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Multimedia as a tool for learning: The design & development of a Hyperstudio project on the celebration of Chicano culture

Kathy Elliott Markos

MULTIMEDIA AS A TOOL FOR LEARNING:

THE DESIGN & DEVELOPMENT OF A HYPERSTUDIO PROJECT

ON THE CELEBRATION OF CHICANO CULTURE

A Project

Presented to the

Faculty of

California State University,

San Bernardino

In Partial Fulfillment

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Master of Arts

in Education:

Instructional Technology

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ABSTRACT

This project was intended to demonstrate how multimedia can be utilized to differentiate instruction in order to meet the diverse needs of all students, and educate teacher credential candidates about cultural awareness and acceptance.

Not all students learn in the same way, so teachers must vary methodologies employed in the classroom to meet the needs of all students to ensure success for all students. Teachers must create lessons with multiple paths, allowing students of different abilities, language levels, and learning needs to experience equally appropriate ways to learn successfully. This project served as a model for how multimedia can be used to differentiate instruction and address multiple learning styles.

Another concern of this project is the lack of existing multimedia programs aligned to the state curriculum standards, due to the vast and ever-changing curriculum. Since teachers are experts in curriculum knowledge and pedagogy of designing meaningful lessons, teachers are best suited to create multimedia instructional programs.

In addition, the state of California mandates that all candidates in the teacher credentialing program demonstrate knowledge and competency in Cross-Cultural, Language and Academic Development (CLAD). This project was developed and presented to teacher credentialing candidates in order to provide cultural information and awareness, as a part of their CLAD training.

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DEDICATION

To children of all cultures and the teachers

who teach them.

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CHAPTER ONE

BACKGROUND

Introduction

Not all students learn in the same way. Therefore, teachers need to differentiate instruction if all students are to learn successfully. Teachers must vary methodologies employed in the classroom to meet the individual needs of all students. Multimedia can be used as an effective tool to differentiate instruction and address the diverse learning styles of all students.

Differentiating instruction means creating multiple paths so that students of different abilities, language levels, and learning needs experience equally appropriate ways to absorb, use, develop, and present concepts as a part of the daily learning experiences. It allows students to take greater responsibility and ownership for their own learning, and provides opportunities for peer teaching and cooperative learning.

A powerful and effective way to differentiate instruction is to incorporate the multiple intelligences into the lessons. The theory of Multiple Intelligences was developed in 1983 by Dr. Howard Gardner, professor of

education at Harvard University. Gardner asserts the traditional concept of intelligence, based on Intelligence Quotient (IQ) testing, is far too limited. In this traditional view, intelligence is defined operationally as the ability to answer items on a test of intelligence. Gardner proposes eight different intelligences to account for a broader range of human potential (Gardner, 1983).

Teachers are challenged to meet the diverse needs of their students' learning styles, and multimedia can be employed to resolve this challenge. With multimedia instruction, students can receive multi-sensory information through sight, sound, touch, smell and taste (Townsend & Townsend, 1992). Multimedia empowers teachers to offer a broader range of learning experiences, which address the diverse learning styles of their students.

Multimedia addresses the multiple intelligences by providing graphics, sound, music, animation, and video. Students with visual/spatial intelligence tend to think in pictures and need to create vivid mental images to retain information (Gardner, 1993). They are drawn to information that is presented in a visual form. The

graphics, animations and videos of multimedia fulfill this need. Visual learners also benefit from how multimedia allows them to create and manipulate images, charts and graphs.

Students of verbal/linguistic intelligence have highly developed auditory skills and are generally elegant speakers. They think in words rather than pictures (Gardner, 1983). Verbal/linguistic learners benefit from reading and writing text in multimedia instruction.

Students with logical/mathematical intelligence think conceptually in logical and numerical patterns making connections between pieces of information (Gardner, 1983). Logical/mathematical learners value the graphs and charts, in addition to creating and programming the buttons that navigate through the multimedia program.

Bodily/kinesthetic learners are able to control body movements and handle objects skillfully. They express themselves through movement, and learn by interacting with the space around them (Gardner, 1983). Bodily/kinesthetic learners benefit from the animation, video, and interactivity with the program and mouse.

Learners of musical/rhythmic intelligence immediately respond to music, and think sounds, rhythms and patterns (Gardner, 1983). They have the ability to produce and appreciate music. Students with musical intelligence engage in learning from the sounds and music of multimedia.

Students with interpersonal intelligence relate and understand others. They try to see things from other people's point of view in order to understand how they think and feel. These learners have a remarkable ability to sense feelings, intentions and motivations of others (Gardner, 1993). In multimedia group projects, interpersonal learners do very well as group leaders because they encourage cooperation and open communication channels among group members.

Intrapersonal learners recognize their own strengths and weaknesses, reflecting and analyzing themselves. They have a keen awareness of their inner feelings, desires and dreams, and understanding their role in relationship to others (Gardner, 1993). Students of intrapersonal intelligence excel in the role of a researcher in cooperative multimedia groups.

Learners of naturalist intelligence are able to recognize, categorize and draw upon certain features of the environment. They see the subtle meanings and patterns in nature and the world around them (Gardner, 2000). Students of naturalist intelligence learn best through interactions with the environment. Multimedia allows for images and video of the outdoor environment to be included in instructional materials, which enhances the naturalist's learning.

In addition to being an effective tool to differentiate instruction, multimedia can be utilized to create lessons aligned to state curriculum standards. Due to the vastness and constant change of the curriculum, a deficit of effective multimedia programs aligned with the curriculum exists.

Multimedia can also be used to reduce the amount of equipment needed for a lesson. A multimedia project contains graphics, video, text, sound and music that can be presented all on a single laptop computer. This eliminates the need for additional equipment, including a laser player, monitor, music CD player, slide projector, and VCR player. As a result, fewer problems with equipment and cables exist.

Statement of the Problem

Due to the vastness and constant change of the curriculum, there is a lack of multimedia programs that align with the curriculum. Every few years, there is a new textbook adoption, and publishers try to include multimedia technologies in their adoption. However, their attempts have been limited at best.

Furthermore, software programmers that create the multimedia programs for publishers and software companies are not educators. They lack the pedagogical knowledge and the understanding of how students "learn." Teachers in the classroom are best suited to design quality instructional multimedia programs that are aligned with the state adopted curriculum. Due to the lack of "good" multimedia instructional materials, teachers must be empowered in the knowledge of how to design lessons incorporating multimedia. With the advent of powerful multimedia development tools and software, teachers have the resources to create meaningful instructional materials with relative ease.

In addition, the state of California requires all candidates in the teacher credentialing program to demonstrate knowledge and competency in cross-cultural,

language and academic development. This requirement ensures that all students, including English language learners, have equal access to the curriculum and success in meeting the state curriculum standards.

Purpose of the Project

The purpose of the project is twofold. The first purpose was to develop a multimedia project to provide knowledge of the Chicano culture for students in the teacher credentialing program as a part of their cross-cultural, language and academic development knowledge.

The second purpose of the project was to create a multimedia program as an example of how multimedia can be used as an effective tool to differentiate instruction and to address the diverse learning styles of all students. The project features artwork and music presented in a multimedia format to address the multiple intelligences.

Significance of the Project

The significance of the project was due to the lack of multimedia instructional materials aligned to the state curriculum standards and the lack of multimedia

instructional materials for cross-cultural, language and academic development courses.

In order to meet state curriculum standards for all students, teachers must differentiate instruction. Multimedia can be used as a powerful tool to differentiate instruction and address the diverse learning styles of all students.

If a picture is worth a thousand words, what is the value of pictures, text, music, sounds and animations incorporated together? In a classroom, the answer is priceless. Multimedia allows the teacher to deliver differentiated instruction with graphics, text, music, sounds and animations to address the needs of each student.

Incorporating a Chicano artist's illustrations of his culture with authentic music, text, and video clips is a powerful means of teaching about the Chicano culture in a multi-sensory medium.

Limitations

During the development of the project, a number of limitations were noted. These limitations are the following:

1. Classroom teachers may be limited in their ability to create multimedia instructional materials due to the availability of computers and the required equipment.
2. Teachers may lack the technology skills necessary to create a multimedia project. In order for teachers to acquire the necessary skills, training must be provided, which is dependent on funding and time.

Definition of Terms

The following terms are defined as they apply to the project:

Biopsychological: the psychological school of thought based on the premise that body or bodily function influences and factors are the most important factors in developing, determining, and causing behaviors and mental processes

Cross-Cultural, Language and Academic Development (CLAD): an educational program for teacher credential candidates that prepares them for successfully teaching a diverse population of students

Differentiated Instruction: an approach to planning, so that one lesson is taught to the entire class while meeting the individual needs of each child

Learning Styles: different approaches or ways of learning

Multimedia: any combination of text, graphics, sound, animation, and video delivered by computer or other electronic means

Multiple Intelligences: the capacity to solve problems or to fashion products that are valued in one or more cultural setting, according to Howard Gardner

CHAPTER TWO

REVIEW OF THE LITERATURE

Introduction

Chapter Two consists of a discussion of the relevant literature. Specifically, types of learning styles and multiple intelligences, and the need to address the different learning styles in order to achieve success for all students are discussed. A definition of multimedia is provided, as well as examples and the advantages of how multimedia can be integrated into the curriculum.

Types of Learning Styles

Learning styles are simply different approaches or ways of learning. Since each person has his/her own perception or way of making sense of the world, there are many natural learning strengths or learning styles.

From the constructivist point of view, people make sense of their world in different ways based on prior experience. When people encounter new information, they either fit it into existing knowledge (assimilation) or create new knowledge (accommodation). Learning style has a significant influence on behavior, perception, memory, and problem solving (Fosnot, 1996).

In contrast, behaviorists define learning as nothing more than the acquisition of new behavior. It is based on the theory of animal and human learning that focuses on objectively observable behaviors and discounts mental activities.

Another learning style comes from a Swiss biologist and psychologist, Jean Piaget. Piaget's theory is based on the ideas that the developing child builds cognitive structures or "mental maps", schemes, or networked concepts for understanding and responding to physical experiences within the environment. These cognitive structures increase in sophistication with development and age. Piaget contends an individual progresses through four developmental stages: sensorimotor stage, preoperational stage, concrete operations, and formal operations (Strommen, Mc Kinney, & Fitzgerald, 1983).

Brain-based learning is yet another learning style. This theory is based on the structure and function of the brain. As long as the brain is not prohibited from fulfilling its normal processes, learning will occur.

Psychologist, Howard Gardner, suggests there are at least eight ways that people have of perceiving and understanding the world, which he refers to as multiple

intelligences. Gardner labels each of these ways a distinct "intelligence," or set of skills allowing individuals to find and resolve genuine problems they face in the world.

Howard Gardner's Multiple Intelligences

Howard Gardner defines intelligence as a biopsychological potential that is drawn on within a culture for a variety of purposes. According to Gardner, "Intelligence entails the ability to solve problems or fashion products that are of consequence in a particular cultural setting or community" (Gardner, 1993, p.15) Using biological as well as cultural research, Howard Gardner identified the following intelligences:

Logical-Mathematical

Logical-mathematical intelligence consists of the ability to analyze problems logically, carry out mathematical operations, detect patterns, reason deductively and think logically. This intelligence is most often associated with scientific and mathematical thinking.

