under way.

The most comprehensive and so far successful challenge to the constraining assumptions of the near-to-far curriculum model is the recently adopted *History-Social Science Framework for California Public Schools, Kindergarten through Grade Twelve*. (Gagon, 1989 p. 174)

The information in this project correlates to the 1988 *History/Social Science Framework for California Public Schools Kindergarten Through Grade Twelve*, which requires the study of "American Indian settlements and how geographical factors influenced the location of these settlements, as well as their social organization, economic activities, legends and beliefs" (1988, p. 47). It also mandates that students will possess the basic study skills of history-social science which includes the ability to "retrieve and analyze information by using computers, microfilm and other electronic media" (*ibid.*, p. 26). Content and media form a natural relationship. The National Council for Social Studies' *Expectations of Excellence: Curriculum Standards for Social Studies* (1994) includes the study of Native American Cultures at the fourth and eighth grade levels, which are ages in which learning technology can be readily incorporated

into instruction.

The Role of Teacher Preparation Programs

Hancock and Betts (1994) state that the first place to address the issue of multimedia utilization in the classroom is in teacher preparation programs. According to the *The Wall Street Journal Classroom Edition* (1996, May), "Workers preparing for the twenty-first century must be strong in his thinking and problem solving skills required to design and engineer new products or find new ways of providing information or services. They will also need to be flexible enough to adapt from one employer and career to another" (p. 5).

The major road block to teachers using technology in the core curriculum comes from their previous experience with, or limited exposure to, technology. Teachers do not understand why the students using technology seem to retain more information; they only know that reinforcing learning with media is effective. For many teachers, the development of media-based pedagogical skills may be a personal challenge, inasmuch as they have never been exposed to media literacy training or classroom strategies (Cortes, 1992). What then can be done to help students develop media literacy? If students are to become better informed and more analytical media consumers, educators need to address mass media within the school system as a core element of the teaching-learning process. As Phillippo (1988) observes, in order to meet the changing needs of the learner, one must find new and creative ways to integrate the use of imagery into the classroom.

Students today have become sophisticated consumers of imagery. One must bear in mind that students today are able to obtain access to massive amounts of information; and, in most cases, they seek out that information through imagery. The influx of audiovisual materials into the classroom curriculum, and its natural progression to the use of multimedia materials, has helped to meet students' need for imagery. Students are able to incorporate their enactive, televisual and oral communications skills with their more recently acquired written language skills. It is therefore imperative that teacher preparation programs incorporate the use of technology into their curriculum instruction classes.

Literature on the Serrano People and Culture

The major portion of the reference list on the Serrano Indian Culture has been provided by Dr. Lynne Diaz-Rico. Although there exists a plethora of information on Indians in general, information on the Serrano Indians is difficult to find. Much of the information gathering had to come from interviews with the few Serrano Indians that are left, and with archeologists and museum curators. Much of the information is contradictory; the preponderance of my work is to insure that the information contained in this project is as accurate as possible. To this end, I have located and videotaped sites and artifacts to insure their preservation. The language information comes from Ernest Siva, one of three native Serrano language speakers known to exist. Ethnobotany information mainly comes from Dr. Lowell Bean and Katherine Siva Soubel. The San Manuel Band of Mission Indians Tribal

Council and the California Department of Forestry, as well as Dr. Gerald Smith (retired archeologist and local historian), have all been extremely cooperative and helpful with my efforts to procure and insure the accuracy of the information. Both the San Bernardino County Museum and the Los Angeles Museum of Natural History opened their exhibits and archival information for my use. Together these sources comprise the body of knowledge for use in this project.

CHAPTER THREE: THEORETICAL FRAMEWORK

Instructional Goals and Objectives

Instructional goals of this project are intended to model multimedia instruction as a research and interactive learning tool for students. The instructional goals are threefold: (1) to demonstrate multimedia as a presentation tool; (2) to demonstrate an exemplary way to archive cultural information and artifacts; and (3) to provide as model for teachers as they incorporate multimedia technology into student projects.

