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There back again in Coachella Valley: A multimedia presentation on historical sites in the Coachella Valley

Lani Sue Ray

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THERE AND BACK AGAIN IN COACHELLA VALLEY:
A MULTIMEDIA PRESENTATION ON HISTORICAL SITES IN THE
COACHELLA VALLEY

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

by
Lani Sue Ray
June 1998
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ABSTRACT

This project was designed to enhance the delivery of the thinking curriculum recommended in *It's Elementary!* by the California Department of Education to students. Third grade Social Science-History thinking curriculum was adapted for the Coachella Valley area by Desert Sands Unified School District personnel in accordance with state frameworks. The curriculum includes lesson plans that are well-written and provide students with reading materials in English or Spanish. However, students who are not linguistic learners, who are Limited English proficient, or who are low readers are not supported within the current materials available for third grade students. With budget cuts, the school district can no longer afford the fees or buses necessary to take children to view a variety of historical locations. Their needs prompted the creation of this project.

In order to enhance third grade students’ understanding and build upon knowledge they have of their locality, this project was written both in English and Spanish. It covers five historical sites of interest in the Coachella Valley area. It uses digital imaging and audio in addition to written text for the purpose of enhancing student learning and retention.
ACKNOWLEDGMENTS

A popular song of recent years, "The Wind Beneath My Wings," expresses much of my feelings towards family, friends, and people who have been in my life during this project. These people are my heros and, with them pushing me along, this project finally was completed. My gratitude and heartfelt thanks go to Dr. George Araya for his efforts in bringing this Master's Program to the desert community and teaching some of the classes; to Dr. Rowena Santiago for her willingness to travel the miles to help, encourage, and mentor my fellow classmates and myself through this project; to my family who have been a constant source of support and encouragement to be better today than yesterday throughout this project as well as other events in my life; to my friends who have stuck with me through all the months of this project with their endless cheer and inspiration; and to my fellow classmates who have given me a good example to follow through their work in this program.
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California History-Social Science Curriculum Design

The 1988 History-Social Science Framework from the California Department of Education has suggested that children in the second grade start the study of history by studying their family and family life by constructing a family history. Children entering the third grade continue a non-formal study of history as they build on their second grade experiences by exploring their community in terms of physical features and the impact which settlers have made.

According to the Framework, third grade students should begin with the geographic setting of the area where they live. This can be explored first in terms of the natural physical features and then progress to man-made physical features. Children are encouraged to discover the impact which people made upon the land and the area. A study of the Native Americans of the area is promoted in the Framework. With the combination of geography and early settlers, children are ready to move on in their studies to the more wide-spread population of the area as
new groups of peoples moved into the area. The effects of settlement as well as the history can be studied effectively in third grade. Finally, children can be encouraged to view the changes occurring today in relationship to the past in a comparative way. Even though children in the third grade are often too young to act upon the current community issues, they are capable of understanding the important issues which affect their living conditions in the community. (California Department of Education [CDE], 1988).

Statement of the Problem

The third grade children in the Desert Sands Unified School District community come to school with a mixture of linguistic, ethnic, cultural, religious, and economic background experiences. The challenge to deliver a thinking curriculum as recommended in It's Elementary! by the California Department of Education (1992) can become a teacher's nightmare trying to find materials or a teacher's invitation to creatively respond to preparing appropriate materials.

Desert Sands Unified School District gathered some of their best teachers of Social Science and had them prepare
materials for third grade classroom use. This curriculum planning team created booklets of lessons to be used in the third grade classrooms of this district which would cover the curriculum outlined in the History-Social Science Framework.

One of the booklets of lessons, entitled Coachella Valley Geography: Physical and Cultural, contains five lesson which cover: 1) Learning About Our Location; 2) Learning About the Place We Live; 3) Learning About People and Our Environment; 4) Learning About Movement; and 5) Learning About Regions. Lessons include student pages which can be copied, suggested reading from the district adopted textbook, From Sea to Shining Sea, teacher materials and background information, and student activities to be completed with each chapter. (See Appendix A for district consent to use these materials for this project and Appendix B for sample classroom lesson materials).

Teaching from these materials is helpful, but may not fully address the needs or learning styles of the children in the classroom. The History-Social Science Framework suggests a variety of field trips to help students become familiar with major features of the area because the
framework writers recognize that many children have never visited these places, even when these places are not far from their homes. Since many students who enter T. Roosevelt Elementary classrooms are Limited English proficient as well as from low-income and poverty stricken families, they seldom leave their home or school environment to explore local historical sites. Due to budget cuts, neither the school nor the school district can afford the fees or buses necessary to take children to these localities.

As a teacher, the materials provided by Desert Sands Unified School District are helpful, but they are typewritten without pictures or graphics to enhance learning. A quick survey of eight former and current third grade teachers at T. Roosevelt Elementary School, shows what although the guidelines are employed, the materials within the booklet are rarely used. Most of the lessons are based on reading the selection and answering the worksheets or assessments at the end of the section.

Significance of the Project

In order to enhance students' understanding and build upon knowledge they have of their locality, this project
will present information in multimedia format on historical sites in the Coachella Valley area. The written information on each locality will be presented in English and Spanish versions with audio enhancement. By using this approach, the lesson material will be presented in written, audio, and visual forms to give students various ways to learn information from the third grade curriculum for History-Social Science.

Project Overview

The lesson will be burned onto recordable compact disc for use in the third grade curriculum at Desert Sands Unified School District using the HyperStudio program. The first page of the lesson will have a selection for users to choose the English or Spanish version. After the opening titles and introduction, a Main Menu page will feature selections for the user which includes direct access to each of the historical sites in the program or access to the hand-drawn map of the area showing the historical sites which may, also, be selected from the map. Audio and written text will explain about the site in the language of preference. Pictures taken with a digital camera will be used to capture sites for the
project as they look today. Historical pictures will be added, as needed, by using a scanner. (See Appendix C for the consent documentation from the Coachella Valley Water District to use their "Coachella Valley's Golden Years" publication). Text will be gathered from historical accounts available through the Coachella Valley Historical Museum.

In order to make the scope of this project feasible, five historical sites have been chosen for emphasis through the lesson "Learning About the Place We Live" from the materials prepared by Desert Sands Unified School District. These sites were chosen for their influence on the settlement of the Coachella Valley and the potential high interest they might have for children.
CHAPTER TWO
REVIEW OF RELATED LITERATURE

Emerging technologies offer unlimited promise to facilitate teaching and student learning. Although technology is not a panacea for every shortcoming in education, it offers options that were unavailable or inaccessible until recent years. It is the realistic and responsible use of these new tools which will create the most productive learning environments for students. In order to create effective learning environments, one must be aware of various factors affecting learners.

Child Development and Learning

Jean Piaget (Johnson, Dupuis, Musial, & Hall, 1994) became a leader in the field of psychology with his work about how children learn. He pioneered the theory of mental or cognitive development. It is his work which defined four major learning stages through which children pass on their way to maturity. Stage Three, which impacts this project, spans ages seven through eleven and is called the concrete operations stage. That is when children are ready to use more complex concepts such as numbers. Using Piaget’s research, educators have been able to develop teaching materials and strategies which are appropriate for students.
In order for children to learn, they must be developmentally ready for the challenge. The New York Hospital—Cornell Medical Center [THYH--CMC] (1987) confirms Piaget's research by reporting that the period between seven and eleven years of age is an optimal learning period for children. It is a time for children when a concentration of learning which takes place in and out of the classroom.

Children at this age are ready to view a situation, realize that there might be several interrelated parts, and choose one part to focus on for specific study. They can solved complex problems and understand various relationships in the world. Their abilities have grown to include cataloging fine distinctions between events and things. Children become less egocentric and develop the capacity to empathize with others. (TNYH--CMC, 1987).

For the target age group of this project, and perhaps the most important point is that, during these educational years, children learn to appreciate the concept of time. The New York Hospital--Cornell Medial Center (1987) writes that children realize that there are people and events outside themselves that started before they existed and some will continue after their existence. Children have a great desire to learn at this age. It is a time when development and growth of intellectual knowledge may consolidate mental
skills and capacities that will affect the rest of the child's life.

Auerbach (1981) writes that children work as hard in school as their adult parents do at home or in the office. Children are eager to explore in a world that does not stand still. Children learn through direct experience whether they are in school or not. She says children like to travel, use their imaginations, and ask lots of questions to satisfy their desires to learn as much as they can.

Hamachek (1975) wrote about the emerging abilities of children in the early elementary grades. He reported that the child's ability to classify leads to conceptualizing. This ability to conceptualize "allows a child to react more or less the same to different stimuli" (p. 136). That is, a child during these years is ready to learn that groupings of similar events or objects, while different, also have similarities and things in common. The child learns to articulate these concepts of same and different based on their growing understanding and learning through comparing, categorizing, and continuing intellectual studies. Hamachek (1975) reminds readers that this conceptual learning is gradual process which happens faster for some children than others.
The California Department of Education's *It's Elementary!* (1992) document agrees with child development specialists which say that the elementary school years are "a time of uninhibited wonder, enthusiasm for learning, and breathtakingly rapid growth" (p. xi). The growth a child makes during these years may well be the most influential factor of their adult lives. The State of California's vision for children includes elementary schools which help promote each child's capabilities through the best possible learning methods and academic curriculum available.

**Learning Methods and Theories**

Various philosophical practices have emerged from the observations of children and how they learn. Educational methodologies and theories have developed from these observations of how children learn.