Linguistic Intelligence

This intelligence involves sensitivity to spoken and written language, the ability to learn languages, and the capacity to use language to accomplish certain goals. Linguistic intelligence includes the ability to effectively manipulate language to express oneself rhetorically or poetically. It also allows one to use language as a means to remember information.

Spatial Intelligence

Spatial intelligence gives one the ability to manipulate and create mental images in order to solve problems. This intelligence is not limited to visual domains. Gardner found that spatial intelligence is also formed in blind children.

Musical Intelligence

Musical intelligence involves skill in the performance, composition, and appreciation of musical patterns. This intelligence encompasses the capability to recognize and compose musical pitches, tones, and rhythms. Gardner believes musical intelligence runs in an almost structural parallel to linguistic intelligence.

Bodily-Kinesthetic Intelligence

Bodily-kinesthetic intelligence entails the potential of using one's whole body or parts of the body to solve problems. It is the ability to use one's mental abilities to coordinate one's own bodily movements. This intelligence challenges the popular belief that mental and physical activity are unrelated.

Interpersonal Intelligence

Interpersonal intelligence is concerned with the capacity to understand the intentions, motivations and desires of other people. It allows people to work effectively with others.

Intrapersonal Intelligence

Intrapersonal intelligence entails the capacity to understand oneself, to appreciate one's feelings, fears and motivations. According to Gardner, it involves having an effective working model of ourselves, and the ability to utilize this information to regulate our lives.

Naturalist Intelligence

Naturalist intelligence enables a person to recognize, categorize and draw upon certain features of the environment. It combines a description of the core

ability with a characterization of the role that many cultures value.

Although there are some criticisms of Gardner's Multiple Intelligence Theory, most agree there are benefits for its use in education. Critics cite ambiguity and the lack of empirical research to support Gardner's Multiple Intelligences. Lewis Aiken (1996) contends Gardner's ideas are based more on reasoning and intuition than on the results of empirical research studies.

Another criticism of Multiple Intelligences is Gardner's claim that there is no "general" intelligence. Research has shown children who scored highly on one "intelligence" tend to score highly on some others. Critics contend this is exactly what you would expect if there was a kind of "general" intelligence, and not if there were "separate and distinct" intelligences. Robert Sternberg (2000) concluded that hard evidence for the existence of separate intelligences has yet to be produced (Sternberg & Grigorenko, 2000).

Harry Morgan (1996) argues there is sufficient evidence to suggest that the seven/eight areas of human performance, described in the Multiple Intelligence

Theory as intelligences, are more realistically cognitive styles of learning.

Most of the critics of Gardner's Multiple Intelligences Theory agree there are benefits to its use in education. Critics agree students have different strengths and weaknesses, different interests, and different ways of learning. Teaching practices based on the Multiple Intelligences cater to a wider range of students. In addition, teaching the curriculum using a variety of approaches is more interesting, and may stimulate the students' natural enthusiasm for learning (Emig, 1997).

The Need to Address Different Learning Styles

We know students learn in different ways. Therefore, teachers need to differentiate instruction if all students are to learn successfully. Differentiating instruction means creating multiple paths, so that students of different abilities, language levels, and learning needs experience equally appropriate ways to absorb, use, develop, and present concepts as a part of their daily learning experiences.

An effective classroom and school must become an environment for constructing knowledge locally, through real-world investigation; and globally, through electronic-high-way information according to D'Ignazio (1992). Education must inspire its participants to constantly learn, train, and grow through the constant editing, organizing, and sharing of knowledge across the classroom, around the school, and with parents and the local community (D'Ignazio, 1992). Educators must consider a variety of approaches to teaching, to try out alternative form of assessment--in short, to begin the fundamental kind of self-transformation that is necessary if schooling is to improve significantly (Gardner, 1994). "The multimedia classroom has arrived to replace the chalk board and overhead projector. We must rapidly prepare ourselves to use cutting edge technology if we are to keep up with our students" (Kirby, 1992, p. 53).

"Teachers are challenged to meet the needs of their students' diverse learning styles and multimedia is an invaluable tool in accomplishing this great task" (Riddle, 1995, p. 8). In planning an effective lesson, it is vital to address the different learning styles of the students. "An extremely important step when preparing to

teach is to recognize the different intellectual levels and learning needs of the learner(s), whether it is an entire class, a small group of students, or a single student" (Townsend & Townsend, 1992, p.12).

Students receive information through a combination of stimuli from their senses--seeing, hearing, smelling, touching, and tasting. According to Townsend & Townsend, learning occurs through a combination of these senses (1992). Effective teachers realize this and incorporate as many of the senses as possible in a lesson.

Although students have so many modalities by which they learn, most of the instruction given is delivered by text according to Piña and Savenye (1992). This form of instruction utilizes little of our sensory mechanisms and only a small part of the brain's capability. It also fails to address students with other learning styles. However, multimedia offers a wider range of learning experiences and sensory mechanisms, which can reach multiple styles of learners.

Some research implies that multimedia instruction should enhance student learning tremendously because studies have shown that children who have been exposed to television all of their lives develop styles of cognitive

processing of information that is fast-paced, dynamic, and multi-imaged (Pearson, Folske, Paulson, Burggraf, 1994). George A. Peterson (1994) maintains that today's students are accustomed to receiving and using information electronically. The computer, the television, and the telephone are their media. Thus, multimedia curriculum addresses this type of electronic media learner.

Multimedia offers a medium that address Gardner's multiple intelligences. The hands-on interactivity of navigating through software-based programs with a keyboard, mouse, or touch window enhances the kinesthetic intelligence. Creating and manipulating images and videos help those with visual/spatial strengths. Visual imagery in CD-ROM programs may stimulate the mental representations that students can use in the study of topics that are aligned to the curriculum. Linguistically strong students can read online stories or journal articles. Multimedia programs that incorporate sound files can improve learning for musically strong students. Logical-mathematical intelligences can be maximized using online calculators, multimedia authoring programs, or problem-solving software. Collaborating online via list

serves, chat rooms, and e-mail enhance interpersonal intelligences. Computer-assisted instruction or tutorials can maximize intrapersonal intelligences. The naturalist student can use real-time images of the natural world as a basis of study and search online for media on the natural world.

Multimedia also facilitates learning by increasing retention. Diana Oblinger (1992) reported that people retain about 20% of what they hear, 40% of what they see and hear, and 75% of what they see, hear, and do. In addition to increased retention, students completed courses in one-third of the time of traditional instruction when using multimedia instruction, with competency levels of up to 50 percent higher (Oblinger, 1992). Multimedia integrates graphics, video, audio, and interaction by the learner, thus providing the best opportunity for retention by the learner.

A Definition of Multimedia

Multimedia is a combination of various technologies, including computer text, full or still motion video, audio, graphics, and animation. It can be thought of as using a computer to provide a multisensory experience.

"When you weave together the sensual elements of multimedia -- dazzling pictures and animation, engaging sounds, compelling video clips, and raw textual information -- you can electrify the thought and action centers of people's minds" (Vaughan, 1994, p. 4). Wilson and Tally (1991) refer to multimedia as an evolving set of teaching and learning tools that, in their most sophisticated form, combine motion video images, sounds, text, and graphics in a computer-driven environment under the user's control. Multimedia has the power to transform the way teachers teach and learners learn (Oblinger, 1992).

Multimedia is characterized by the use of CD-ROMs, laser videodiscs, huge hard disk drives, outstanding loud speakers, and display units that enable audiences to get the full visual impact planned for the presentation (Smith, 1995). Multimedia is also a tool that furnishes both the needed organizational structure for teachers and an open-ended, investigative-connections environment for students. It allows information to be organized in a nonlinear way for easy access to nonsequential topics, which enables users to choose their own path through the information (Babbitt and Usnick, 1993). Wilson and Tally

(1991) also state multimedia has a "discovery orientation," which retains an open-endedness and flexibility that encourages users to play a more active role in their own learning.

Examples of How Multimedia Can Be Used in the Classroom

In an educational setting, multimedia can be utilized to enhance instruction, improve retention, evaluate performance, replace instruction, or explore new technologies. Through multimedia, students can access unlimited amounts of information and enter computer-based worlds that imitate reality (Wishnietsky, 1992). How multimedia should be used is dependent on the learning styles and needs of the students, how students learn, and what influences them (Liedtke, 1993). Multimedia systems are also motivational and dynamic tools that can foster a child's expressive and reflective skills (Sponder, 1993). With multimedia authoring, students may create productions that reflect their own lives and traditions (Milone, 1996). Thus, students are able to create their own meaning, which facilitates a richer learning experience.

Michael Murie (1993) describes the powerful use of multimedia. "If a picture is worth a thousand words, what is a movie worth? Or an animation, or a piece of music? Rather than a text-only explanation of how to assemble a bicycle, why not have a step-by-step animation that shows how all the pieces fit together, and why not enable the user to click on the animated parts to find out their part names and numbers? Similarly, an electronic encyclopedia might use many words to describe the sounds that whales make, without really communicating those sounds. Enabling the readers to click buttons to hear the sounds is a huge benefit" (Murie, 1993, p. 9)

With the use of student-created multimedia projects, students are able to demonstrate their knowledge and understanding of concepts requiring organization, elaboration and illustration. In addition, integrated media programs may be utilized to provide enriched context and anchor instruction to meaningful and concrete references (Brigham, 1994). Eileen M. Perigo (1994) stated the use of multimedia presentations in the classroom engages students more deeply in the nature and function of business and professional communication. Multimedia presentations using videodiscs can motivate

students by enlivening content material with dynamic visual representations of concepts or events. Links to material previously seen and discussed can be made to new material, thereby stimulating recall of prerequisite knowledge and making the content comprehensible (Wissick, 1992). When multimedia is used to provide learning guidance, it takes the form of tutorial programs that provide learning guidance in computer assisted instruction (CAI) programs, which include drill and practice, tutorial, and simulation. Teachers may also employ multimedia videodisc programs for direct instruction of concepts in a particular content area. Cheryl Wissick (1992), assistant professor at the University of South Carolina, reports both learning disabled and non-handicapped students, who received videodisc instruction, learned more than the students in "traditional" educational programs.

Multimedia has also been used successfully with at-risk students at Berkshire School in Canaan, New York. Students created multimedia projects with text, images, video, music, and their own narration on various topics including the Holocaust, slavery, and the Palestinian-Israeli peace talks. The Berkshire Superintendent of

Schools, John Richman (1994), believes teachers of at-risk students cannot teach by trying to deliver all the knowledge. Instead, students need to know how to get the information, how to organize, reference and structure knowledge(Richman, 1994).