The first of these goals consists of three key objectives: to demonstrate project-based curriculum and demonstrate how the use of multimedia can help students expand their knowledge of a specific subject area while incorporating learning from other subject areas; demonstrate how the use of integrated media to explore content through the use of problem solving and critical thinking skills; and the use of multimedia as a multimodal presentation tool.

Under the second goal, to show how historical/cultural information can be archived and accessed, the objectives are first, to demonstrate a variety of archival methods; and second, to sustain accurate documentation.

Under the third goal, this project offers two distinct theoretical models for the principled creation of student projects, one for information presentation and the other for information archive.

Multimedia as a Presentation Tool

Project-Based Learning

Project-based learning gives students the opportunity to become "the expert" on a specific subject area that falls within the parameters of the core subject area. For example students studying Native Americans could research the tribe of their choice. Students follow the basic steps of creating a research report: brainstorming; researching; outlining (this includes story boarding); writing; editing; peer editing; rewriting; and classroom presentation. Social science reports generally follow the format of the National History Day requirements. The evaluation format is based on the National History Day format (see appendix).

Project-based learning addresses all learning styles and allows for great latitude in a student's preferences in the learning environment. Creating a variety of environments within the classroom and encouraging students to work in groups where they can share their talents and interests requires very different teaching abilities than does standing in the front of the room and lecturing to students. Investigative or discovery learning puts the students in charge of their education. The teacher's role is one of guiding and assisting students to create a project that is their own unique piece of work. The teacher is the mentor, friend, confidant and stabilizing force in the classroom. One of the most important aspects of this type of instruction is the development of mutual trust and respect. This environment gives the teacher the ability to spend more time with

students who need extra help, while encouraging other students to move ahead at their own speed.

In this non-threatening environment, students who might be a behavior problem in another classroom are able to become a productive part of a team or work independently in their own areas of expertise. The students begin to mentor each other and they work together to help a classmate find information or solve a problem.

Observations of students working on project-based curriculum in my classroom revealed that the students achieve the following group characteristics:

- engage in the sharing of knowledge and information;
- use problem solving when they encounter difficulties;
- encourage creativity in their group members;
- agree upon job assignments and responsibilities;
- develop feelings of accomplishment;
- take pride in their work, and increase self esteem.

Critical Thinking and Problem Solving

The use of multimedia in the history/social science curriculum encourages students to use the basic skills and critical thinking skills enumerated in the *History/Social Science Framework for California Public Schools Kindergarten Through Grade Twelve*, (1988, p. 7).

The creation of a multimedia project requires the student to use problem solving and critical thinking skills as they evaluate the information that they have gathered on their chosen subject area. Students must use problem solving and higher-level thinking skills as they learn to use new

pieces of equipment and troubleshoot technical problems.

Students need to be able to criticize ideas and to generate alternatives. Peer editing and critiquing are an important component of project based curriculum. Training students to use analogies can provide alternative frameworks for interpreting familiar facts, thus helping to build the bridge between criticism and creativity (Bransford & Stein, 1984).

The students working with multimedia exhibit the ability to perform independent investigation, are self-motivated, are very seldom off-task, and cooperate with each other in the sharing of materials. Without instructor suggestion, they also show an increase in the sharing of knowledge, self analysis, related problem solving skills, team sharing of responsibilities, as well as being more willing to take risks and try new ideas.

All of these learning strategies and basic skills fall into alignment with the recommendations of the California State Department of Education's Middle Grade Task Force Report, *Caught in the Middle* (1987) and the U. S. Department of Labor's SCANS 2000.

Variety in Presentation

The authoring tools for multimedia presentation programs have changed drastically in the past few years. The development by Roger Waggoner of the *HyperStudio* program was the beginning of a dramatic change in the presentation formats available, in a user-friendly modality. Today's users have a choice between *Digital Chisel*, *ClarisWorks Slide Show*,

Astound, Authorware, Power Point, Multimedia Producer, Director and HyperStudio. All of these programs run on a drag and click format, which means that the user does not need to learn a programming language in order to create a multimedia presentation. The development of the new computers, those supplied with audio-visual capabilities that incorporate non linear editing, gives the user a wide range of user-friendly options.