Burrhus Frederic Skinner (Johnson, et. al., 1994) developed his educational theory of behavioralism. He suggested that students could be conditioned or trained to respond in particular prescribed ways after learning. Educational curriculum, according to B. F. Skinner, is taught in such a way as to change or see a change manifested by an outward show in the student's behavior. Lessons, based on this behavioral theory, are broken into small
sequential steps or bits of information for mastery at each step before proceeding to the next concept.

Robert Havighurst's and Jerome Bruner's work followed studies done with children and learning by Piaget (Johnson, et. al., 1994). They postulated that specific developmental tasks must be mastered by children in order for them to develop normally. They agree with B. F. Skinner that tasks must be broken down into components for student mastery. However, they propose that these tasks be presented at critical "teaching moments" which are "periods of peak efficiency for the acquisition of specific experiences" (p. 375).

In recent years, Gardner (1983), a developmental psychologist, introduced his concept of Multiple Intelligences which has educational implications for student learning and the teaching of curriculum. According to his studies, individuals learn best through various styles or intellects. Gardner suggests that although he has been able to measure and identify several basic intellectual styles, they are not the only intellectual styles, but are the styles currently identifiable by scientific measurement and research. The seven intelligences identified in Gardner's early works are: 1) the linguistic learner, 2) the logical/mathematical learner, 3) the spatial learner, 4) the
musical learner, 5) the bodily/kinesthetic learner, 6) the interpersonal learner, and 7) the intrapersonal learner. Recent research within this area of learning styles has added the naturalist learner as another measurable intellectual area.

Learning and Diversity

Another aspect educators must come to grips with is dealing with individual and group diversity. "Diversity is an important aspect of our ability to ... develop new things and reflect in new ways about old ideas," writes Marshall (1995, p. 1). It takes skill to accept diversity and use it effectively as a learning tool. To be accepting of diversity means to overcome the idea from Plato's teachings which says everything is fixed and universal. Ways of thinking, acting, and learning are not fixed, but affected by different cultures, environments, and learning experiences. Marshall (1995) says that each new student which enters a classroom can add to the whole group with the acceptance of their differences. As those differences are noted and assimilated into the class make-up rather than suppressed, expanded learning and understanding of educational materials in a classroom can happen. The differences should make people stop and ask why things are
done in a certain way, ascertain other ways of doing tasks
differently or better, and plan how much more learning is
needed to do the tasks more effectively or make
improvements. Diversity can bring about a blending of
skills and learning that may be woven into a stronger,
larger body of collective knowledge. Experiences of shared
learning and problem solving through communication with one
another becomes a common possession which modifies the
disposition of each diverse group within the interaction.

In our California schools, not only does education need
to deal with diverse learners, but the educational needs of
students whose primary language is not English. Smith
(1995) writes that educators have been caught in the middle
of the bilingual education philosophies over how best to
teach those students while educational materials
manufacturers have been slow to develop materials until that
controversy is somewhat resolved. The issue of bilingual
education is serious with one side citing research that
shows a child working in their native language through core
subject matter with learning English on the side is a better
way to teach. Meanwhile, the another side of this issue
says that delaying the learning of English makes the task
more difficult, therefore, the students should be immersed
in English. Other language proponents cite age and previous
educational experiences as factors which affect the learner as they enter American school programs. The reality, writes Smith (1995), is that schools choose their instructional approach based on the numbers of students to be serviced, state laws, availability of teachers, and funding rather than a particular instructional approach or ideology.

Curriculum Planning for Learners

It’s Elementary! states that these advances in learning research have “profound implications for the elementary school curriculum” (p. xiii). California teachers are encouraged to view children as natural scientists bent on making sense of the world. This report suggests that educators should embrace two beliefs about children and schools. “The first was that all students can learn. The second was that good schools make a tremendous difference in ensuring that students do learn” (CDE, 1992, p. xv-xvi).

In view of the studies on learning and learning theory, It’s Elementary! makes a recommendation that key changes be made in elementary education. It is recommended that California schools change curriculum to include thought-provoking content exploration which taps the child’s real-world experiences, feelings, and interests. This document calls for a shift from skills-based curriculum that is
teacher driven into a hands-on, student-centered, experiential based curriculum (CDE, 1992).

Johnson, et. al., (1994) states that Benjamin Bloom, a proponent of Piaget’s cognitive learning theory, made worthwhile suggestions about curriculum planning. He wrote that educators can teach most effectively by, first, assessing the cognitive entry behaviors of students on mastery of prerequisite skills. Next, the educator should assess student interest and motivation to learn the proposed topic. Last, the educator makes sure the instruction offered is appropriate for the student.

Campbell, Campbell, and Dickinson (1996) suggest six steps to planning effective teaching for understanding which fit with Bloom’s thoughts on curriculum planning. One, educators set specific concepts for students to learn. Two, teachers address how their students will learn these concepts effectively. Three, apply teacher-directed curriculum with opportunities for student to apply self-directed learning skills. Four, offer students the opportunity to work with individuals of various disciplines who embody the knowledge to be obtained. Five, use higher level thinking skills for assessment rather than short-answer, simplified version assessments. Six, help students establish appropriate assessment criteria which naturally
integrates through all the learning activities before their studies begin which will guide the student's efforts through the lessons.

"Learners are not simply passive recipients of information; they actively construct their own understanding," says Svinicki (1994, p. 275). Since the student determines what is learned from instruction, curriculum planning should include basic principles to improve teaching. These principles are as follows: 1) information to be learned must be perceived by the learner to be important; 2) during learning, students need to act on the information in activities that make it more meaningful; 3) teachers can help students store information in long-term memory in an organized fashion related to their prior knowledge by creating a structure for the new information; 4) learners naturally check for understanding continually which redefines, refines, and revises what is retained; 5) transfer of learning to new concepts is not automatic, but comes with practice and exposure to many applications of the same or similar concepts; and 6) learning is facilitated when students know how to learn. This cognitive approach to curriculum planning lends itself to more student control of learning rather than teacher direction. It is a process of listening to the learner and adapting to their needs.
Educators using the Multiple Intelligences Theory in constructing curriculum have found that at least one lesson during the school day presented with a student's talent or intellectual strength in mind can help that learner cross from their own intellectual strength into areas of curriculum at which they are weak. By creating the classroom environment where the intellectual strengths of students are recognized and used to further their learning capacity, growth can be nurtured in the other intellectual fields where the learner is weak. The basic knowledge that is required for students to learn in our society may be taught in a variety of ways. Campbell, et. al.,(1996) feel that teaching and learning through Multiple Intelligences could save many students from frustrating academic careers by offering information in numerous ways. They say, "It is gratifying to observe students' enthusiasm, engagement, and achievement increase while experiencing the expansion of one's own intellectual capacities" (p. 232).

Although various learning theories and practices have evolved as a result of child development studies, a common understanding underlies the differences. That common understanding is that it is important to establish successful learning patterns early as well as develop an
environment which will enhance the learning process (Johnson, et. al., 1994).

Curriculum Planning and Technology

With the knowledge of learning theories and practices, planning curriculum can be more meaningful. There are many suggestions for making curriculum effective for learners. Integrating technology into curriculum practices can be rewarding and challenging depending on the learners, the classroom environment, and the plans devised by the teacher.

Integrating technology into curriculum can be difficult. Balli and Diggs (1996) found through working with preservice teachers that a teacher’s first experience in teaching with technology should be successful in order to maximize the chances of continued use. They suggest that teachers should value technology use in their classrooms as a common classroom tool. “The most advanced educational technology is of little consequence without teachers who can integrate the technology confidently and appropriately into a lesson” (p. 61). In order for teachers to become effective technology users, they must practice.

Teachers who are involved with technology need to take leadership roles in making sure that technology is thoughtfully incorporated into curriculum instruction. Teachers who use innovative technology tools to improve
instruction and stimulate learning in the classroom will most likely find they have or will change the way they teach over a period of years. Technology has been shown to increase student creativity and motivation as well as teacher productivity (Wiburg, 1995-96).

Pearson (1994) goes so far as to suggest that every school have a full time teacher for technology. This staff member must be a credentialed teacher who knows curriculum thoroughly so that classroom teaching can be enhanced effectively with appropriate technology. This technology teacher can be employed to help classroom teachers use their computers because those teachers know they have help available when they need it. As teachers generate more ideas for technology use, the technology teacher helps them incorporate it smoothly into the curriculum.

In their efforts to help educational institutions integrate technology into the curriculum, Columbia University is developing a program which will help connect schools to the Internet, provide technical assistance to take full advantage of innovation, develop curriculum using technology, provide teacher training, guide efforts between learning studies and assessment models, and support community involvement. The focus on technology use in education comes from their belief that technology has the
ability to change educational methodology. Technology in education is so essential because it can:

... alter the methods and economics governing how people produce, disseminate, and use knowledge. These changes in turn affect the curriculum: what is taught, how students gain access to it, and what human achievements result. Reshaping the curriculum through digital communications has enormous potential for advancing both intellectual excellence and democratic equity (McClintock & Taipale, 1996, p. 3).

Kimeldorf (1995) remarks about techniques and methods to be used by educators integrating the World Wide Web into their curriculum. He uses five steps to focus curriculum planning for successful experiences on-line. Step one, select a purpose and method for the study which can range from gathering and sharing information to joining an integrated study project. Step two, set ground rules for the project and build a shared vision about what is to be accomplished during the on-line project. Step three, endure through the project and make sure connections are kept while the gathering and researching processes are on-going. Step four, the final project pieces are exchanged between groups so that the groups involved in the process have the same information from the collaboration. Step five, evaluate the
project and use the information for culminating activities. "When students log on, their socio-economic, geographic, or handicapping condition is no longer relevant" (p. 31).