At La Cueva High School in Albuquerque, New Mexico, multimedia is utilized successfully in Biology classes. One method utilized is that of an "information presenter." Bruce Muller's Biology students were presented with a teacher created interactive multimedia look at the complete biology of the frog. Miller (1993) reported that test scores were higher than in previous years and students were all very interested and attentive during the computer sessions. The second method Miller used was multimedia as an "information expander." Biology students working in small groups developed and wrote their own Biology-related multimedia projects, instead of written research papers. In addition to learning how to work cooperatively, students became real experts in the content of their projects and the technology (Miller, 1993).

Bob Gross, a professor of biology at Dartmouth College, used multimedia to create animations to teach

about a complex series of interactions in biochemistry. Previously, it took two class hours and 48 blackboards to teach this particular series of interactions. Using a multimedia program, Worldware, he created an animation that enabled him to teach the same material in half an hour. More importantly, the students scored better than any previous class on the exam (Ehrhann, 1995).

Technology coordinator Jim Moyer of Roseburg High School in Oregon integrates multimedia authoring skills into his students' projects, ranging from independent studies to regular classroom assignments. "One of my students completed the tutorial, the required project, and an independent project on alcohol abuse," Moyer reports. "The following week, she used *Digital Chisel* for her science project and got a top grade. Her teacher was amazed at the quality of the project and how easily she completed it" (Milone, 1996, p. 24).

In a middle school earth and science classroom in Santa Fe, New Mexico, the teacher found that working with multimedia courseware made her increasingly metaphorical and illustrative in her teaching. The convenient visuals allowed communication to be easier and richer, whereas before she had to be very careful to not teach "over

their heads." The students' experience with a rich reservoir of visual images and sequences gave them an enhanced scientific literacy and motivation for further study (Couch, Couch, & Peterson, 1993).

"Computerized multimedia provides incredible communication powers for educators interested in presenting interactive data to help explain and educate over distance education technologies" (Stammen, 1995, p. 69). Technological changes in television, networking, telecommunication, and computer industries have expanded the possibilities in which educators can utilize multimedia to enhance distance learning.

In a fifth-grade classroom at Hillcrest School in a suburb of New York City, multimedia was utilized to create original products and extend students' participation in their own learning. Their teacher reported seeing her students engaged in ways that she had not seen before. Students became class experts, peer tutors and leaders.

At a middle school in Evanston, Illinois, students created multimedia animal projects that transformed their classroom into an environment of exploration, collaborative help-seeking and help-giving, students as

experts, and self-reflection (Milone, 1994). Students felt the multimedia projects were a better way to learn. "Learning was easier because we were able to invest ourselves in it, to do our own set of things. Not everyone had to do the same thing, and everybody became good at something" (Milone, 1994, p. 25).

Interactive multimedia is ideal for science instruction. Simulation of dangerous or expensive lab experiments can be observed over and over again without risk to limb or budget. Exploratory games involving academic concepts and facts facilitate scientific literacy. There is opportunity to ensure ability to solve problems in addition to memorizing facts. Dynamic and microscopic events can be enlarged for all to see and stepped through in slow motion. With color, motion, graphics, and the access speed of a computer, multimedia is a powerful tool in any science classroom (Couch J.D., Couch K., & Peterson, 1993).

In Hudson, New York, all eighth grade students at Cortlandt Middle School are required to create an electronic multimedia student portfolio as a graduation requirement. Through their portfolios, students must show competence in aesthetics, problem solving, communication,

and research. The project's coordinator, Janice Felt, believes the portfolios have allowed the integration of technology into the curriculum as a natural and essential part of learning, creating a student-centered educational environment, encouraging students to use many of their intelligences, and offering projects that are rigorous, yet possible for all students (Milone, 1995).

Multimedia in a presentation format was integrated into geography classes with programs like *Picture Atlas of the World.* In the program, world, regional, and country maps, along with essays and statistical information, were linked with multimedia to bring nations into vivid focus. The unique educational impact of sights and sounds portrayed by video clips and by still images of daily life, industry, and cultural and natural highlights were further enhanced by spoken language and music clips--encouraging students to do further study and exploration (Peterson, 1994).

Another example of multimedia in a classroom is using computer graphics or video clips of real-life situations to teach an abstract concept. The meaning of division can be explored by accessing a video clip of

five children discussing how to share four cupcakes equally (Babbitt and Usnick, 1993).

In a high school Spanish class, Roslyn Sprayberry (1930) utilized multimedia activities to solve the problem of students' inability to comprehend and process efficiently oral information in the Spanish language. Sprayberry found multimedia a valuable and essential means of facilitating the acquisition of listening comprehension skills. Multimedia also allowed students to determine their own readiness to participate orally, thus reducing the stress of anxiety producing communicative activities.

Multimedia integration into the higher education classroom is extremely effective in creating quality simulations. One example is a Harvard Law School interactive video, which simulates hypothetical client cases. Law students are able to handle simulated cases without the risk to actual clients. At the University of Illinois, chemistry students were able to formulate and test hypotheses and safely simulate chemical reactions, which may otherwise be dangerous. In a program designed for medical students, multimedia simulations were used to present symptoms of pathology for medical student

diagnosis. A medical student training on the computer is shown a video of a heart attack victim and is asked to make life or death decisions about the patient's care without running the risk of a potentially fatal mistake.

Advantages of Multimedia in the Classroom

Multimedia instruction has many advantages. It provides teachers with a powerful tool to access and present a combination of media for differentiation and enhancement of curriculum instruction. Multimedia is designed to motivate students, and enhance learning by reaching a broader range of student learning styles (Stammen, 1995). Multimedia enhances traditional text-only computer interfaces and yields measurable benefit by gaining and holding attention as well as interest. Multimedia improves information retention (Vaughan, 1994). The Prevailing route to technology integration into the curriculum is by way of multimedia (Curran, 1995). Multimedia motivates high-tech kids in a low-tech classroom, making education more exciting than MTV (Public Policy Institute of New York State, 1991). When multimedia is used, learning becomes an active process involving both the student and the teacher. Students are

placed in an interactive role by the stimulating visual images, the perspectives of multiple speakers, and the dynamic graphics (Fernlund and Cooper-Shoup, 1991). Moreover, multimedia allows users to explore knowledge in ways that mirror how people actually think (Rieber, 1994).

Not only does multimedia allow students to be in control of their own learning, it encourages students to become scholars (Oblinger, 1992). "You can learn things from multimedia and video that can't be shown in a book, like how the sea lions move their flippers and stuff when they swim" (Wilson & Tall, 1991, p. 8). Students not only use the technology to learn, but to communicate their understanding of the subject to those around them. The teacher becomes the facilitator, and the students take on a more active role in learning as they process and disseminate new information. Multimedia software and authoring tools play a significant role in helping kids both explore content and express their ideas about it (Burns, 1996).

"Multimedia allows students to incorporate their own cultural, social, and personal relevance in their work. This integration of individual expression empowers and

motivates students beyond the confines of written words" (Riddle, 1995, p.9). When students are given the opportunity to express their own experiences, individual productivity and creativity are likely to increase. Graphics, animation, sound, and video are viable tools in facilitating each student's individual expression of emotions, past experiences, and cultures. "Diversity, obscured in the text, vividly emerges with multimedia tools" (Riddle, 1995, p. 25).

Another advantage of multimedia instruction is that students who use multimedia tools develop better analytical reasoning skills. Over time, students develop the ability to explore and manipulate information, communicate effectively, collaborate, and problem solve (Karraker, 1992). The integration of multimedia educational technologies into the classroom is not only highly successful, but also becomes a vehicle for small group instruction and the creation of original products that further students' research and participation in learning (Wilson and Tally, 1991).

Multimedia also improves cognitive development. Intellectual development is an active, inquiring dialogue with the world, a personal journey of curiosity and

discovery. The opportunity to manipulate images, sounds, and text by cutting, pasting, drawing, altering, reconstructing, and examining supports this intellectual development (Riddle, 1995). Diana Oblinger (1992) believes that multimedia mirrors the way in which the human mind thinks, learns and remembers by moving easily from text to images to sound, stopping along the way for interpretation, analysis and in-depth exploration. A multimedia lesson also allows students to learn spontaneously and naturally, using whatever sensory modes they prefer. The visual information helps students link their prior knowledge to understanding new information and terminology. "A goal of multimedia in education is to provide students with the capability to access information in a way that parallels the thought process" (Wishnistsky, 1992, p.12).

By providing students with access to multimedia technologies and support, learning becomes a decision made by every student (Milone, 1996). At the T.J. Watson Research Center in Harlem, New York, IBM researcher Don Nix worked with students using multimedia authoring programs to create productions that reflect students' lives and traditions. "When learning is passive," Nix

points out, "the only decision students can make is not to learn. When you provide them with enough learning opportunities, they can decide what to learn, how to learn, and at what pace. It sounds a little chaotic, but our observations indicate that students are reading more, comprehending what they read better, and working more independently. They also work better in teams and have proven to themselves and others that they can analyze and evaluate complex information" (Milone, 1996, p. 27).

Students at Bowie Elementary School in San Marco, Texas believe that after multimedia technology was incorporated into their classes, the classes were different and more fun. Assignments were done faster and better with more resources available (Curtin and others, 1994). A teacher stated, "The computer especially helps the slower kids, getting them excited about learning and introducing other avenues for them" (Curtin and others, 1994, p.80). Jean Curran (1995) stated the reason for the growing popularity of multimedia is the combination of many types of media accessible at different levels of expertise and for a variety of uses.

Suzanne Flannelly, an eighth grade teacher at Clifton T. Barkalow School in Freehold, New Jersey, is

convinced that the active processing of information is the best situation for learning. She provides her students with a deluge of opportunities for active learning with multimedia projects. "Not only do they truly master the content, they learn critical technology skills and how to plan a project," Flannelly professes. "In addition, they gain a sense of pride that what they have done is being used by other students and a feeling of confidence in what they have accomplished. There is no question in my mind that technology is going to have a huge influence on the future of my students, both in their careers and their personal lives. It just makes sense to give them the tools they will need to control their own futures" (Milone, 1996, p. 28). Phil Moore (1994), member of the National Association for the Teaching of English(NATE) and New Technologies Committee, also believes that giving the learners the opportunity to make something themselves is an excellent way of enabling them--through structured reflection--to begin to understand how to read and interpret texts. Students experience self-efficacy because they make personal choices about their multimedia projects and even act as producers and developers (Wissick, 1992).

According to Jane Liedtke (1993), classroom productivity is increased through a reduction of instructor dependency, enhanced consistency, stimulated learning processes, and improved retention due to increased student interactivity. Multimedia used in education facilitates students in retaining 20 percent of the information they hear, 40 percent of what they see, and 60-70 percent with which they interact (Liedtke, 1993). Milone (1996) believes multimedia technology is a natural extension of the curriculum that augments instruction in the subject areas. "Multimedia is a powerful tool for making an instructor more effective. It increases the instructor's power of communication within a learning environment to convey a message more forcefully" (Stammen, 1995, p. 14).

Julio R. Garcia (1994) believes interactive multimedia--properly developed and properly implemented--could revolutionize education. With multimedia computer technology, it is now possible to present rich problem solving environments. This powerful media is perceived as a way to teach not only content but also thinking, or reasoning skills--those skills necessary to solve problems in the real world. Multimedia applications

enhance classroom presentations and provide the learner with an opportunity for independent exploration and practice. Users of multimedia have the ability to link together disparate images and information.