Today novices can incorporate their own sound bites and video clips, convert their video footage to quicktime movies, or compress their video in a variety of formats. In addition they can incorporate their own digitized photographs which they can have developed on CD ROM, at most photo developing businesses. This means that the user can import their own photographs, as well as clipart images. The development of the Internet services has given access to material from all over the world. The increase in educational CD ROMS provides a library of materials that can be stored in a space the size of a shoe box.

All of this gives today's teachers and students the ability to research any subject area and prepare a multimedia presentation from the information that has been gathered.

Today's teachers no longer need to stand in front of the class and put the students and themselves to sleep, for they have the ability to present information in a variety of formats. More importantly, they have the ability to guide their students in the development of their own research projects.

Students can use these projects in a variety of student competitions like History Day or Science Fair. The work the students are creating in the classroom can be used to share with parents, other teachers, administrators, or general public. Teachers can prepare lessons for their students to use as a group or individually. These teacher- or student-created programs provide a way to keep absent students from missing work, as well as give other students the freedom to peruse information at their own rate. The best of these programs can be printed or "burned" to CD ROM for future use. This is not only convenient but also limits the amount of necessary storage space.

When Thomas Armstrong (1994, p. 47) stated that "Gardner believes that intelligence has more to do with the capacity for solving problems and fashioning products in a context-rich and naturalistic setting," he must have been watching students work with multimedia.

Multimedia as an Archival Tool

Variety

One has the ability to choose from a variety of ways to use multimedia to archive content material in a structured manner through the use of the history/social science framework. One could choose to organize by decade, century, generation in a chronological order, by periods of exploration, or by technological development (e.g. invention of the wheel).

The Five Themes of Cultural Geography was chosen as the organizational format for this project because it covers all

of the areas that need to be addressed if one is to try to preserve historically accurate cultural information. These themes are the following: (1) Cultural Region; (2) Cultural Landscape; (3) Cultural Diffusion; (4) Cultural Ecology; and (5) Cultural Integration.

In addition, the multimedia format allows one the liberty to use the variety of media needed to preserve information about ethnobotany and music, as well as locations, artifacts and language. This project required the use of audio/visual-capable computers for digitizing videotape and sound, as well as use of the *HyperStudio* tool. The peripheral devices used were video cameras, scanners, digital cameras, external devices to store information, modems, printers, CD writer, VCR and playback monitor, in addition to the appropriate software to bring information gained from each medium into the computer.

This allows easy accessability of the archived information to anyone wishing to study it.

Documentation

The use of multimedia for documentation is one of the most important features that multimedia has to offer. The use of a video camera to import original footage as well as to display items that would otherwise be kept in a museum or archival facility, is unique. The researcher using the camera has the ability to document location at the time of the taping. The ability to scan photographs and other primary source materials into the computer and import them into an archival program gives the researcher a much-needed way to

access primary source information. The increase in Internet availability has added to one's ability to provide primary source documentation.

The documentation of the artifacts is crucial for verification of authenticity and ownership. An annotated bibliography is the best format. Researchers must be sure that they document the following: who found the artifact; to whom the item currently belongs to; what it is; where it was found; when it was found; why it is included; and how it was made available for use.

Documentation of music, video, songs and stories must be sure to conform with the copyright laws. Educators have a little more leeway than the general public; however, one must be careful not to overstep the boundaries. One must never use music/songs for a background without checking with the copyright owner to gain permission for use. A current revamping of copyright laws is currently in progress. Until the copyright controversy is resolved it is vital that researchers conform to existing law.

Principles of Multimedia Use in Teacher Education

The information on the following charts is broken down into a step-by-step process for creating a multimedia presentation or archive. The process steps are listed on the left side, and the skills, intelligence paradigm and social science framework reference are listed on the right. This allows the teachers to see how they are incorporating the framework requirements, while they are identifying the intelligence paradigm and the skills acquisition that is being addressed.