A constructivist approach to learning process requires students to develop their own knowledge through collaboration, discussion, and integration of the subject matter. Students develop concepts holistically, rather than one subject at a time in a disjointed pattern of memorized facts. A constructivist lesson incorporates a learning activity that can be integrated into the student's real life experiences, emphasizes the student's responsibility for asking questions, give time for students to compare points of view and do critical thinking, motivate students to become aware of their culture in relationship to other societies, and, finally, encourage students to become responsible for their own learning and understandings. This type of approach frees the teacher from lecture to coaching groups through the learning and understanding process. Technology enhances this type of instruction by its access to data banks, multimedia software, and creative production possibilities (Boyer & Semrau, 1995).

Many students complain that "schools don't teach what you need to know" (p. 70). The knowledge acquired in a typical academic setting is perceived to be learned for
future use or only long enough to take the test. With the advent of computers, students can engage in curriculum which can reflect the world outside the classroom with greater accuracy and make learning more authentic. Learning becomes realist to the student who, in turn, are motivated to internalize concepts better (Kinnaman, 1997).

New technology tools are creating the necessity of learning new skills. Goldberg and Richards (1995) suggest that technology will be a catalyst for school reform into better life-long learning organizations. This school change will be demanding and require great effort, but the rewards in growth and fulfillment will be worth the challenge. Goldberg and Richards (1995) state that new school designs must educate not only the children, but the teachers. In this structure, students and teachers will use technology to heighten the opportunity for participation in consuming and producing information. Students and teachers will become information literate which is knowing how to find information, represent it in different ways, and communicate the findings to others in shared groups. Schools will become distinct learning communities where access to technology can be made from any area of the school.
Technology and Educational Practices

Although technology seems to stir proponents of educational change, the educational standards set by various governing agencies do not reflect the use of technology in the classroom except as an amendment to current documents. It seems that there is an agreement that technology can make a dramatic difference in education, but no committee writing the standards seems to know what to do with it. The International Society for Technology in Education [ISTE] is willing to help rewrite national standards to include technology. They would like to see standards which:

... describe what students should know and be able to do with technology; how teachers and students should use technology throughout the curriculum to achieve the national education goals; how technology use should be evaluated and student progress assessed; and what technology systems, support services, and access schools should provide to ensure the effective use of technology (Mageau & Chion-Kenney, 1994, p. 39).

Panelists at a Roundtable in Multimedia were asked to comment on how technology could be used to transform our nation's educational system while still preserving traditional values. Comments from panelists ranged from making technology fit into what education is already doing
today which would relieve teachers from some routine tasks to redefining schools completely in terms of mission and values while creating a technology-mediated learning environment where students proceed at their own pace and learning needs. One spokesperson, Donald Norman (Educom Review Staff, 1994) who was an Apple Fellow and audience member, suggested that “technology isn’t the issue. The issues are the way we go about things, what it takes to learn, and the way we learn throughout our entire lives” (p. 8). Norman thinks that makes school change a social issue, not a technical one.

Gonzales and Roblyer (1996) state that educators and the public “need to reexamine and reconsider the mission and practices of our educational systems” (p.11). However, there are a number of reform platforms being pushed by their creators for consideration. These reform measures range from calling for technology to be used to make the educational process more efficiently while educators and schools become more accountable for better educational procedures within the structure already in place to the revolution model which says use technology to do away with schools and educate students without teachers or formal school settings. Gonzales and Roblyer’s (1996) article concludes that one agreement each of these educational
reform voices adhere to is that although technology is an important consideration, it is the transformation of educational practices themselves which is a key factor. Technology will play an important part in educational restructuring, but "it will not be an effective agent unless other fundamental changes occur in the system as well" (p. 15).

"Technology holds the key to an American educational rebirth," comments Schurman (1994, p. 32). Students need skills as simple as word processing to Internet research in order to be effective in their future jobs. Technology is not just an educational tool, but a life skills tool as valuable as the three R's. Technology helps improve student's attitudes about learning. A positive attitude effects positive growth in all subject areas for all grade levels. Schurman (1994) suggests that extensive staff development be given for school personnel. The staff can, in turn, direct student learning and extend that learning to the families of their students. By involving families, the school can gain more support for their technology programs as schools strive for productive change. If a child has a choice, that child will choose to glean information through technology over textbook or encyclopedia study. Technology
can make learning interactive and more enjoyable for students.

Technological innovations in the classroom present a shift from Industrial Age to Information Age education. Many people may see this as a threat to their status, power, and economic situation since the Information Age is capital intensive rather than labor intensive. Technology is expensive. It requires communication skills rather than transportation skills. A school may need far less salaried instructors in place of technological equipment for distance learning from one central teaching source. The Information Age will put parents and students in charge of their own learning rather than a central school and set of teachers according to Snider (1996).

Many times technology is purchased for the classrooms without consideration for its utilization in instruction. Carroll (1997) writes that teaching styles may dictate the use of technology far more than the equipment or software availability may indicate. Some teaching styles are more conducive to integrating technology that other teaching styles. A program for integrating technology will work best by understanding these teaching styles and providing programs to train instructors using that knowledge about their style. He goes on to explain that implementation of
technology will be most effective when:

... meeting teachers on their own ground, accepting their curricular orientations, and working with them to discover and implement the possibilities of technology—holds much promise to help us to reach that new era of teaching and learning we eagerly await (p. 72).

"Computers in the classroom with no thought given to the curriculum is educational junk food," says Dr. Terry Crane, (Weaver, 1996, p. 22), Senior Vice President of Education for Apple Computer. He goes on to say that educators hold the key to delivering a good combination between entertainment and educational tools in the classroom. If teachers are inspired to use technology, they will inspire the children in their classroom. Teachers will offer guidance for students, but the children will do the actual work. This could change the classroom environment beyond recognition according to current educational practices. Teachers will need skills to apply technology effectively in the curriculum.

Thornburg (1994) agrees that technology-based materials need to be carefully selected. He says that computers which are used to shore up outmoded educational practices such as the learning of rote, disconnected facts make the curriculum is easier to teach and test, but why "waste powerful
technology helping millions of children master trivia when these same computers can be used to truly productive endeavors by the students themselves?” (p. 25). He suggests that the measure of success through standardized tests scores needs to be redesigned based on reality. Technology can have a constructive and unique role in that restructuring design. Education needs to develop new assessment instruments that really measure student achievement in areas that are based in the realities of our society and working environment.

Twigg (1994) writes that learning can occur anywhere at anytime which is why she suggests a national information infrastructure should be in place. This infrastructure would enhance the availability of high-quality, self-paced modular learning materials which improve learning because they respond to individual learning styles and needs. Students accessed these unique lessons via technology from wherever they may be at whatever time they choose. Therefore, new kinds of learning environments are created as well as more cost effective instruction since students could proceed on their own without significant costs of personnel or classroom facilities. She says it is time to create something new and move beyond the formal educational institutions as now constituted into creating a national
learning infrastructure which will serve the learning needs of all students in a timely manner through the use of technology. Since the lessons would be produced by only the best instructors, students would succeed despite any teacher who may be in charge of their particular classroom.

Technology Use in the Classroom

Computer based learning research is still in the formative stages and more research is needed in this field. Preliminary findings show that students working with computers can learn, can improve academic achievement, and improve attitudes towards subject matter. Research findings show that computer based learning environments are radically changing the roles of teachers and students in schools. This change of roles can cause major school restructuring, but schools have not yet adopted or integrated major changes yet. Further research into computer based learning environment may show the most effective uses of computers or the best approaches to various subject areas, but the findings are not yet conclusive in these studies. (Thompson, Simonson, & Hargrave, 1992).

Jensen (1993) adds other advantages technology use for teaching and learning. "Computers have infinite patience in teaching that involves drill and repetition, especially among students with differing skills and aptitudes," he
writes (p. 8). Students can experience virtual realities without the dangers that could be possible in the real-life situations. Curriculum materials can be customized and updated as the need arises. However, there are disadvantages to using technology as well. Copyright issues can be a problem. Current markets for printed materials may try to block electronic materials as a way of maintaining their economic status. Technology itself is a problem because of the constant changes in computer hardware and software. Machines cannot take the place of a human being who can respond to unforeseen issues raised in a course of study and make adjustments to fit the learning situation. While technology has a great capacity to reach students and teachers in the classroom, some learners just do not respond well in a technology environment and need the human touch more than machine learning. Machines cannot make aesthetic judgements when doing assessment of students.

Chapter 1 of Title I of the Elementary and Secondary Education Act has been the federal government's way of helping low-achieving poor students receive extra help in reaching competency in basic skills. Technology can help track these children in their academic progress. The article entitled "Chapter 1 Revisited" suggests that technology can go beyond providing content or knowledge
deficit which can be corrected by drill and practice into becoming a catalyst to stimulate learning. Stan Pogrow, (Hill, 1993), creator of the Higher Order Thinking Skills technology program suggests that the skill and practice types of work needs to switch to higher order thinking curriculum after the third grade. Many Chapter 1 students stay within the cycle of poverty. Technology can give them insights into what exists outside their current environment.