Motivation and self-regulated learning are also advantages of multimedia. The interactivity of multimedia allows students to become more active in the learning process, and assume responsibility for their own learning. The interactivity of multimedia provides students with a "self-oriented feedback loop" to provide a rich and continual stream of feedback, allowing students to establish and maintain goal-setting and goal-monitoring (Rieber, 1994).

Multimedia also provides representations of abstract or complex ideas with simulations and concrete examples (Wilson & Tally, 1991). In addition, interactive multimedia allows teachers to design compelling lessons that provide students with an almost addictive tool for exploration on their own (Public Policy Institute of New York State, 1991). It is a powerful educational tool, capable of delivering an individualized presentation of information that is difficult to achieve in a traditional classroom setting. Multimedia allows the learner to

construct and test different solutions to a problem by interacting with data, sound, and graphics (Garcia, 1994).

Problem solving skills were also enhanced with multimedia at Mission Viejo Elementary School in Aurora, California. Fifth grade teacher, Mary McAuliffe, uses multimedia to help students define and solve problems related to curriculum topics. McAuliffe believes that a multimedia approach to problem solving nurtures students to a higher performance level than other techniques allow (Klenow, 1993).

In addition to enhancing problem solving skills, multimedia was used to help students overcome their mathematical learning fears at Pellissippi State Technical Community College in Knoxville, Tennessee. Andrew Wilson (1994), the mathematics instructor, believed that the use of multimedia in his classroom was used to mediate between the students' fears, beliefs, and their mathematical learning. "It wasn't the multimedia that was the important factor, but how it was used in the classroom" (Wilson, 1994, p.3).

Multimedia provides the learner with a nonsequential means to interact with a combination of media thereby

increasing motivation, maintaining attention, stimulating cognition, and illustrating content or facts (Wissick, 1992). For students who process information simultaneously rather than sequentially, multimedia presents ways to connect ideas not always available in traditional textbooks. Sound and motion can be added to text and graphics to enhance connections. The knowledge from these connections is potentially richer and stronger than knowledge derived from traditional presentations (Babbitt and Usnick, 1993). Multimedia increases student interest in the subject matter and aids retention (Oblinger, 1992).

In a study of high school chemistry students, David D. Kumar (1993) found the performance of students using multimedia and traditional pen and paper differed significantly. Kumar attributed this difference to the non-linear environment of multimedia, which provided thinking in less restrictive ways (Kumar, 1993). "With multimedia computer technology, it is now possible to present rich problem solving environments. This powerful media is perceived as a way to teach not only content but also thinking, or reasoning skills--those skills

necessary to solve problems in the real world" (Garcia, 1994, p. 7).

Multimedia incorporates illustrations that make abstract topics more concrete, conveying concepts for which words alone are simply inadequate. Research on all types of illustrations is remarkably consistent in showing their positive effects on learning, including increased recall and comprehension of material, increased motivation and interest, and the cultivation of cognitive or thinking skills (Fifield and Peifer, 1994). Graphics and illustrations employed in multimedia enhance learning by providing contexts within which students can organize and interpret new information, either by activating existing mental schemes or by modeling new schemes that students can internalize. According to Fifield and Peifer (1994), some graphics/illustrations provide contexts for abstract topics, while others organize or interpret information and aid students in transforming information from spoken or written words to mental representations. Multimedia with graphics also increases learning with its motivational effect on students. Students are motivated to spend more time interpreting and elaborating a

concept, resulting in more learning (Fifield and Peifer, 1994).

Students with learning disabilities also benefit from multimedia instruction. At an elementary school in Japan, Shigeru Narita (1995), examined the effects of multimedia instruction on a self-contained class for children with mild learning disabilities. Narita found that multimedia allowed students to manipulate and interact with information in ways that traditional tools do not allow. Students learn to analyze, synthesize, and solve problems with information that they have taken control of as active learners. Multimedia assists those students who have difficulty learning in traditional ways to tap into their strengths so they can find ways to communicate and represent the knowledge and understanding they have of their world (Narita, 1995).

Interviews with educators and industry spokespeople have uncovered six advantages of multimedia in a teaching/learning situation (Townsend & Townsend, 1992).

1. Multimedia reaches all the senses, thus enhancing learning. It can be tailored to the learning styles of individuals whether that style is verbal, auditory, or physical.

2. Multimedia encourages and validates self-expression by allowing students to decide how they want to create a project, or assimilate information. With this approach teachers are telling students that it is okay to have more control and voice in their own educational process.

3. This technology gives a sense of ownership to the user. Students are actually creating what they learn and there is physical evidence for this process gathered in the form of portfolios and collections of their work.

4. Multimedia creates an active rather than passive atmosphere for learning. It forces the students into participation, making them think about what is being presented.

5. The technology fosters communication between students, and between student and teacher. It acts as a catalyst for conversation about what is being presented, or how information can be organized and presented to others.

6. The use of multimedia makes a lot of sense for the teacher today. Technology is already built into the everyday life of all students, from automatic bank

machines, to video games, television, and even the drive-in ordering systems at fast food places.

Person, Folske, Paulson, and Burggraf (1994) conducted a study over two years with one hundred and sixty-eight students enrolled in an introductory mass communication course at a mid-size eastern university. The researchers studied the extent to which students' learning was facilitated by the use of computerized multimedia. The results of the study found that two-thirds of the students learned more when multimedia was used. Virtually all of the remaining one-third of the students were neutral, with three percent of the students learning less.

The nature of multimedia itself facilitates increased learning. Since different symbol systems (ie: spoken words, graphics, sound, and text) require different mental processing and recoding skills, a multimedia lesson that incorporates spoken words, text, and graphics stimulates a greater variety of metal skills than a lesson that is strictly verbal (Fifield and Peifer, 1994). Animation, still-frame and full-motion video, and high quality audio can supplement lecture material to make it more realistic for the learners

(Wissick, 1992). Ronald L. Morris (1995) believes that multimedia in the hands of a teacher has the power to transform data into meaningful knowledge in the lives of students. Not only does multimedia make core topics come alive in an engaging and substantive way, but the programs actively encourage exploration--the key to all learning (Peterson, 1994).

Summary

The literature important to the project was presented in Chapter Two. Learning styles are the different ways in which learning occurs. In order to address the wide array of learning styles in the classroom, teachers need to differentiate lessons. Multimedia can be used as a tool to address this challenge by allowing students to receive multi-sensory information and a broader range of learning experiences. In addition to differentiating instruction, multimedia can be used to enhance instruction, improve retention, evaluate performance, or explore new technologies. With multimedia, students are able to create their own meaning, which facilitates a richer and more meaningful learning experience.

Multimedia can be used as a powerful learning tool in a wide-variety of ways including interactive multimedia simulations and presentations. Students can also create powerful projects with text, graphics, sounds and animations to demonstrate their mastery of concepts. The advantages of multimedia in the classroom are endless. It provides teachers with a powerful tool to access and present a combination of media for differentiated instruction and enhancement of curriculum aligned to state standards. Multimedia in the classroom has the power to transform information into meaningful knowledge and learning for all students.

CHAPTER THREE

PROJECT DESIGN PROCESSES

Introduction

Chapter Three documents the steps used in developing the project. Specifically, what should be learned and how will it be learned? Rather than the traditional direct instruction or computer assisted instructional approach, this project was designed learner centered, addressing the multiple intelligences. Every component of instruction is governed by the learning outcomes and the learner's needs.

Analysis

The inspiration for this project was a multimedia course offered at California State University San Bernardino, which demonstrated the benefits of using multimedia with students. This inspiration was reinforced by the support of Dr. Nena Tórrez, who suggested working with a Chicano artist to create a multimedia program about the Chicano Culture for use in the cross-cultural, language and academic development (CLAD) courses. This topic sparked immediate interest, having just finished the credential program with CLAD emphasis.

Once the topic of the project was decided, the learning objectives were determined. What should credential candidates know about the Chicano culture to provide them with the knowledge and understanding to teach children from a wide-array of cultures?

In order to determine the learning objectives and the content for the multimedia program, several meetings with Dr. Nena Tórrez, professor at California State University San Bernardino, and Simon Silva, a Chicano Artist were conducted. After much discussion and careful consideration, the following learning objectives were determined for the multimedia project.

1. Describe the color palette used in Mexican/Chicano art and their significance to the culture.
2. Recognize music of the Chicano culture and describe its importance and meaning to its people.
3. Identify characteristics of the Chicano culture and compare and contrast them with characteristics of other cultures.

Design

The instructional design of this project was learner-centered rather than the traditional directed instruction approach. The project was designed around the ADDIE Model, in which every component of instruction is governed by the learning outcomes and the learner's needs. The five phases of the ADDIE Model were analysis, design, development, implementation, and evaluation.

The first phase was the analysis phase, which is the foundation for all other phases of the instructional design. In this phase, the problem was defined, the source of the problem was identified, and possible solutions were determined.

During the second phase of design, outputs from the analysis phase were used to plan a strategy for developing instruction. The design phase specified how the learning was to occur by writing objectives, developing test items, planning instruction, and identifying resources.

The third phase of the model was the development phase, which builds on both the analysis and design phases. This phase was the process of authoring and

producing the lesson materials and the HyperStudio project.

In the fourth phase, known as implementation, instruction was delivered. This phase promoted the students' understanding of learning objectives and ensured the transfer of knowledge from the instructional setting to the real world context. The project, *A Celebration of Chicano Culture*, was presented in cross-cultural, language and academic development courses at California State University San Bernardino.

The fifth and final phase of the ADDIE Model was evaluation, which measured the effectiveness and efficiency of the instruction. The two types of evaluations for this phase were formative and summative evaluation. Formative evaluation was ongoing and designed to improve instruction. Summative evaluation occurred after the final version of HyperStudio project was implemented to assess the overall effectiveness of the instruction.

Development

After the learning objectives and design were determined, it was time to create the multimedia program.

HyperStudio was selected as the software to create the project because it is relatively easy to use and available at most school sites. HyperStudio is icon driven, which makes it very user friendly. It also has many professional and powerful features including HyperLogo, a scripting language for creating programming commands.

Interviews with two experts provided the content of the HyperStudio program. Simón Silva, a well-known Chicano artist, was selected for his artwork and knowledge of the Chicano culture. The second expert, Dr. Nena Tórrez, was selected for her extensive knowledge of the Chicano culture and experience in working with teacher credential candidates in the Cross-Cultural, Language and Academic Development program at California State University San Bernardino. Selected clips of their interviews were included in the program.

Images of Simón Silva's artwork were scanned and imported into the HyperStudio program. Each piece of Simón Silva's artwork vividly portrays aspects of the Chicano Culture. After viewing a slide with the full image, the user navigates to the next slide with textual

information about what the image is portraying and its significance to the Chicano culture.

Music plays at the title slide and the beginning of each year's portfolio. Selected excerpts of music were chosen from the range of Mexican music from folklorico to modern to enhance the project and provide examples of music from the Chicano culture.