Table 1

MULTIMEDIA DESIGN MODEL FOR PRESENTATION	
Process	Intelligence Paradigm and Type of Skills Development
1. Students decide on the specific subject area within the theme	1. Linguistic intelligence. Define and clarify problems. Define and clarify problems.
2. Students research the subject using a variety of media and conventional resources	2. Logical- Mathematical and Linguistic Intelligences. Audio/visual learning. Use community resources, and read various forms of literature and primary and secondary source materials. Locate, select, and organize information from written sources.
3. Students document their sources using the APA annotated bibliography format	3. Logical-Mathematical and Linguistic intelligences. Judge information. Distinguish between fact, opinion and reasoned judgment. Identify unstated assumptions; recognize stereotypes, cliches, bias, and propaganda.
4. Prioritize information and align with the theme	4. Logical-Mathematical intelligence. Resource skills, basic skills and critical thinking skills.
5. Determine authoring tool	5. Spatial intelligence. System and technology skills.
6. Sequence the information and determine stack design	6. Logical-Mathematical intelligences.
7. Develop a unifying screen design for presentation of information.	7. Visual and Spatial intelligences. Problem solving skills, critical thinking

Table 1

MULTIMEDIA DESIGN	MODEL FOR PRESENTATION
<p>8. Layout project on storyboards Layout the presentation a. Screen design: determine screen background b. choose font: (style, size & color) c. layout permanent buttons: 1. Choose icon or graphic 2. Determine button actions d. Write script: 1. text 2. audio</p>	<p>8. Spatial and Linguistic intelligences. Organize and express ideas clearly in writing and speaking.</p>
<p>9. Input information into authoring program</p>	<p>9. Logical-Mathematical and Bodily-Kenesthetic intelligences. Learn to use a variety of electronic media.</p>
<p>10. Evaluate program and make adjustments</p>	<p>10. Logical-Mathematical intelligence. Solve problems and draw conclusions.</p>
<p>11. Evaluate credits and final documentation</p>	<p>11. Linguistic intelligence. Basic skills, information skills, and thinking skills.</p>
<p>12. Rehearse presentation with appropriate equipment</p>	<p>12. Linguistic, Interpersonal and Intrapersonal intelligences. Basic and interpersonal skills.</p>
<p>13. Make presentation</p>	<p>13. Interpersonal intelligence and skills. Develop public speaking and presentation skills.</p>

Table 2

MULTIMEDIA DESIGN MODEL FOR ARCHIVING	
Process	Type of Skills Development and Intelligence Paradigm
1. Identify items to be archived	1. Linguistic intelligence. Define and clarify problems.
2. Research items and justify preservation	2. Logical-Mathematical and Linguistic intelligences. Audio/visual learning. Using community resources, and reading various forms of literature and primary and secondary source materials. Locate, select, and organize information from written sources.
3. Document the items - a. What is it (if possible) b. Who currently owns the item c. Where was it located d. Date of acquisition e. Original owner f. Date (If known)	3. Logical-Mathematical and Linguistic intelligences. Judge information. Distinguish between fact, opinion and reasoned judgment. Identify unstated assumptions; recognize stereotypes, cliches, bias, propaganda and semantic slanting.
4. Layout the presentation (create storyboard) a. Screen design: determine screen background b. Choose font: (style, size & color) c. Lay out permanent buttons: 1. Choose icon or graphic 2. Determine button actions d. Write script: 1. Text 2. Audio e. Choose background music	4. Logical-Mathematical and Musical intelligences. Resource skills, basic skills and critical thinking skills.