Smith (1996) writes that technology in the classroom can inspire students to be creative. It allows experimentation, mistakes and changes which free students of their inhibitions because, with a computer, nothing is permanent. It is a constant space for experimentation with which to promote learning with raw materials rather than from prefabricated lesson materials from textbooks. Janeil Englestad, (Smith, 1996), a Chicago design artist who encourages technology use in education, says "By giving them not only science and business skills but creative skill, you’re developing better thinkers who can approach problems in a more creative way" (p. 48).

There are increasing benefits to using computers in the classroom as educators become more creative in their planning and curriculum. Computers cannot solve all the problems inherent in education today; they are here to stay;
and they will play a significant role in educational settings. Merrill, Hammons, Vincent, Reynolds, Christensen, and Tolman (1996) reported research has shown that computer software which simulates the use of manipulatives can help students transition between the concrete to the abstract representation of an idea. These machines with their software can provide immediate feedback for students which can help prevent misconceptions forming in the child's thinking processes. Computers in the classroom can be used as a tutor to present information or pose a problem related to classroom lessons. They can be used as a tool to help teachers and students keep records, write stories, or produce materials. Computers can be used as tutee or student. Word processing offers students a motivational writing tool. Telecommunications gives them an audience which encourages the student writer to improve their skills. Other applications for computers and their software that enhance curriculum are available and will come into use as educators become familiar with the programs.

There is some evidence that integrated learning systems are an effective technology tool in education. These systems incorporate curriculum concepts, a record keeping system, and a management system for interpreting student responses. Each lesson is sequentially structured and
cannot be altered by the learner nor the teacher. Research shows that using integrated learning systems can improve mathematics and reading performance. It is best to work in fifteen minute blocks of time on an integrated learning program. Lower achieving students may need an even shorter time span. It is interesting to note that secondary students showed good behaviors and high levels of attention during integrated learning systems which carried over to the regular classroom setting (Underwood, Cavendish, Dowling, Fogelman, & Lawson, 1996).

Computer technology offers immediate gratification and interactive appeal to classroom which affects teaching approaches and learning styles for students. However, it does have some inherit problems. Since the advent of technology into the classroom, software and hardware have changed so rapidly that development continues to outpace school budgets. Commercial users and school users frequently differ in their needs for hardware and software creating a dilemma for developers to choose between genre's for creating new technology. On-line services may be limited by access procedures, protocols, language barriers, and cultural response patterns which may exceed the acceptable standards for interaction between groups. Technology offers a wide variety of teaching aids and
learning environment for the classroom, but one should remember that the "tools merely facilitate labor. They are not ends in and of themselves" (Mitchell-Powell, 1995, p. 12).

Even though computer based learning research is still in the formative stage, educational proponents support the use of technology in schools based on preliminary findings. In the *It's Elementary!* handbook supports the use of technology in the classroom. The recommendation is made that technology be used in the classroom because it can deepen conceptual understandings in students as well as make it easier for teachers to enrich educational lessons. Not only can electronic equipment enhance teacher presentations, but students can use the equipment in a variety of ways as they work through carefully prepared lessons to develop their understanding. *It's Elementary!* does caution the reader that:

Technology is a tool for improving curriculum and instruction, not an end in itself. Teachers should be careful as they select technology-based materials to ensure that the materials remain consistent with the precepts of the thinking curriculum. (CDE, 1992, p. 48-49).
The Software Publishers Association of Washington, D.C.'s Report on the Effectiveness of Technology in Schools, 1990-1994, says studies have found "that educational technology clearly boosted student achievement, improved student attitudes and self-concept, and enhanced the quality of student-teacher relationships" (p. 52). However, this was not done without changes in curriculum and classroom environments. Applying technology in the classroom can simulate real-life environments creating increased interest, creativity, and cooperation among learner. It can change the role of teacher from being in control of learning to teacher coaching or facilitating and motivating students with one-on-one contact through working on projects. There is evidence that technology can individualize learning while reducing frustration and lowering stress levels for learners. It can reduce discipline problems by increasing concentration and self-esteem. There is greater access to more information within a richer context through the use of technology. Technology is integrating the world into the classroom by breaking down the walls between school, home, and the community at large (Reinhardt, 1995).

Hoffman (1995-96) writes that educational technology can free an instructor to interact with those students who need extra help. Her specialty is working with English as a
second language students. Computer assisted learning for language students can incorporate drill and practice software as well as providing instruction on culture, grammar, and real-life simulations. These lessons become learner controlled and self-paced as the student works through the exercises. The instructor can access records tracking each student's progress. An effective use of technology equipment as a tool for teaching must be seriously considered by teachers.

Educators of English as a second language students are some of the greatest technology users and proponents. In order to assist English as a second language students, Raphan (1996) suggests that students need to be taught listening skills along with effective note taking skills. Teachers can support student learning by providing authentic materials, accessing prior knowledge to improve comprehension, teaching listening skills, and remembering to use idioms, figurative language, and humor or irony sparingly. Individualized computer lessons have improved student skills in listening, and boosted their confidence to attend other subject area courses, as well as made connections between spoken and written media.

The World Wide Web offers a variety of authentic materials for students to study. Li and Hart (1996) suggest
some areas of focus for creating effective programs for English as a second language students on the World Wide Web. The top priority is that lessons are created in audio form as well as written for better comprehension. English as a second language students may need reference materials at hand as they respond to lessons and interact with various web sites. Bulletin board messages and e-mail posting allow students the opportunity for peer editing and collaborative writing. Instructors need to be sure their lessons which have evaluations attached have a place to store the data collected from the testing to produce reports and improve instruction.

Besides considerations about technology equipment, software needs to be carefully screened for curriculum. Twigg (1996) suggests that software publishers are interested in profits more than the educational value of their products. Therefore, although there are many software titles available, these products may not be good lesson materials or interactive learning modules. There is a market for the good curriculum materials if only the software companies are willing to take a chance. She says that software companies can win the profits they need if they will just concentrate on student needs. Software companies can create programs for courses in which fifty
percent or more of the student population must enroll to graduate. Another way companies can provide competent instructional materials is to find out what skills are needed in the marketplace and fill those needs with competent software. Directing software development towards teaching skills that students need will benefit the software companies as well as students.

Multimedia software is considered to be an ideal learning component which allows students interactive, multisensory, student centered, project oriented, and collaborative learning. However, a closer look at multimedia shows it to be far from multisensory. It only allows materials which can be monitored by keyboard, video, audio, and mouse. It cannot present real world simulations of textures, smells, and kinesthetics. Many multimedia programs have not changed rote thinking patterns but just spruced it up in a more attractive form to sell again. Consideration needs to be given to today's students which may be overexposed to various media which does not allow for them to use their imaginations and creativity. Thoughtful curriculum planning may elicit that a real experience may be better than a simulated computer approach. Students need to interact with the real world more than they need multimedia experience (Madian, 1995).
One of the newest software experiences becoming available is a combination of Internet and CD-ROM elements. McLester (1997) reports that there are those who forecast the demise of CD’s, but it doesn’t look like it will happen anytime soon because the Internet is not yet the best vehicle for multimedia delivery. Software publishers have developed the multimedia capacity of CD’s and merged them with Internet connects. However, this type of software has been nicknamed “Cybrid” for hybrid CD connected to cyberspace. This type of media would offer children the opportunity to explore on the Internet within the confines of the program monitoring. This particular product is so new that many of the defects are not worked out. That is, many of the cybrids CD-ROM’s simply do not work smoothly, if at all. The cybrid CD-ROM’s that do work well are highly recommended by the author.

Social Studies Curriculum and Technology

Technology and the social studies curriculum can be enhanced with computer technology. Students can write, revise, and print stories from historical perspectives, do reporting, mapping, graphing, and interact with other students through telecommunications. Multimedia applications can help students experience the consequences of simulated problems in their efforts to understand the
social sciences. "The challenge to educators is to explore the many varied options and make intelligent decisions concerning purchase and use" (Merrill, Hammons, Vincent, Reynolds, Christensen, & Tolman, 1996, p. 304).

Incorporating technology in the Social Studies classroom opens the student and teacher to differing viewpoints than what is presented in the textbook. By using technology to discover other viewpoints, students can study and generate their own meaning from historical events. Technology can bring sound, pictures, and video clips of the actual events of more recent history right into the classroom. Simulation games can help students grasp concepts about economics, politics, and geographical issues that can affect a society. Computers help passive students become active learners. With so much information available to students, they must be taught to look for bias and objectivity in the materials they use. One educator, Brian Nelligan (Harp, 1996), put the concept of history with technology in this way, “An enlightened citizenry is more valuable than one that knows a lot of meaningless facts” (p. 39).

Tally (1996) adds his voice to promoting technology use in the Social Studies curriculum. He writes that with the advent of technology, students can get the same primary
source artifacts that the historians use to analyze historical events. These artifacts could be letters, documents, pictures, or other kinds of materials. These artifacts offer a fragmentary view of history which differs from the traditional textbook because the user must make the definitions rather than the textbook writer. Tally (1996) suggests that the classroom textbook is a quick reference tool or catalyst for research with technology into a new way of looking at historical events.

Another suggestion for using technology comes from a Social Studies professor Levine (1996). He has created a World Wide Web home page called "Lesson Plans and Resources for Social Studies Teachers" because he feels that:

Teachers work in a world populated by children and adolescents. This isolates them from daily adult observation and feedback. The World Wide Web is the depository for easily reached stimulating ideas and practices. It can break the bonds of teacher isolation and help them develop professionally. Ultimately, this benefits students and society in general (p. 24).