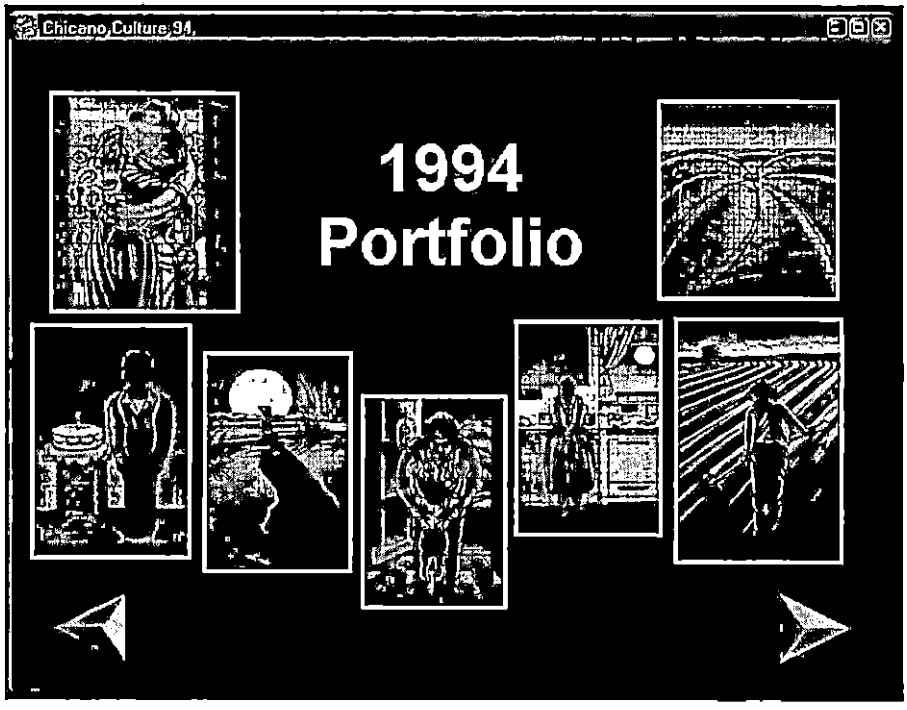


Figure 1. The 1994 Portfolio Screen

The HyperStudio program was organized into various years of the artist's portfolio. The project was designed so the user could navigate either linearly or non-

linearly. On each slide, easy to use buttons appear near the bottom of the screen, providing the user with the option of moving forward, backward, or to a review slide. From the review slide, the user may jump or branch to another year's portfolio. From the portfolio screen, the user may click on any image and branch to that particular piece of artwork.

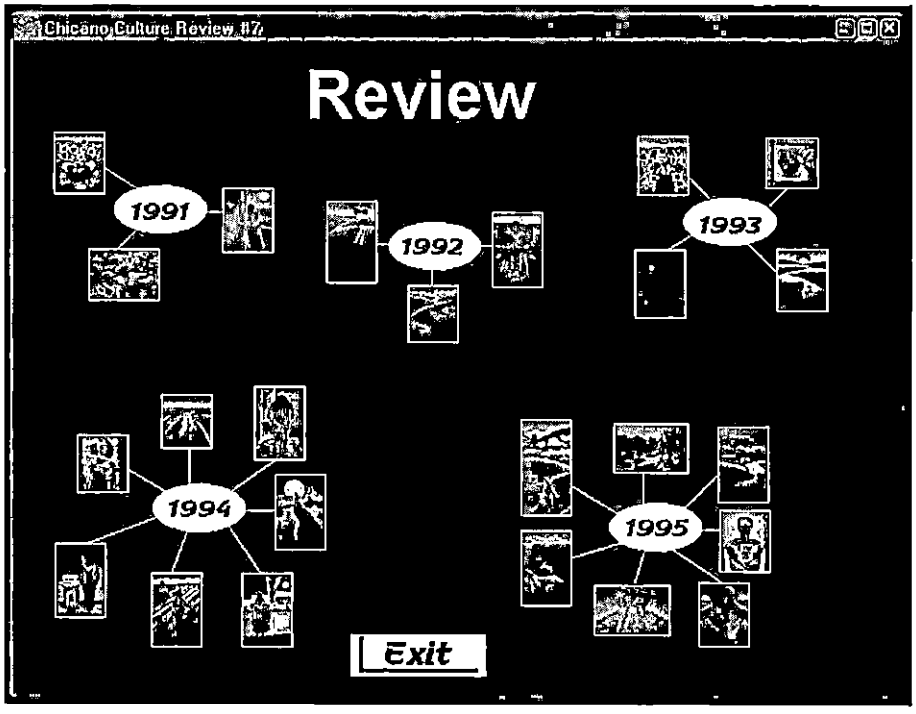


Figure 2. Review Screen

Careful consideration was given to the screen design of the project. Since detail of the artwork was vital, full images of each piece were displayed on a black

background. On the slide that follows the full image, textual information appears written with a large font for display purposes. The buttons for navigation were kept simple and consistent throughout the program for user clarity. In addition, the menu bar at the top was hidden so it would not confuse the user, and to give the HyperStudio program a professional appearance.

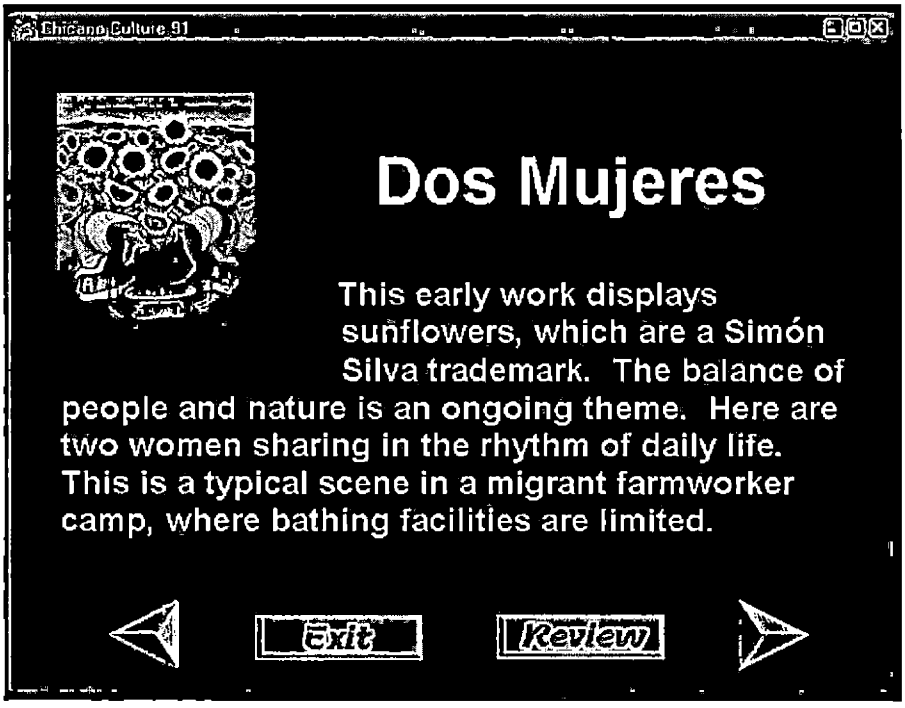


Figure 3. Dos Mujeres Screen

Implementation

The project, *A Celebration of Chicano Culture*, was presented to teacher credential candidates in selected

Elementary/Bilingual Education (EELB 321) Culture and Schooling courses at California State University San Bernardino. Students learned about Mexican/Chicano art and its significance to the culture. In addition, students identified characteristics of the Chicano culture and compared and contrasted them with characteristics of other cultures.

Evaluation

Formative evaluation was used to improve the HyperStudio program and the presentation of the project. During the presentation of *A Celebration of Chicano Culture*, students provided input and feedback about the project and its content, along with their own perspective into cultural awareness.

Summary

The ADDIE Model of instruction is an iterative instructional design process, in which the results of evaluation may result in changes for any of the phases. In addition, formative evaluation of each phase may lead to modifications of the previous phase. In essence, the project will change and evolve based on the needs of the learners and any modifications to the learning outcomes.

CHAPTER FOUR

CONCLUSIONS AND RECOMMENDATIONS

Introduction

Included in Chapter Four was a presentation of the conclusions gleamed as a result of completing the project. Further, the recommendations extracted from the project are presented. Lastly, the Chapter concludes with a summary.

Conclusions

The conclusions extracted from the project follow.

1. A lack of multimedia programs/software aligned with the state curriculum standards exists due to the vastness and constant change of the curriculum.
2. Classroom teachers are best suited to design meaningful instructional multimedia programs that are aligned with the state curriculum and designed to meet the needs of their students.
3. Teacher credential candidates in the state of California must demonstrate knowledge and competency in cross-cultural, language and

academic development in order to receive a teaching credential. Using the multimedia program, *A Celebration of Chicano Culture*, teacher credential candidates received multi-sensory information about the art, music and characteristics of the Chicano culture to provide them with an understanding and appreciation of other cultures.

4. The program, *A Celebration of Chicano Culture*, served as an example of how a multimedia HyperStudio project can be used as a powerful tool to differentiate instruction and address the diverse learning styles of all students.

Recommendations

The recommendations resulting from the project follows:

1. Select a multimedia software program that is cross-platform, so the program will play on both Macintosh and Windows computers. The program, *A Celebration of Chicano Culture*, was created using Roger Wagner's HyperStudio software on a Macintosh computer. HyperStudio

files are cross-platform and will play on both Macintosh and Windows computers. However, the video files were rendered on a Macintosh computer using Adobe Premiere as QuickTime Movies, which are not cross-platform.

2. Obtain permission to capture images and create the project before investing a substantial amount of time into the project. As professional educators and role models for students, teachers must comply with all copyright laws. Before creating the project, *A Celebration of Chicano Culture*, verbal permission was given by the artist to use his artwork in the program. Prior to the videotaped interviews and scanning of the artist's images, the artist granted written permission to use the artwork.

3. Stay focused on the project and do not allow others to change priorities and detract from completing the project. This recommendation was the most profound. Eight years ago, acceptance to the Master's Program at California State University San Bernardino was obtained. After

completing the coursework in Instructional Technology within one year, the knowledge and skills to become a technology leader were mastered. In addition to the duties as a classroom teacher, the roles of mentor teacher, district technology trainer, and site systems administrator in charge of maintaining the school's computers and network were taken on. Needless to say, the focus on the goal in completing a master's project was derailed. After a seven year hiatus, the goal of completing the master's project and receive a master's degree in education was back on track with more determination than previously. One cannot begin to explain how much harder it has been to think back seven years ago to when the project was originally created to finish this paper. There were many obstacles to overcome, in addition to the many hurdles in reapplying to the program and approval for a waiver of the seven year limitation. It is imperative to stay focused on the project and create a timeline with due dates, and stick to them because

completing the project does not get any easier with time.