Table 2

MULTIMEDIA	DESIGN	MODEL	FOR	ARCHIVING
<p>5. Choose equipment:</p> <ul style="list-style-type: none"> a. Computer b. Authoring program c. Video editing program d. Equipment needed for importing information: video camera, scanner, digital camera, lights backdrop, tape recorder CD recorder 	<p>5. Spatial intelligence. System and technology skills.</p>			
<p>6. Schedule use of the equipment</p>	<p>6. Logical-Mathematical intelligences.</p>			
<p>7. Create program</p> <ul style="list-style-type: none"> a. Lay out program according to storyboard b. Create quicktime movies c. Scan information d. Import photographs. e. Import frames from video 	<p>7. Visual and Spatial intelligences. Problem solving and critical thinking skills.</p>			
<p>8. Evaluation</p> <ul style="list-style-type: none"> a. Student editing b. Peer editing c. Teacher editing/input 	<p>8. Spatial and Linguistic intelligences. Organize and express ideas clearly.</p>			
<p>9. Reevaluate</p>	<p>9. Spatial and Linguistic intelligences. Organize and express ideas clearly.</p>			
<p>10. "Burn" to CD or record to video</p>	<p>10. Logical-Mathematical and Bodily-Kenesthetic intelligences.</p>			

CHAPTER FOUR: DESIGN OF THE PROJECT

Subject Matter

The subject matter for this project, *The History of the Yohavitam (The People of the Pines)* is the history of the Serrano Indians, their language and culture. This project was created in conjunction with the work done by Dr. Lynne T. Diaz-Rico and is based on her two books *Seeking Santos: The History of the Serranos* and *Stories of the Serranos*.

The support of the San Manuel tribe, their encouragement, and willingness to assist me with gaining access to artifacts and materials has been invaluable.

Actual footage of specific geographic locations will help to preserve the accurate history of this tribe.

The artifacts displayed in this project were found in a variety of places: the San Bernardino County Museum; Los Angeles County Museum of Natural History; the private collection of Dr. Gerald Smith, anthropologist and Serrano Indian expert; Serrano Indian Casino Conference Chamber; the San Bernardino Mountains at Pan Hot Springs (Maktsuk); Baldwin Lake; Los Flores Ranch; and the Yucaipaiem village site, Yucaipa, CA. This material was gathered with the assistance of the San Manuel Mission Indian Tribal Council, Dr. Lynne T. Diaz-Rico, Dr. Gerald Smith, and U.S. Forest Service Archeologist, Daniel McCarthy. Authenticity of the sites and artifacts the most important issue faced in the development of this project. It is difficult to separate the artifacts of different groups of California Indians because

there has been so much intermarriage of the tribes. This is especially true of the Takhtam or Serrano People, because of their cultural marriage laws which required that they marry outside of their clan. This means that a woman was removed from her birth clan and taken to live with her husband's people. The Serrano frequently intermarried with the Cahuilla, Gabrielino, Luiseno and Paiute People. The Serrano were known to be exemplary basket weavers and the baskets displayed in this project were identified as Serrano.

Finding the actual sites was a major undertaking because the U.S. Forest Service maps are not easily read. After crawling under barbed wire and climbing hillsides and aqueducts, it became apparent to me that a guide was needed in order to accurately locate the sites. Ernest Siva, coordinator of the Serrano Cultural Heritage Workshops, Daniel McCarthy, and Gerald Smith have provided that support and guidance.

The Learners

The learners that will use the project will be current and perspective teachers of elementary and middle school students. This project will be used by teachers to demonstrate to their students how multimedia can be used to present information to others, as well as archive information for further exploration and preservation. It is hoped that the San Manuel Band of Serrano Mission Indians will also be able to use this project to educate their children and other tribal members about their language, tribal history, and customs. Actual footage of specific geographic locations will

help to preserve the accurate history of this tribe.

Instructional Development

The instructional development of this project involves the development of an interactive multimedia project, recorded on compact disc, that demonstrates the use of multimedia as a research and presentation tool as well as an interactive learning tool for students. This project was created using the *Hyperstudio* integrated multimedia authoring program.

The Serrano language heard on the CD-ROM is spoken by one of the three remaining native speakers known to exist. Actual video footage of artifacts and important geographical locations provides users with primary source information that might not otherwise be available to them. In addition this work will provide an archive of Serrano history and culture.