To reaffirm the California State History-Social Studies Framework, Desert Sands Unified School District gathered mentor teachers to write a Social Studies Curriculum Guide, K-8 Grades (1991). From that guide, lesson plans were
developed for third grade. The lesson plans, *Coachella Valley Geography: Physical and Cultural* (1991), addresses effects of the geographic setting on settling the Coachella Valley area. Activities stress the importance of geography in relation to living conditions, areas of settlement, and people who made a difference in developing the area for settlement.

In the History-Social Science program, *It's Elementary!* suggests focus on using a variety of materials, resources, primary sources, strategies, and technologies to engage students in developing their full potential for personal, civic, and professional life. Educators are encouraged to foster enjoyment of history, cultivate historical empathy for people of different times, places, and cultures. This type of curriculum would help broaden the perspective of students about the world in which they live. California teachers are to use a “here-there-then” approach so that a child’s instruction begins in the present, then moves to future and historical phases for increased understanding (CDE, 1992).

In some elementary settings, “history occupies a curiously fractured position in elementary schools,” writes Barton (1997, p. 13). He states that recent research shows that elementary there are consistent patterns in the way
students think about history which teachers can use to plan lesson materials and instruction. The research shows that students learn about history outside school even though they may not call what they learned 'history.' Social Studies lessons can build on this knowledge in the classroom using the outside experiences of students. Most of these lessons cannot be found in textbooks, but must focus on artifacts, visual images, and community sources about people, places and events. Barton (1997) says that research shows young students have the most difficulty trying to understand institutional political history, but they find understanding changes in everyday life and the way people treat each other the most interesting topics to study in history. History is most readily accepted by children in the form of stories about people. However, children need guidance to understand that historical accounts can be far more accurate about the event than a story and history is not just a story. Children need guidance to understand that many events were happening in history at the same time and that different groups of people may experience the same event in a very different way.

Children need to explore and conceptualize how history works so that they can think about current world events with greater understanding. Research shows that even very young
children can explain events in history, but they usually explain those events in terms of things happening because people wanting them to happen. Children will usually express historical cause in terms of how much the agent of change wanted the event to happen rather than showing evidence of factors to make the change. It is important to help children learn to see historical events from the perspective that no matter how much a person wants a change to happen, that change is connected to other kinds of factors which make the greater difference (Ashby, Lee, & Dickinson, 1997).

The National Council for the Social Studies [NCSS] (1994) wrote standards by which they suggest educators can incorporate a well-rounded Social Studies program into their respective settings. They address their goal for these standards by saying:

The primary purpose of social studies is to help young people develop the ability to make informed and reasoned decisions for the public good as citizens of a culturally diverse, democratic society in an interdependent world (p. vii).

This council goes on to say that while these standards are a representation of the best thinking about what is needed in curriculum studies for social studies to produce
educated future citizens, the standards are only to be used as a guide and criteria to establish state, district, and classroom curriculum appropriate for students. The National Council for the Social Studies focuses on ten strands for study in the classroom. They are: 1) culture; 2) time, continuity, and change; 3) people, places, and environments; 4) individual development and identity; 5) individuals, groups, and institutions; 6) power, authority, and governance; 7) production, distribution, and consumption; 8) science, technology, and society; 9) global connections; and 10) civic ideals and practices (NCSS, 1994).

The nation depends on well-informed citizenry to sustain its democratic traditions as it adjusts to its role in the global society. The teaching and learning of Social Studies as a school subject are powerful when delivery is meaningful, challenging, value-based, integrative, and active (NCSS, 1994).

The History-Social Science Framework (CDE, 1988) was developed to influence the California Social Science instructional materials to be used for instruction in Kindergarten through grade twelve. These goals and curriculum strands fall into three main categories: 1) knowledge and cultural understanding; 2) democratic understanding and civic values; and 3) skills attainment and
social participation. In order to implement curriculum, teachers are encouraged to draw on a wide variety of resources from the school library to community materials. Curriculum lessons should be planned which bridge classroom studies and connect into real life situations.

At grade three, the History-Social Science Framework (CDE, 1988) recommends that study be based on continuity and change. That is, California students are to study local history to discover their past and the relationship to current traditions. This study may incorporate biographies, stories, folktales, and legends about people, places, and events. Through the study of past events and peoples in their locality, third grade students can begin to think about chronological relationships and how some things remain the same while other things change. Children can compare how things were in their area long ago with how things are today locally, regionally, and nationally. These studies can give children a shared background of traditional legacy to enhance their participation in future local, regional, and national events as well as leading into future historical studies.

The NCSS (1988) suggests that within the curriculum of Social Studies, there should be room to investigate the relationship among science, technology, and society so that
the learner can see how the lives of people can be changed; how the physical environment can be changed; how values, beliefs, and attitudes can be changed; how laws and government policies have been enacted due to changes made; and suggest ways to monitor change for the benefit of individuals, the environment, and the common good. For a third grade classroom, this type of study could be taken over an environmental issue being addressed by the local community. The students would gather information and study the problem. Students' final recommendations and understanding of the issue would need to be based on the weighted benefits of the common good within the community itself.

Some Historical Sites in the Coachella Valley

The History-Social Science Framework (CDE, 1988) developed by the State of California stresses the importance of field trips during the third grade into the environment in which their particular students live. Children need to learn about natural physical features as well as man-made sites. These field trips are important because

One cannot assume that the children have a knowledge of these features simply because they live near them. Experience has shown that many children have never

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visited these places, even when these places are not far from their homes (p.41).

In view of this recommendation for providing learning experiences for children, a list of sites which includes natural features and historical sites was researched for the Desert Sands Unified School District (1991) lesson plans and presented in the booklet *Coachella Valley Geography. Physical and Cultural*. These lists are given to students, but rarely do they or their parents act upon them. The school itself does not fund enough field trips to cover all these places. The following is a list of the historical sites selected for this particular project.

1. The site at Towne Street south of Miles Avenue about where the former Southern California Gas Company building on the east was located in Indio, California, is where *Cinderella Courtney, the first settlers’ child*, was born in 1898 (Coachella Valley County Water District [CVCWD], 1978, p. 82-83), Desert Sands Unified School District [DSUSD], 1991, p. 18).

2. The *school bell* from the top of the first school building built in the Coachella Valley is mounted on a concrete stand in front of the Desert Sands Unified School District Offices at 47-950 Dune Palms Drive in La Quinta. It was on top of the first school building built in the
Coachella Valley. School had already commenced in a tent east of the railroad station since 1896. The new school building was erected of adobe bricks by 1897 and the Indio school District was formally organized. There were only seven pupils and one teacher in that first school. The school building stood on the northwest corner of what is now Fargo and Bliss Streets in Indio, California. That building has long since disappeared to be replaced by the now abandoned Elks Lodge building (CVCWD, 1978, p. 31 & back cover), (DSUSD, 1991, p. 18).

3. Smiley Place was the home and office of Dr. Harry Smiley, a pioneering physician in the Coachella Valley. He sold the property to Dr. John C. Tyler, a dentist, in 1948. Dr. Taylor used the home for his living quarters as well as his medical practice until he retired. It is now the site of the Coachella Valley Historical Society’s Museum at 82-616 Miles Avenue in Indio, California. The museum may be small, but it is interesting. There is a small fee charged for entrance to the museum (Jennings, Baker, Patterson, & Seider, 1993, p. 66), (DSUSD, 1991, p. 19).

4. Bernard Johnson was responsible for the first commercial planting of dates. His date grove was located just outside of Mecca, California to the east. A historical marker commemorates the site at the corner of National

5. The site of the Southern Pacific train depot was located at Jackson Street and the railroad tracks. This Southern Pacific Depot Clubhouse and Restaurant building was erected by the Southern Pacific Railroad in the 1880's. It was the first permanent building built in the Coachella or Imperial Valleys. It had sleeping quarters for the railroad crew as well as a hotel for guests above the depot and dining area on the ground floor (CVCWD, 1978, p. 12), (DSUSD, 1991, p. 18).

Funding Technology

Although some people would not like to see technology in the classroom, others are willing to try various avenues to fund such purchases. The availability of technology in education is closely tied to public policy. Educators should be involved in helping set regulatory issues within government agencies towards educational funding for technology. In order to be effective in creating policy, educators should attend the meetings of government agencies with a vision of what should be included to create equal technological access to promote high-quality educational practices. This vision gives the educator goals with which to address policy makers on an informed basis to help
One of the greatest resources for schools are the parents of the community. A local population who is learning and using the technology would be inclined to help get funding for technology in the schools. Technology is seen by many people to be a solution to the problem of equal access to education for all children through connection and use of the Internet. Even President Clinton is urging the purchase and use of technology in education. He has been heard to remark that he would like to see every classroom in America connected to the Internet by the year 2000 (Changing the way we learn, 1996).

**Technical Aspects and Program Design**

Krushenisky (1996) writes that the main concern with technology equipment is obsolescence. She reports that a computer system will become out of date within a few months. Before thinking too much about the equipment cautions Krushenisky, figure out what the equipment is to do, find software that supports the tasks to be done, and leaves enough room on the system to expand its capabilities in the future.

The learning situation imposes constrains upon the equipment which can be used writes Gagne and Briggs (1979).
The authors report that media which provides the most effective learning for the audience should be employed. In order to select appropriate media for the intended learning situations, the following features need to be considered:

1. Communications to the learner delivered by the teacher (instructor) versus communications delivered via media for self-instruction.