Summary

Chapter Five reviewed the conclusions extracted from the project. In addition, the recommendations derived from the project were presented. Due to the vastness and ever-changing nature of the state curriculum standards, a lack of meaningful multimedia programs that are aligned with the curriculum exists. In addition, teachers are faced with the need for strategies and tools for designing lessons to address their students' varied learning styles and needs.

Having recently completed the teacher credentialing program with Cross-Cultural, Language and Academic Development (CLAD) emphasis, the lack of specific cultural information was glaring. The dearth of available information on the Chicano culture led to the inspiration of this project. This project provided knowledge about the Chicano Culture to enlighten and prepare teacher credential candidates to effectively teach children.

Through the process of creating this project, much was learned about the Chicano culture and its

significance in working with students of other cultures. Furthermore, the knowledge of how to utilize multimedia as a tool to design engaging lessons aligned with the curriculum that address the diverse learning styles of all students was demonstrated.

Table 1. Multiple Intelligences Matrix

Type of Intelligence	Characteristics
Linguistic	Involves having a mastery of language and the ability to effectively manipulate language to express oneself rhetorically or poetically.
Logical/Mathematical	Consists of the ability to detect patterns, reason deductively and think logically. Associated with scientific and mathematical thinking.
Musical	Encompasses the capability to recognize and compose musical pitches, tones and rhythms.
Bodily-Kinesthetic	Ability to use one's mental abilities to coordinate one's own bodily movements.
Spatial	Facility to manipulate and create mental images in order to solve problems.
Interpersonal	Capacity to discern and respond to the feelings and intentions of others.
Intrapersonal	Ability to understand one's own feelings and motivations and the capacity to discriminate among them and draw upon them to guide behavior.
Naturalist	Capacity to recognize, categorize and draw upon certain features of the environment.

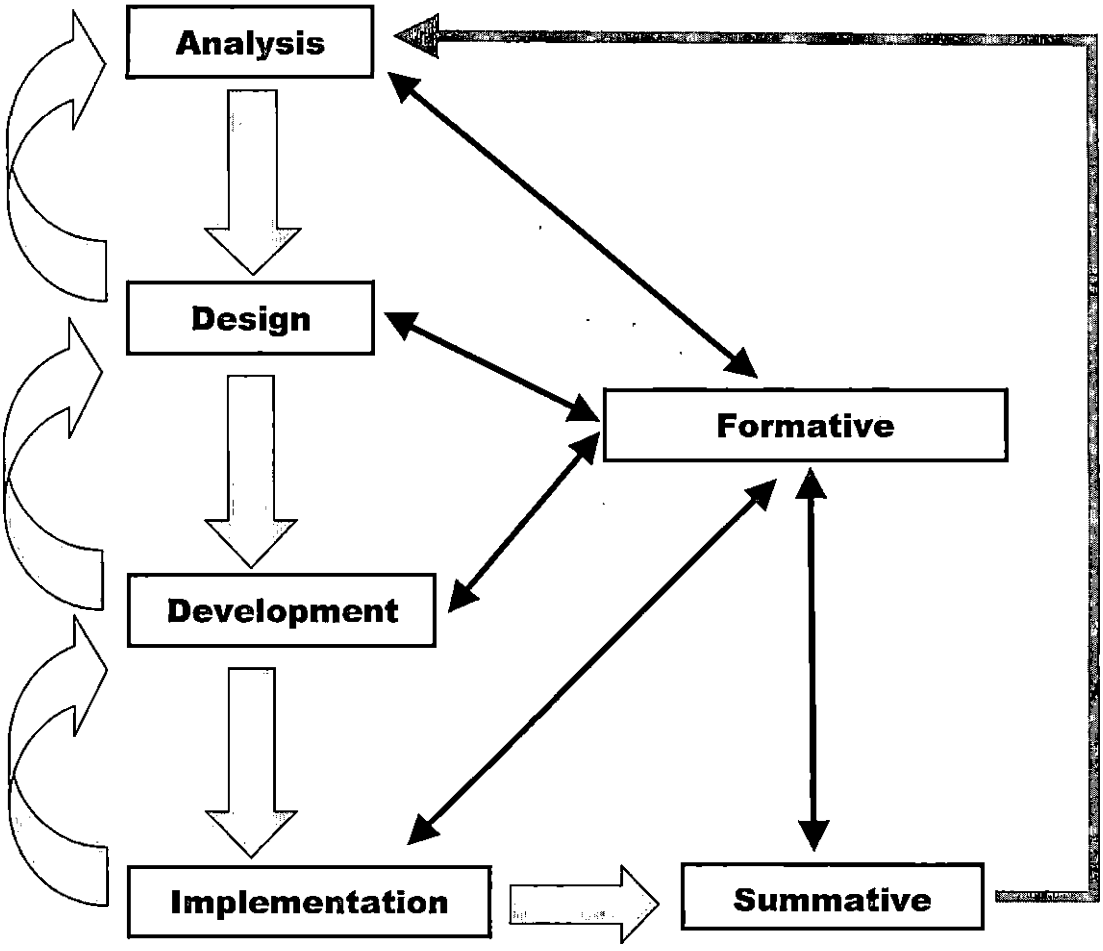


Figure 4. Analysis, Design, Development, Implementation, and Evaluation Model

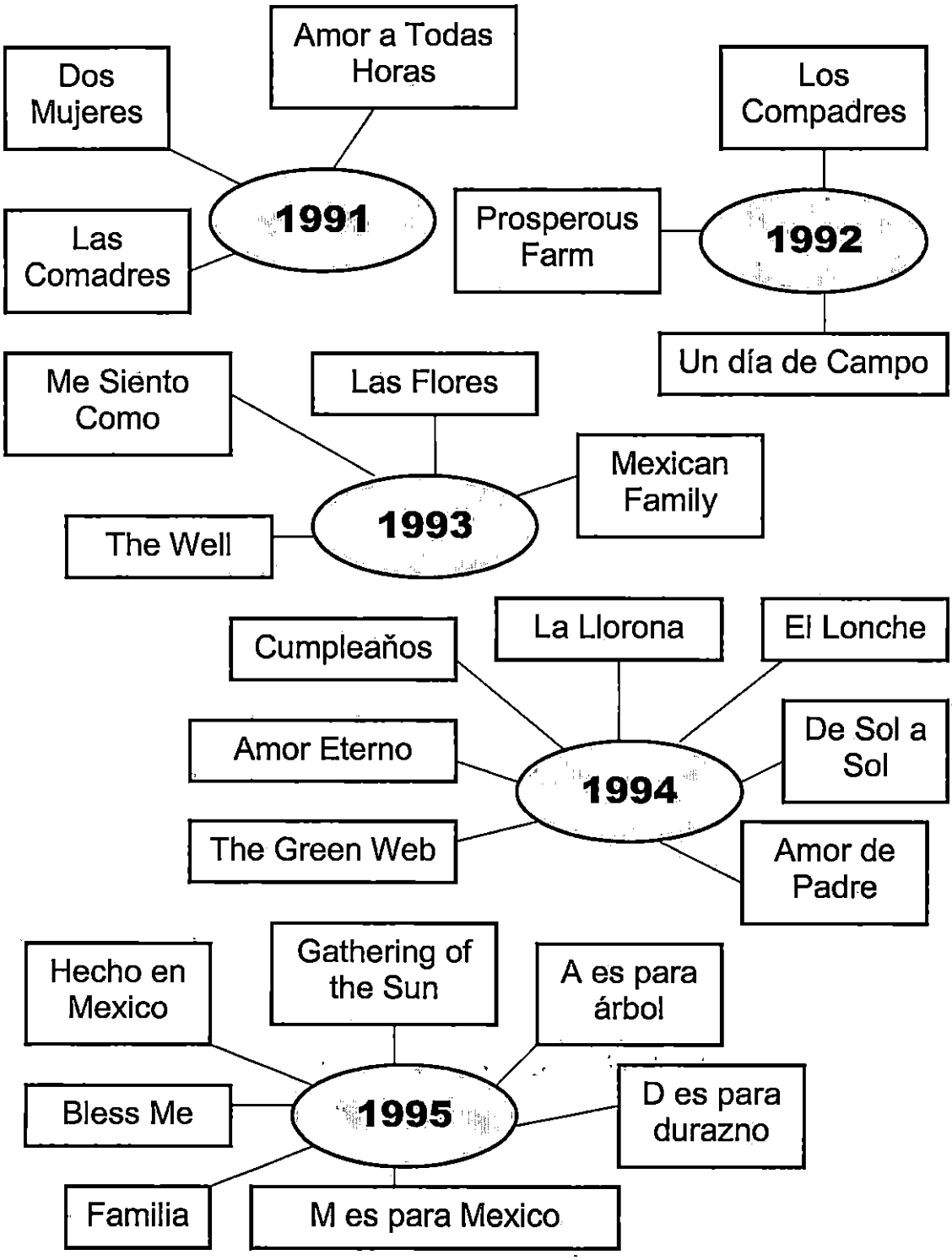
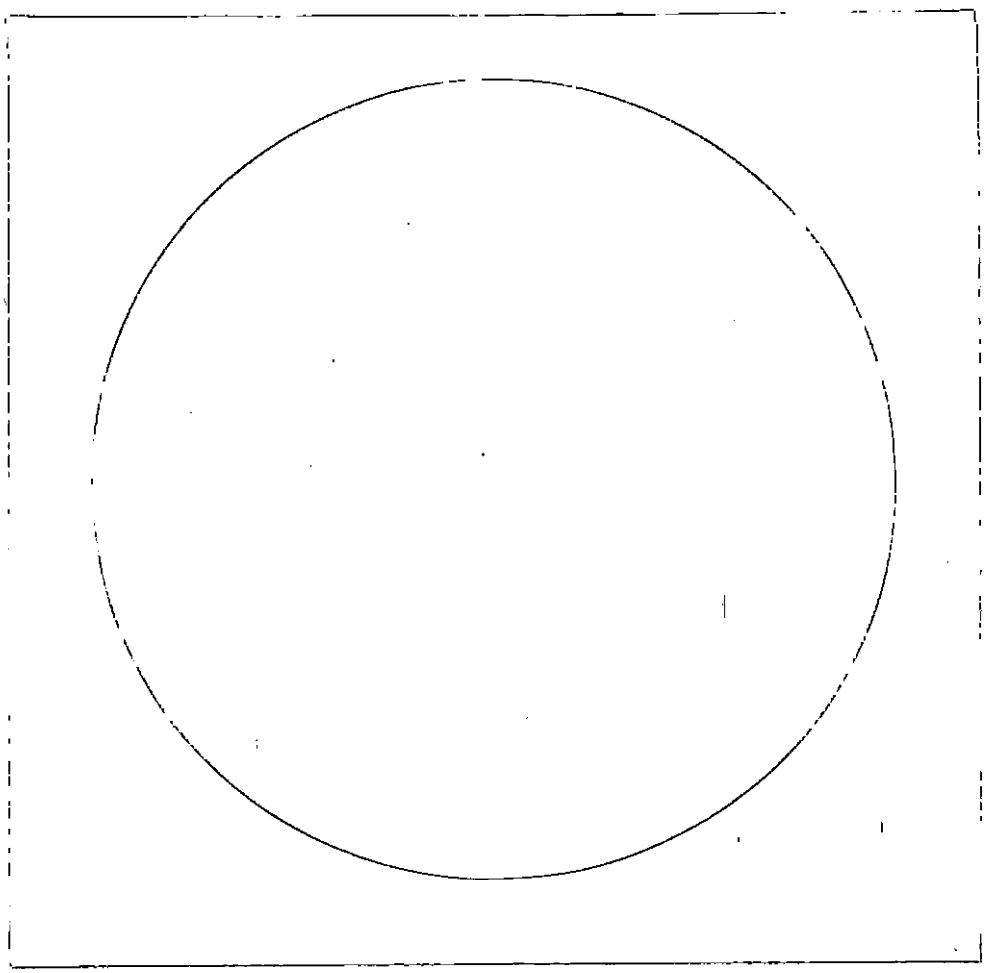