Screen Design

This program is being created using *Hyperstudio*. The organization is based upon the Five Themes of Cultural Geography as described in Geographical Literacy Strand of the History-Social Science Framework for California Public Schools. The program will consist of multiple stacks, each stack consisting of information from one of the Five Themes (Jordan & Rowntree, 1990. p. 6), as they relate to the following identified areas of Serrano Culture:

1. Cultural Region

Location, Language, Religion, Ceremonies, and
Creation Myths

2. Cultural Landscape

Petroglyphs, Terrain, Baskets and Food

3. Cultural Diffusion

Expansion Diffusion, Relocation Diffusion,
History

4. Cultural Ecology

Ethnobotany, Housing, Animals, Weapons,
Medicine, Customs, Music, and
Clothing/Footwear

5. Cultural Integration

Preservation

The background color for the screens is to be burgundy with beige text. Each screen has three permanent buttons that allow the user to move to the next page, go back to the table of contents, or return to the previous page. All Serrano words are colored green and function as "hot" buttons that give the proper pronunciation of the words when they are clicked.

The opening screen is a quicktime movie of the San Manuel Band of Mission Indian statue/fountain, "Serrano Welcome" at the corner of Highland and Victoria Avenues in Highland, CA.

The second screen has directions for program use. The third screen is the table of contents. Each of the five themes is a separate stack of its own with buttons that are depicted by a graphic object representative of the material contained within the stack. Each of these objects branches to the beginning of a different stack. The last page of each

stack returns to the table of contents.

Each stack contains clips of video and/or still frame shots obtained from video footage, as well as digitally imported primary source material. The screen design has a text box to the right, a graphic object area to the left, and permanent buttons across the bottom of the page. The "home" or return button is a graphic of a Serrano kish (hut); the forward button is a Serrano brave running to the right; and the reverse button is a Serrano brave running to the left. This allows the users to move through the information at their own pace as well as to return to a previous page to reevaluate or review previous information. The nonlinear sequencing of the information allows the user to choose areas of interest in a random manner.

The program concludes with a rolling list of credits. These credits give verification of authenticity of artifacts as well as giving credit to people and organizations that assisted in the collection and verification of information.

The background music and songs were provided by Ernest Siva, Director of the Cultural Awareness Program for the San Manuel Band of Mission Indians.

CHAPTER FIVE: EVALUATION

In order to ensure that this project is historically accurate and meets the needs of its intended audience, the work was monitored by Dr. Lynne Diaz-Rico and various Native American consultants.

The project itself was designed to be evaluated by the rubric created for use with student programs (see Appendix A). This rubric was created to incorporate the basic skills identified in *Caught in the Middle* (1987, p. 26) as well as the requirements of the National History Day competition (see Appendix B).

Both of these sources emphasize the importance of being able to define, locate, and use a wide variety of research materials (including original documents, computer software, interviews, and direct observations, as well as conventional library materials and internet accessed information). In a good project, information is analyzed, interpreted, and combined with information gathered from texts and classroom lectures and is finally presented in an original, creative manner. Each project must demonstrate structured organization, and contain an introduction, middle and conclusion. The written material must be clear, correct and articulate, demonstrating the ability to synthesize knowledge and apply it to a new venue. Media should be appropriate to the topic and have visual impact.

A project should also demonstrate a basic understanding of good screen design (appropriate use of color, screen

layout, consistency, clear instructions for use, smooth transition between screens).

Students should be able to give and accept constructive criticism, demonstrating an understanding of the difference between the words "criticize", (to judge disapprovingly; find fault) and "critique" (a critical analysis or evaluation of a subject, situation or literary work).

The project should demonstrate the use and understanding of a variety of media.

Students should exhibit, use, and understand appropriate documentation of sources. All materials should be properly credited and bibliographic information should be appropriately cited.

Anticipated Student Outcomes

- Increased interest/excitement in history/social science classes
- Successful participation by *all* students
- Increased number of cross-curricular and team projects
- Improved public speaking and presentation skills
- Reduced behavioral problems
- Positive student-teacher interaction increased
- Students willing to use their free time to complete and enhance projects
- Parent enthusiasm over student media projects that are brought home
- Award-winning student projects

In summary, the first goal (to demonstrate multimedia as a presentation tool) can be evaluated by using Appendix A;

the second goal (the use of multimedia as an archival tool) can also be evaluated using Appendix A; and the third goal can be evaluated using tables 1 and 2. I welcome feedback from educators who make use of these principles in multimedia design.