2. Learners possessing sufficient verbal comprehension ability to comprehend printed communications versus learners who have insufficient verbal comprehension ability.

3. Communications delivered directly to the learner or learners versus communications broadcast from a central station.

4. The performance to be learned is such that errors are serious versus performances whose potential errors are not serious (p. 207).

Traynor (1996) writes that programmers and designers of many computer-assisted instruction materials are not successful teaching tools because they have failed to incorporate many key components to help students become successful in integrating knowledge. As a result, he recommends that teachers write their own programs using authoring software. The teaching/learning modules created
by a teacher can illustrate concepts that would be difficult to convey to students verbally or on the chalkboard.

Traynor (1996) included in his article an outline of key elements of effective instruction which successful teachers use to put instructional theory into practice. These elements begin with an anticipatory set, progress to the instruction, provide guided practice, move on to closure, and finish with independent practice.

Scholten and Whitmer (1996) are involved in using authoring software with students as a tool for students to showcase their work. Part of their research questioned whether the use of hypermedia improved the overall learning or were the students caught up in the learning process despite the hypermedia. Their initial findings suggest that “students can be engaged in learning about their topics as well as the technology they are using” (p. 59). Another observation about the learning and technology came as students collaborated throughout the authoring and designing process. Students became more knowledgeable about their own topics as well as those of their classmates. The students were deeply engrossed in the learning, researching, and sharing process in their classroom and with their classmates. The authors emphasized to their students how each component from the different study groups would fit
into the total project rather than focusing on the technology involved. Students felt the importance of their work while gaining knowledge on a wide variety of subjects.

Research into the use of color in designing instructional media has been done. It has been found that learning does not improve with the introduction of color to formerly black and white media, but that learners prefer the color media. Color does have positive affects on attention and when used for search tasks, it can prove valuable. Color can help increase retention. Despite culture, color are often associated with meanings to people. Most people associate the blue end of the color spectrum with cool and the red with warm. Designers need to take into account that many persons are color deficient to some extent which means that careful choice of color will make the program better for any person by contrasting the objects with the background appropriately. Solid colors in the background are more effective when the presentations are multi-colored. Many people prefer blue or cyan as backgrounds for light text color. The results of this research has suggested that presentation materials:

-Use a maximum of four to six colors per screen.
-Be consistent in general color choices throughout a program or program section. Be especially careful to
be consistent in color coding.
- Use color to link logically related information.
- Avoid combinations of complementary colors that are the same value, such as blue/orange, red/green, and violet/yellow unless used with extreme discretion.
- Use brighter colors for the most important information.
- Use color to highlight errors.
- Use a range of grays to provide a neutral background for two or three other colors.
- Use commonplace color coding, such as red for stop, green for go, and so forth, but research cultural characteristics for color use if designing for cultures other than one's own.
- Use significant brightness contrast between text color and background color to increase readability (Pett & Wilson, 1996, p. 29).

When developing software, it is good to keep in mind criteria for use in educational programs. The software must be well researched to be accurate for students. It needs to be appropriate for the curriculum as well as for the targeted age of the students it is expected to reach. The program needs to be challenging students to work in skills developing independent thinking, critical thinking, problem-
solving, and creativity. It needs to be an interactive program which responds to the needs of the students at their pace and learning level. Children need to feel that they have accomplished something from working the program. The program needs to incorporate a management system for record keeping that will accommodate a large number of students. It needs to have helpful features for guiding children and teachers through the program’s curriculum. The program needs to avoid stereotyping and negative cultural messages while using appropriate elements within the instruction. A program which is easy to enter, to use, and to exit will be used more than other programs which are not user friendly. The program which is easy to use with the equipment and is free from troubleshooting problems is a key feature for continued use. The cost of the software and technical support which comes with it is a consideration to be made by educators (The right stuff, 1995).

Finally, in considering what products to use or make for classrooms, instructional designers need to be aware that there is more than one method to create good educational materials for the curriculum. There is room for both the rational view of design which emphasizes the content as well as the creative view of design which emphasizes the design itself as an art form. Perhaps the
best design is one which matches the learning style or needs of the student (Rowland, Parra, & Basinet, 1994).

Conclusion

The research shows that the target age group of this project is ready to learn concepts regarding time. This age group realizes that their existence is preceded by other people and events as well as being aware that there will be other people and events in the future.

Since these children may come to the classroom with various learning styles and diverse needs, the program written includes written as well as visual and audio clues to learn the information provided in the lesson material. The program is translated into Spanish since that is the most predominant language besides English in the Coachella Valley. The program is a multimedia lesson on historical sites in the Coachella Valley which takes into account the studies that have shown that technology improves students' attitudes about learning, yet the technology is not an end in itself. The program has been designed to deepen conceptual understandings and enrich educational lessons about Coachella Valley history.

As far as the technical aspects are concerned, the program itself needs to be accurate and appropriate for the targeted age group. It needs to be user friendly for both
adults and children, free from troubleshooting problems, and pleasant to the user. The best match between learning styles, content, and creative design has been sought for this program.
CHAPTER THREE
STATEMENT OF OBJECTIVES

Project Objective

The objective of this project is to design and develop a HyperStudio multimedia experience for third grade students studying various historical sites in the Coachella Valley as part of their History-Social Science curriculum by using pictures taken with a digital camera or scanned into the computer as well as written and audio commentary on each site captured for study in both English and Spanish. This is in an effort to provide for the diversity of students in the Desert Sands Unified School District. By using a multimedia experience, various learning styles of students will be accommodated as well as enriching the lesson materials.

The project will provide access to the History-Social Science curriculum in English and Spanish to third grade students to deepen conceptual understandings, learning, and comprehension. The project provides information about some of the historical sites in the Coachella Valley for students when transportation to these sites is not available as a field trip study. The program has a map to graphically point out the site as well as information about the site in
word and pictures. Audio is included for the student who may have difficulty reading the material provided.

Objectives of the Project

After using the HyperStudio multimedia material, the students will be able to:

1) Describe five historical sites in the Coachella Valley in English or Spanish.

2) Locate the five historical sites using a map of the Coachella Valley.

3) Select a historical site to report to their peers.

It is hoped that this project will serve as a launching point from which to develop information about other historical sites as well as find out more about the sites or people mentioned in the project. It is designed to be a springboard into other historical studies for the third grade curriculum.
Description of the Project

"There and Back Again in the Coachella Valley: A Multimedia Presentation on Historical Sites in the Coachella Valley" [TBACV] is a computer-based multimedia program designed to help implement the State of California framework for third grade History-Social Sciences curriculum studies of Continuity and Change. TBACV specifically addresses part of the curriculum unit for study of "Our Local History: Discovering Our Past and Our Traditions." This curriculum document goes on to point out that many children have never visited historical sites within their community (CDE, 1988, p. 32, 41).

In view of the documentation, TBACV was produced to provide students with ideas of places to physically visit within the community, engender enthusiasm for the study of local history, and provide a simulated field trip experience to as many places as possible as school funding does not provide access to all these sites through the real field trip experience. The project also gives students an idea of what to look for in the event that their family decides to take a field trip to identify various historical sites in the area.
As stated previously in the review of research literature in Chapter Two, third grade students are at an age in their learning experiences to be able to understand the world around them outside their immediate homes. They are ready to discover the world in which they live, both present and past. Since research also shows that children learn in many ways, TBACV tries to provide for those learning styles using the written word for the linguistic learner, using the spoken word for the audio learner, and by providing pictures for the visual learner.

TBACV is divided into two equivalent parts (See Figure 1) beginning with a selection screen for selecting an English or Spanish version. English and Spanish languages are used in the project because the Coachella Valley has such a high ratio of both languages represented among the student population within the three school districts in the area.

From the initial selection of language preference, TBACV advances through a main title screen and a subtitle screen. The user is there presented with four choices 1) to go through the program credits; 2) to go directly to the Main Menu; 3) to change the language of choice; or 4) to exit the program. The arrow pointing to the left of the screen will take the user back to the title screens while
Figure 1. Program flow chart

the right pointing arrow will take the user to an introduction screen. The introduction screen describes what the program is about, as well as gives the functions of the various buttons used within the program. These buttons allow the user to proceed through the program in a non-linear fashion, according to the user’s choice.

The Main Menu screen allows users to proceed at their own pace as well as view information in any sequence. For content, there are six menu items (five historical sites plus a map) to choose from: 1) birthplace of first settlers’ child; 2) bell from the first school building; 3) Smiley
Place or Coachella Valley Historical Museum; 4) marker for the first commercial date grove; 5) site of the Southern Pacific Train Depot; and finally, a map of the Coachella Valley showing the five historical sites. The Main Menu screen (see Figure 2) includes text names with each icon for user clarification.

![Main Menu Screen](image)

**Figure 2.** Main Menu screen

From the Main Menu, the user may select to go to the historical sites directly or may select to see the map first and go the historical sites from there. Each historical site provides text information about the historical significance of that particular place. Visuals include
photographs related to the historical site. Each site also contains an audio version of the information. This was recorded for the benefit of students who have challenges with reading, are in a transitional phase between languages, or learn better orally rather than through the written word.

The Main Menu in the English and Spanish versions of the program is similar except for the language used. The graphics, buttons, and screen set-up match for both languages except for the historical information provided in the written and oral form.

If the user prefers to use the map first, the map button on the Main Menu brings the user to the map screen. The Map screen (see Figure 3) shows an area map where the five historical sites are located. It provides information regarding the location of each site in a graphic form.