Figure 5. A Celebration of Chicano Culture Review Slide

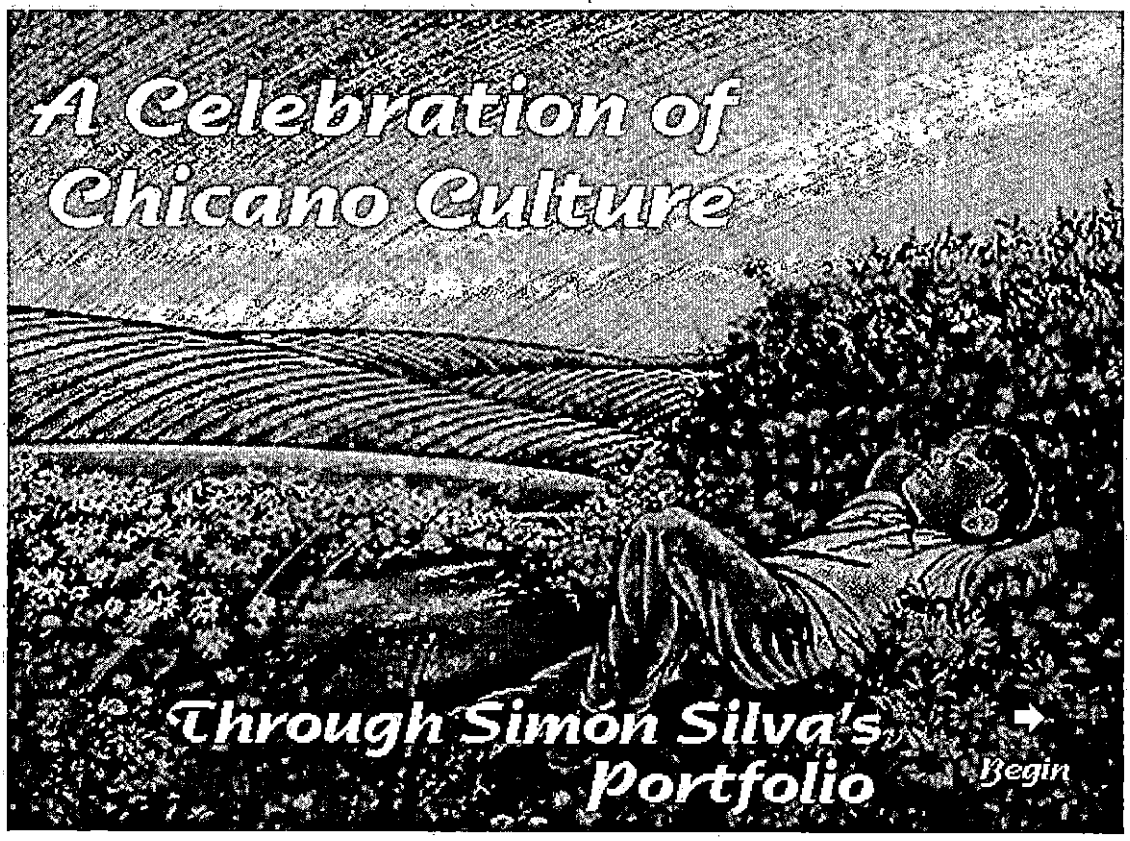
APPENDIX A

CD OF PROJECT



APPENDIX B

SCREEN CAPTURES OF PROJECT


A Celebration of
Chicano Culture
Through Simón Silva's
Portfolio
Begin

Simón Silva

Simón Silva was born in Mexicali, Mexico. He is one of 11 children of a migrant farmer family. Silva enjoys a bilingual and bicultural life with his wife and two children in San Bernardino, California. Silva paints so that others may see the richness and beauty of his Chicano Culture.

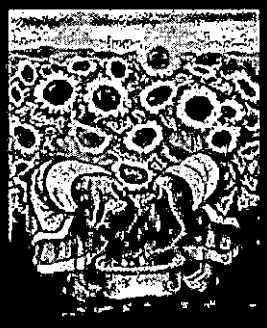
The value of the artwork

Why I paint

Color palette

Exit | Video | Review

1991 Portfolio



Dos Mujeres

This early work displays sunflowers, which are a Simón Silva trademark. The balance of people and nature is an ongoing theme. Here are two women sharing in the rhythm of daily life. This is a typical scene in a migrant farmworker camp, where bathing facilities are limited.

Exit Review

Amor a Todas Horas

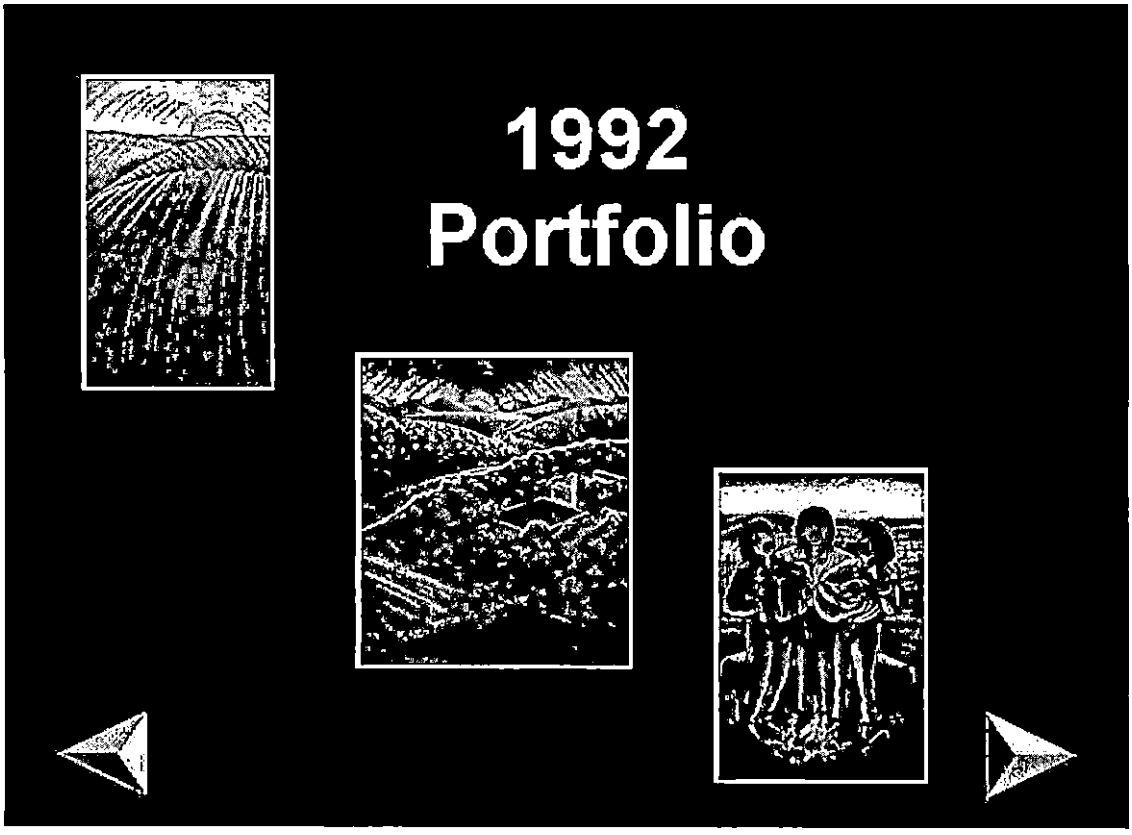
The universal bond of a mother's love is displayed in the context of Mexican/ Chicano reality. In the bedroom, there are several Catholic articles, which indicate the intertwining of faith and culture within the typical farmworker family.

Exit Video Review

Las Comadres

The title, The Godmothers, refers to the Catholic support network that unites and creates family bonds within the Mexican/Chicano community. The women are sharing intimacies while engaged in their daily chores. The woman on the left is carrying a child in a rebozo on her back. Amidst the sunflowers we see cactus, a vegetable that is frequently eaten.

Exit Review


1992
Portfolio

Los Compadres

The social life of men in a farmworker community is depicted in this image. The bond of celebrating music and song is an intricate part of Mexican/Chicano celebrations. The cemetary in the background alludes to the Mexican/ Chicano concept of death being a non-feared component of life.

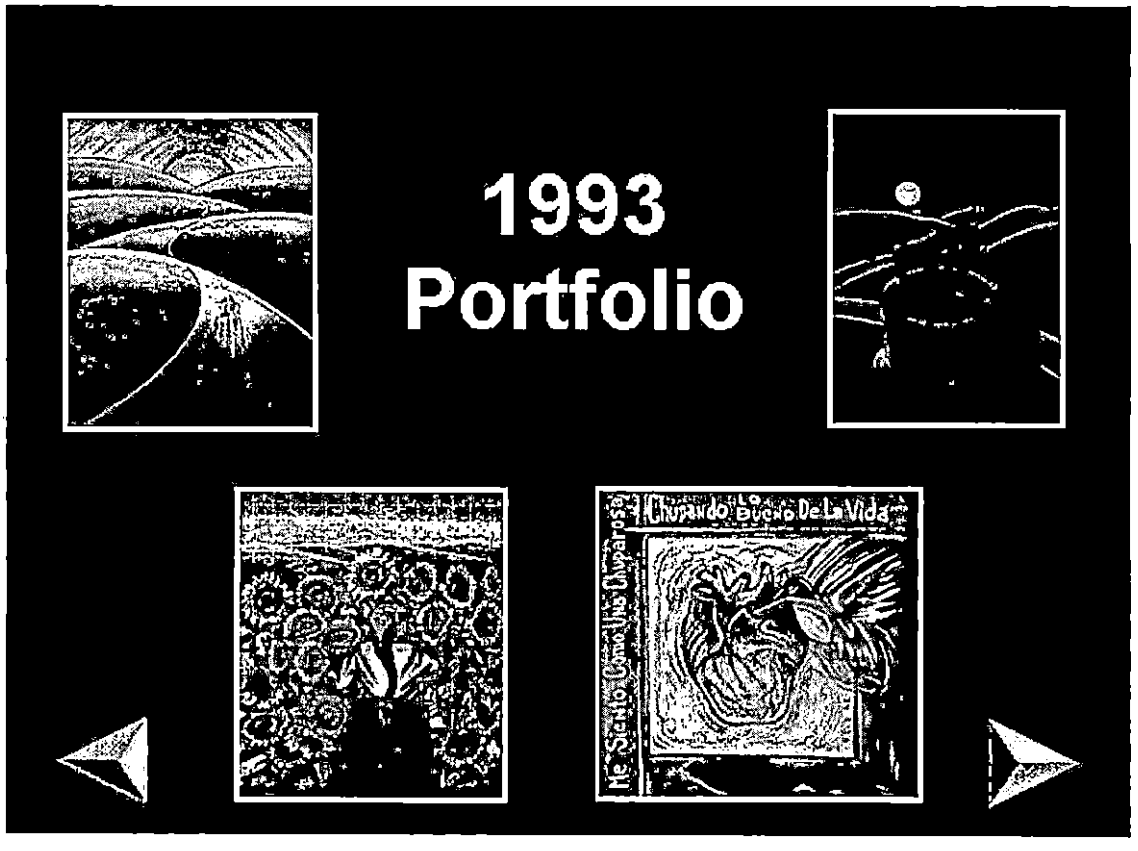
Exit Review

Un día de Campo

This work illustrates the life of a farmworker family. They have spent the day weeding the rows of crops. The hills in the background symbolize the repetitious nature of this type of work and future that awaits them. The economics of farm labor leads to child labor, which impedes the educational future of farmworker families.