Appendix A

MULTIMEDIA PROJECT RUBRIC SCALE 1-7

- | | | |
|-----------------|------------------|------------------|
| 1 - OUTSTANDING | 4 - SATISFACTORY | 7 - UNACCEPTABLE |
| 2 - EXCELLENT | 5 - MINIMAL | |
| 3 - GOOD | 6 - NEEDS WORK | |

	1	2	3	4	5	6	7
HISTORICAL QUALITY ----- 30% HISTORICALLY ACCURATE SHOWS ANALYSIS AND INTERPRETATION PLACES TOPIC IN HISTORICAL CONTEXT DEMONSTRATES SIGNIFICANCE OF TOPIC IN HISTORY							
ORGANIZATION ----- 15% STAYS ON TOPIC HAS A CLEAR BEGINNING, MIDDLE AND END IS GRAMMATICALLY CORRECT USES CORRECT PUNCTUATION AND SPELLING							
USE OF A VARIETY OF RESOURCES ---- 15% USE OF ORIGINAL DOCUMENTS INTERVIEWS INTERNET RESOURCES ELECTRONIC RESOURCES USE OF CONVENTIONAL LIBRARY RESOURCES							
SCREEN DESIGN ----- 10% APPROPRIATE USE OF COLOR CONSISTENT SCREEN LAYOUT CLEAR INSTRUCTIONS FOR USE EASY TRANSPORTATION BETWEEN SCREENS							
USE OF A VARIETY OF MEDIA ----- 10% VIDEO CD-ROM LASER DISC DIGITAL CAMERA SCANNER INTERNET DOWNLOAD							
QUALITY OF PRESENTATION ----- 20% PRESENTATION IS CREATIVE AND ORIGINAL PRESENTATION IS WELL ORGANIZED MEDIA IS APPROPRIATE AND HAS VISUAL IMPACT WRITTEN MATERIAL IS CLEAR, CORRECT AND ARTICULATE							

HISTORY DAY IN CALIFORNIA SCORE SHEET

MEDIA PRESENTATION

Instructions for Judges:

- Place a check mark on the line in the Evaluation box following each criterion where it best reflects your evaluation of the entry's success in achieving that criterion.
- Write comments in the space provided to help and encourage students.
- "Needs Work" evaluations should be explained in comments.
- Criterion constituting rule violations are noted with a *
- HISTORICAL QUALITY IS THE MOST IMPORTANT ASPECT OF HISTORY DAY. More weight should be given to the entry's Historical Quality, with respect to other criterion, when evaluating the entry and selecting finalists and winners.

Finalists
SB

JUDGING CRITERIA	EVALUATION					JUDGE'S COMMENTS
	Outstanding	Excellent	Good	Satisfactory	Needs Work	
Historical Quality (60%)						
Entry is historically accurate						
*Annotated bibliography shows how sources contributed understanding of topic.....						
Shows analysis and interpretation, not just description						
Places topic in historical context						
Shows wide research and use of primary sources						
Provides evidence of balanced research.....						
Adherence to Theme (20%)						
Clearly links topic to theme						
Demonstrates significance of topic in history						
Quality of Presentation (20%)						
*Presentation did not exceed time limit (10 minutes)						
Presentation of topic is creative and original						
Presentation is well organized						
Written material is clear, correct, and articulate						
Media is appropriate to topic and has visual impact						
Student understands use of equipment						
*All non-student audio/visuals are properly credited.....						
*Students operated all equipment/ effects						
*Title page shows only title, names, division, and category..						
Timing: The official length of the entry was:						

Appendix B

Storyboard

Project: _____

Stack _____

Card #	Branch to

Card #	Branch to

Card #	Branch to

Description: _____

Description: _____

Description: _____

Audio script _____

Audio script _____

Audio script _____

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