Direct access to each historical site is provided on the Main Menu. The historical site to be accessed is done through the button which contains the icon and title of the historical site. The icon and title carry over to the top of the historical site page screen creating a consistency in the project. The site page gives information about the historical site along with a current picture showing the site. When it is available, a picture showing the site as it was in years gone by is included. (See Appendix C for
Figure 3. Map screen

consent documentation to use the Coachella Valley’s Water District materials.) Buttons at the bottom of the page connect the user back to the Main Menu, to the next page, back to a former page, to listen to the information on the page in the given language, to go to the other language version of the program for the same page, or to exit the program (see Figure 4).

The program was done in HyperStudio to accommodate the graphics, sound, and pictures used within the pages. A compact disk version is available. Since the graphics, sound, and pictures used would make the program lengthy to
This school bell from the top of the first school building built in the Coachella Valley is currently mounted on a concrete stand in front of the Desert Sands Unified School District Offices at 47-950 Dune Palms Drive in La Quinta. Until the adobe brick school was built in 1897, in Indio, California, classes were being held in a tent east of the railroad station.

Figure 4. A sample site page download from the Internet, the CD format is the only version of the program available at this time. (See Appendix D for program CD in holder).

Instructional Design

Since the program is expected to be used for instructional purposes as well as student exploration, the design of the program needed to be simple and consistent. Even though the credit and introduction screens are important parts of the overall program design, those components are mainly informative and do not support the
project's instructional goals. Therefore, those particular screens may be skipped at the discretion of the user.

Historical sites were chosen in consideration of their relevance and potential in increasing student's interest for the lesson. For example, as children, users are expected to relate more and express strong interest in a historical site related to the first settler's child.

Another criterion in the selection of historical sites was their significance in the local history of the area. The first permanent building in the Coachella or Imperial Valleys was the train station built by the Southern Pacific Railroad. The Southern Pacific Railroad designated its stops all along a specific route, named those stops, and maintained the sites. Many of these sites have become the towns and cities known throughout the Coachella Valley even though the railroad is not as prominent in the lives of the residents of the Coachella Valley today.

Educators learn early in their career to relate the learning back to what students already know. Hence, the school bell from the first school building in the Coachella Valley is relevant because students are in school learning about their past.

Each year, the Riverside County Fair grounds opens its gates in mid-February to celebrate "The International Date
Festival." It has been an important annual event for over fifty years. It is held in the Coachella Valley to commemorate the farming done in the valley. To emphasize this, the marker for the first commercial date grove was chosen.

Finally, the historical site is Smiley Place was included for its role as a field trip site for students in the third grade. It is the historical museum which houses of the history of the Coachella Valley. The museum’s collections include pictures, clothing, furniture, train memorabilia, date growing information, water channeling history, Native American information, and other items of historical value both big and small. A trip to this museum during the school year is part of the third graders' course of study.

Instructional screens were prepared on each of the five sites with written text to accompany pictures and graphics. Users see the graphics, icons, and pictures in a visual arrangement about the site for learners who need those visual clues. Users who are challenged by the written script may choose the cassette tape icon at the bottom of the screen to listen to the text. The linguist, visual, and auditory cues allow for diversity in learners as well as acceptance of different learning styles as much as possible.
TBACV is interactive with its audio in conjunction with the written text. It allows students to move between English and Spanish versions without having to go back to the Main Menu of either section. This allows for ease of movement while the child is learning the material. Since the audio is in both languages, the child can listen to both languages for maximum understanding. There is no limit on how long or how often screens are used so that it is user driven at their learning pace.

Navigation and Screen Design

Each screen within TBACV was designed to communicate with the learner. The visual clues on each screen are the matching icon from the Main Menu as well as the title. Other visuals include the picture of the historical site or item. Dominating each page is the written text which is to give the learner linguistic clues about the site. Finally, each screen contains the auditory part of the written text for understanding and communication. The background, colors, and borders used on each screen are to enhance the program and not overwhelm or detract from the program.

TBACV was designed to be user friendly. The screens for both language versions of the program were kept similar so that navigation between the screens would not be confusing. The buttons function the same way in both
versions of TBACV. The same is true for the pictures, graphics, and icons that were used. This attention to detail helps the limited language students to learn the information in both languages an cuts down on confusion for the learner. It allows for students who are versed in both languages to feel free to move between the screens within the text they are most familiar or prefer at the moment.

Part of the user-friendly features of TBACV is the consistency of the program. The historical site from one version of the program matches the other version of the program except for the language usage. Icons for the various historical sites were used on each page appropriate to that sites. For example, the baby icon was used on the Main Menu page to announce the historical site. That same baby icon was used on the map screen showing the area in which the first settlers' child was born. The baby icon appears, again, on the screen which details that historical site. This consistency allows the users some graphic clues between one screen and another.

Each screen was developed with this same consistency in mind. Each screen contains a colored background with borders appropriate to that screen. Each screen is headed with the icon of the historical site along with the written title of the site. Pictures are place along the left,
Figure 5. Sample screen design in HyperStudio

right, or both sides to accommodate the written text (See Figure 5). The pictures are identified in small type on each page so as not to detract from the main information on the page. The historical information was garnered from books and pamphlets sold by the Coachella Valley Historical Society at the Museum. The set up of each screen is the same between versions as well as within each version.

The photographs and text are presented to provide equal emphasis. Since photographs catch attention easily, the size used was enough to show the picture, but not too big to dwarf the text. The text, on the other hand was presented
following the normal "sweep" of eye moment for reading left to right and was placed on the most prominent areas of the screen.

Formative Evaluation

To evaluate the effectiveness of the design and content of this project, TBACV was installed on a computer at T. Roosevelt Elementary School. The formative evaluation process was done with approval from the IRB Board of California State University, San Bernardino (See Appendix E). Three teachers involved with third grade students, one principal, and a computer aide agreed to serve as evaluators. One of those teacher-evaluators helped write the Coachella Valley Social Science-History unit for Desert Sands Unified School District based on the California Social Science-History framework. Two of the teacher-evaluators have had little computer experience while the other evaluators have a lot of exposure to various computer programs. The principal and computer aide are bilingual in English and Spanish. The aide is working towards an elementary education degree by going to school in the evenings.

The evaluators were informed of the location to view the program and encouraged to drop in anytime during a week's span to evaluate the program. Upon arrival, they
were presented with two copies of the Consent Form (See Appendix F). They were asked to read it over, sign both copies, and return one copy to the investigator while they kept the second copy for their personal files. The evaluators were then presented with a copy of the “Software Evaluation Sheet” (See Appendix G), and asked to read it before going through the program so they would know what they needed to look for to complete the evaluation.

After finishing TBACV, each evaluator completed the evaluation sheet, were asked if they had any further comments on the program, and the comments were noted. They were thanked as they turned in the evaluations and left the room.

The comments and evaluations were beneficial. Each of the teacher-evaluators strongly agreed that the program contains beneficial information that they would like to use in their classroom. Each evaluator felt that the program was appealing, informational, and easy to navigate. The principal and aide who are bilingual were impressed that TBACV was done in both English and Spanish languages. Each evaluator agreed that the program was an appropriate way to present this information; the sound, graphics and icons have instructional value; and the screens are aesthetic or pleasing to the eye. Each agreed that the text is easy to
read and that the information is easy to understand and apply as well as beneficial to the teaching and learning of the third grade curriculum on this topic. However, the program was not free of defects or glitches. One of the buttons did not return to the screen designated, but has since been corrected.

The evaluators’ comments were positive and their recommendations were useful. One suggested that the Main Menu items be numbered to correlate the audio with the written information. Another suggestion was the desire to see this program expanded. The first bilingual evaluator helped with grammatical changes that needed to be made in the written text of the Spanish version of the program.

After examining the results, revisions were made to TBACV including the correction of spelling errors and inaccurate button navigation. Care was taken to make sure every button would take the user to the intended screen. Buttons circumventing the credits screens were added as well as an introductory screen for newer computer users. Instructions for choosing the language version desired for the program were added to the first screen. However, no attempt to number the various parts of the program on the Main Menu was made because reading left to right is the way
children are taught to read. The audio reads the written information left to right.

Strengths and Limitations of the Project

One of the strengths of TBACV is its versions in both English and Spanish. The Coachella Valley area schools have many students who are instructed in English by the third grade, but still need support in their native language. Since the largest population with English as a second language is Spanish, that language was chosen for this bilingual program. By helping students receive instruction in as many ways as possible, the learning experience is enhanced and deepened. This is one of the strengths of TBACV.

Not only does the program address a dual language situation, it address different types of learners. According to the theory of Multiple Intelligences reviewed in Chapter Two, teaching and learning are enhanced when a student receives instruction in their particular intellectual strength. This program would address the linguistic learner who can be taught through the written word. The Visual learner can pick up contextual clues from the icons, graphics, the map, and pictures used consistently throughout the program. All the written instruction is
voiced so that an Auditory learner can gain maximum opportunities to learn during the program.

Even though several different learning styles are accommodated within the program, not all instructional strategies are used. The program could be improved by providing for these other differences as well.

Another program enhancement would be to change HyperStudio to allow for larger screens. With a larger screen frame, the layout could be improved with better spacing and less crowded conditions between pictures and written information.

To improve correlation between the written word and auditory sound, the writing could be highlighted as the words are pronounced. Even though this is not a reading program, reading strategies can be demonstrated with the text in a kind of across the curriculum lesson. The highlighted text would keep up with the audio showing the left to right reading strategy. This highlighting of each word as it is spoken could help students who are learning diction and grammar.

One other limitation of the program which was mentioned by one evaluator is that this program only covers historical sites. The history of the Coachella Valley must needs be told by the sites as well as anecdotal stories of the people
who settled here as well as events which helped to shape the settling of the area.

Recommendations for Future Projects

TBACV could be improved to eliminate some of the limitations of the program. Other learning styles could be assessed and included in the program to enhance the learning of more students. The written and spoken work could be correlated with highlighting the written text as the spoken version is being played.

TBACV could be expanded to include other historical sites (such as the ghost town of Arabia); important historical events (such as the story behind "burning up the road"); and famous people (like Dr. Smiley for whom the Museum is named, who settled the area). The program can also be expanded to include the broader area of Riverside County.

A future project can also include a "virtual" museum of artifacts from long ago that are not in use today, but were used by the early settlers in the Coachella Valley area. The local museum would be a big help in collecting data and pictures in this part of the program. The program in turn will help the museum in displaying the artifacts. The museum changes their displays several times a year in order to display other items which they have stored in their
vaults in the basement. A computer program would allow for a year-round and wider display, second hand of course, of the articles of yesteryear.

Coachella Valley Historical Society’s compilation of booklets dealing with various aspects of the history of this area would be interesting for student exploration. These booklets over the past few years have covered subjects such as famous women of the area, historical fires, trains and their contributions to the Coachella Valley, etc. A database project on these booklets would permit a wider distribution of and more references for historical information and research about the Coachella Valley.
Appendix A

Consent letter from Desert Sands Unified School District to use their lesson materials
April 23, 1998

RE: Lani S. Ray
79-231 Avenue 42, #B
Bermuda Dunes, CA 92201-8005
(760) 360-5450
Roosevelt School, (760) 775-3860

TO WHOM IT MAY CONCERN:

This letter of consent is awarded to Lani S. Ray, Teacher, in the pursuit of her Master's Project for California State University, San Bernardino. She has permission to use the Desert Sands Unified School District guidelines and lesson materials written for Third Grade students in Social Science-History within her project.

Sincerely,

Darlene Dolan
Assistant Superintendent
Educational Services

DD:br

cc: Personnel
Appendix B

Sample classroom lesson materials
LESSON TWO

LESSON TITLE: Learning About the Place We Live

GRADE: 3

INTRODUCTION;

Students will have a clear understanding of the physical and cultural factors that make the Coachella Valley and California special places.

TIME REQUIRED: One class period

MATERIALS:

1. Textbook - From Sea to Shining Sea, Chapter three, lesson two, Pg. 51-55, and Physical Map, Pg. 238-239.


3. Teacher-Student information sheets "The Place We Live" and "Coachella Valley Physical Features."

4. Drawing paper and crayons.

GOALS AND STRANDS:

See unit goals and strands 1-a, b, 2-a, b, c,

VOCABULARY:

Agriculture, resort, unique, retail, hub, cove, annual.

INSTRUCTIONAL FORMAT:

Teacher preparation: Read and review information and xerox information sheet.

1. Review what students know about deserts.

2. Read and discuss textbook pages 51-55

3. Find Coachella Valley on Physical Map in textbook on pages 238-239. Transparency number 8 may also be used.
PLACES TO VISIT
IN AND AROUND INDIO

1. School bell - from the tower of the first school building in the Coachella Valley. The first students went to a tent school. The first school building was made of adobe bricks. The school bell is in front of the Desert Sands Unified School District Offices located at 82-879 Highway 111 in Indio.

2. Indian Fish Traps - These are circular rock structures near the end of Jackson and Avenue 60, below the shore of Ancient Lake Cahuilla. The traps were built by the early Indians when the Colorado River flowed into the Salton Sink. The mark of the shore line shows along the western foothills.

3. Indio Depot and Tingman's store - The depot is located at Jackson and the railroad tracks. It was originally built by the Southern Pacific Railroad which played an important role in the development of the Coachella Valley. A.G. Tingman's store was south and west of the depot on Fargo Street. Tingman was the first station agent, the first postmaster, and the man who laid out the first Indio town site.

4. Site of the first school in Indio - on the north-west corner of Fargo and Bliss.

5. Site where the first white child was born - Towne Street south of Miles about where the Southern California Gas Company is located. Cinderella Courtney was born in 1898.
How People Changed Coachella Valley and California

What if people had never lived here in the Coachella Valley? What would the area look like? It would be only desert.

The first people were the Cahuilla Indians. They made very little change in the environment other than digging wells to find water. The Indians adapted to the environment.

The first settlers began changing the desert by building railroads, planting crops, digging wells, and building permanent homes. Later, as the area began to grow, more water was needed to grow the date palms and other crops. Water was brought from the Colorado River in irrigation canals.

Through the last one hundred years as more people came to the Coachella Valley, the land has evolved from desert to farmland, towns, and recreation areas. None of these changes could have happened if water had not been found beneath the desert floor.

The Coachella Valley is a good place to live and work for many reasons. It is located on a major interstate highway, U.S. 10. It is close to the mountains, ocean, and the cities of Los Angeles and San Diego. The climate also brings many people to the valley. The year-around average daily temperature is about 88 degrees, and humidity usually runs about 20 per cent. The tourism industry provides many jobs in addition to those provided by business, industry, and agriculture.

California is now a good place to live and work because it is such a diverse state. You can choose to live in the desert, mountains, by the ocean, or in a valley. You can live in a large city such as Los Angeles, or a small town such as Indio. There are jobs in almost every area of business and industry. You can find all kinds of sports and recreational activities in the "Golden State" of California.

The state of California has also been changed by people. People built towns, farmed the land, dammed the rivers, built irrigation canals, railroads, airports, highways, and bridges. Wherever people build, they change the natural environment. We are learning that not all changes improve the quality of our lives. We are now facing problems with air and water pollution. People are working to find solutions to these problems so that California will remain a good place to live and work.
Appendix C

Consent information from Coachella Valley Water District's publication "Coachella Valley's Golden Years"
Appendix D

Program CD in holder
Appendix E

IRB Approval Letter
April 10, 1998

Lani Ray
c/o Dr. Rowena Santiago
Department of Science, Mathematics and Technology Education
California State University
5500 University Parkway
San Bernardino, California 92407

Dear Ms. Ray:

Your application to use human subjects in research, titled, “There and Back Again in the Coachella Valley: a Multimedia Presentation on Historical Sites in the Coachella Valley” has been reviewed by the Institutional Review Board (IRB). Your application has been approved. Your informed consent statement should contain a statement that reads, “This research has been reviewed and approved by the Institutional Review Board of California State University, San Bernardino.”

Please notify the IRB if any substantive changes are made in your research prospectus and/or any unanticipated risks to subjects arise. If your project lasts longer than one year, you must reapply for approval at the end of each year. You are required to keep copies of the informed consent forms and data for at least three years.

If you have any questions regarding the IRB decision, please contact Lynn Douglass, IRB Secretary. Ms. Douglass can be reached by phone at (909) 880-5027, by fax at (909) 880-7028, or by email at ldouglass@wiley.csusb.edu. Please include your application identification number (above) in all correspondence.

Best of luck with your research.

Sincerely,

Joseph Lovett, Chair
Institutional Review Board

cc: Rowena Santiago, Science, Math & Tech Education

5500 University Parkway, San Bernardino, CA 92407-2397
Appendix F

Consent Form
CONSENT FORM

I, __________________________, agree to participate in the evaluation of the Social Studies program entitled "There and Back Again in the Coachella Valley: A Multimedia Presentation on Historical Sites in the Coachella Valley" which is being conducted by Lani S. Ray. I understand that this participation is entirely voluntary; I can withdraw my consent at any time without penalty and have the results of the participation, to the extent that it can be identified as mine, returned to me, removed from the records, or destroyed.

The following has been explained to me:

1. The reason for the research is to evaluate the effectiveness of the program "There and Back Again in the Coachella Valley." The benefit I may expect from participating is that I may learn more about this portion of the third grade curriculum.

2. The procedure I will be involved in includes going through the program, answering written and oral questions about the effectiveness of the program, and suggesting improvements.

3. This participation will involve no risks of any kind.

4. The results of this participation will remain confidential, and will not be released in any individually identifiable form without my prior consent, unless required by law. The only personal information I need to supply the investigator is my current teaching position or age. Any other information will be given on a voluntary basis.

5. The investigator will answer any further questions about the study either now, or during the course of the investigation.

Signature of Participant __________________________ Signature of Investigator __________________________

Date: __/__/__

PLEASE SIGN BOTH COPIES OF THIS FORM. KEEP ONE, AND RETURN THE OTHER TO THE INVESTIGATOR.
Appendix G

Evaluation Form
Formative Evaluation
of
"There and Back Again in the Coachella Valley: A Multimedia Presentation on Historical Sites in the Coachella Valley"

PLEASE CIRCLE THE APPROPRIATE NUMBER

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>The purpose of this program is apparent.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>This program contains information that is beneficial.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>The information is easy to understand and apply.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>This program is an appropriate way to present this information.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>It is easy to navigate through the program.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>The sound, graphics, and icons have instructional value.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>The screens are aesthetic or pleasing to the eye.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>The general text is easy to read.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>This program is free of defects and glitches.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>I would recommend this program to others.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

Suggestions and/or Comments:
REFERENCES