This illustration was created to accompany a magazine article on Mexico. It represents a prosperous farm. Mexico, having once been an agrarian society, still nutures the dream of having one's own land. This dedication to working with nature is displayed in the gardens and vegetable patches that are intregal parts of Mexican/Chicano households.

Exit Review


1993
Portfolio
Me Siento Como Una Mujer
Chupando El Cuero De La Vida

Me Siento Como

This small piece was created by the artist, Silva, to show his feelings on life. The utilization of the hummingbird feeding on the heart's blood symbolizes having the best of life. Both the hummingbird and the heart are symbols in Mexican/Chicano culture from pre-Columbian times.

Exit Review

Las Flores

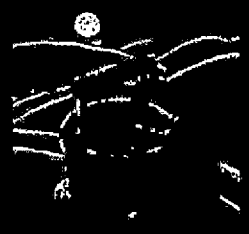
This image displays two classic Silva characteristics: sunflowers and a person whose face is turned away. Silva utilizes the non-focused face, allowing the viewer to conceptualize the whole image. The sunflowers represent the beauty that exists even in the harshest environment.

Exit Review

This image depicts the family moving together into the future. They are united and supported by each other, moving into the unknown. The bright and strong tones utilized in all of Simón Silva's works are the colors that strike a cultural chord in Mexican/Chicano people.

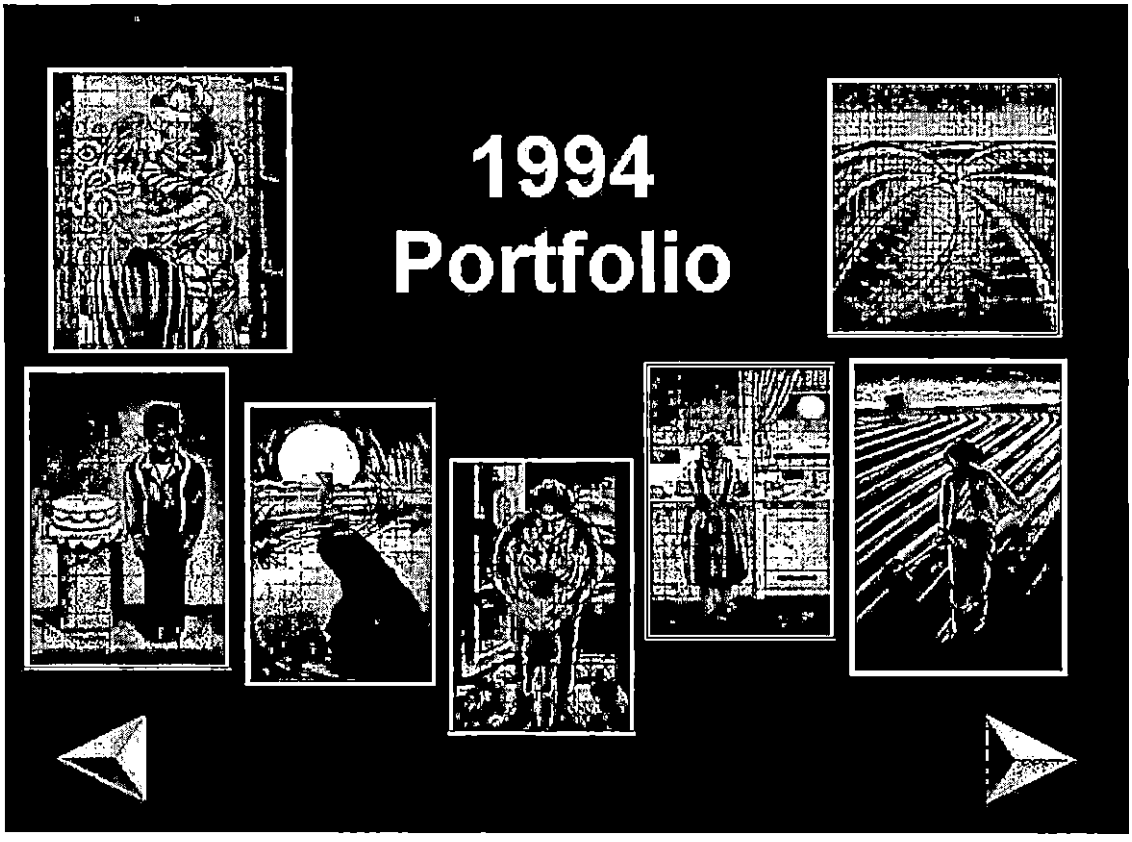
Exit Review

The Well



This small piece was created as the cover of the book, Storytelling. The volume is a compilation of folktales. The glow of the full moon outlines the rolling hills in the background. The fish is communicating with the country woman. The theme of communication between people and nature is universal in folktales.

Exit Review


1994
Portfolio

Amor Eterno

Upon arriving home from work, the father is lovingly greeted by his wife and children. The father has picked sunflowers as a token of his love. The entire family participates in this loving embrace.

Exit Review

Cumpleaños

In this self-portrait, Simón Silva is addressing the issue of childhood rituals. He, as an adult, is attempting to capture his own first birthday. Silva utilizes the lack of shoes to project a mood of infancy.

Exit Review

La Llorona

Silva has taken a character from Mexican folklore and humanized her. This image projects the two sides of the weeping woman. The shadow image retains an ominous tone, while the woman is someone to be comforted.

Exit Review

El Lonche

The traditional Mexican mother is preparing lunch in the pre-dawn hours. The hairstyle and apron typify the woman's role as the homemaker. The farmworker wife must rise early to prepare food for the family before she begins her work in the fields.

Exit Review

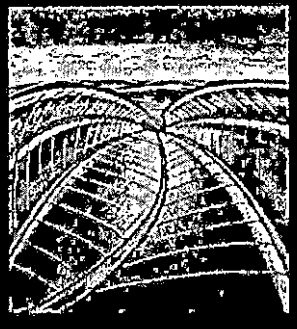
De Sol a Sol

From sun up to sun down, some farmworkers are fortunate enough to find work in the winter irrigating crops. This type of work entails working with water in freezing temperatures.

Exit Review

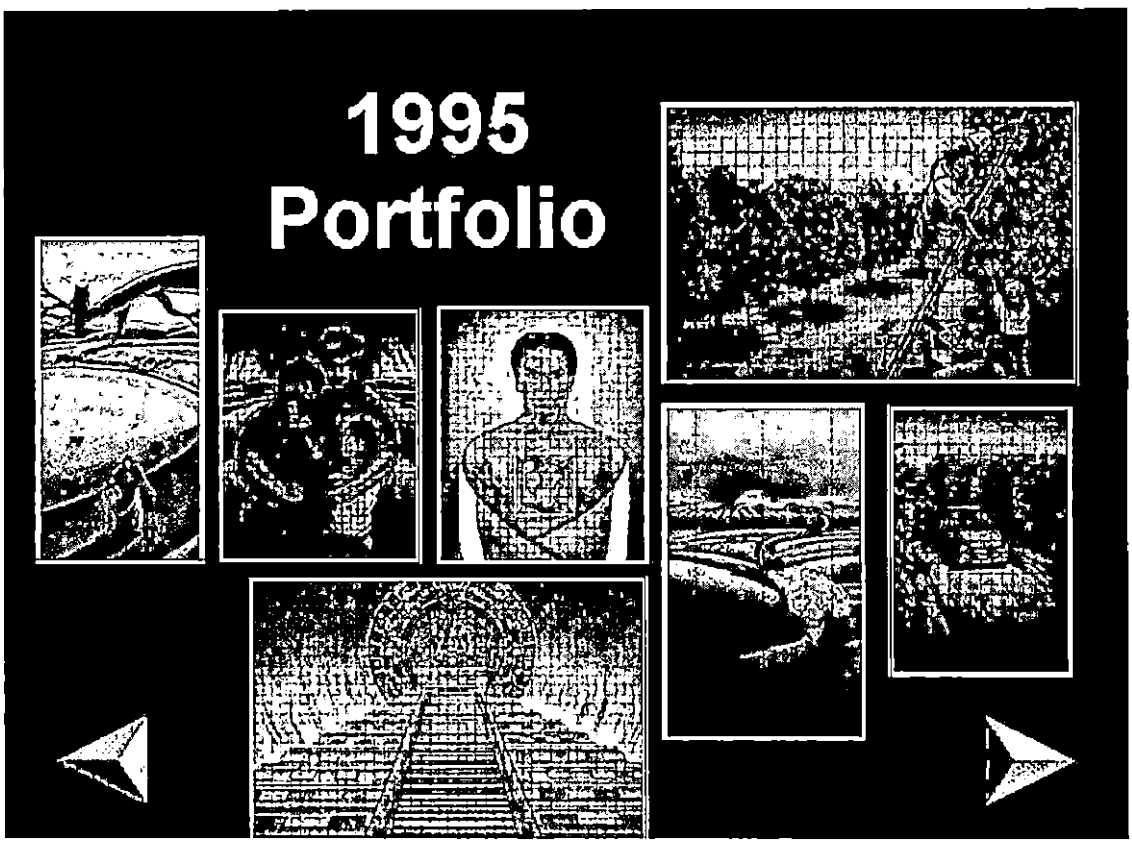
Amor de Padre

After a long hard day in the fields, a father greets his child. The father has brought some fresh produce home for his family. The image of the Virgin, the patron saint of Mexico, is a common sight in Mexican/Chicano homes.



The Green Web

This image was created as a book cover for The Green Web. This book of poetry was written by Juan Delgado, a member or the English department at California State University, San Bernardino. A heart pulsates at the center of the web.


1995
Portfolio

Familia

This image is a tribute to the strength of the family that comes from being together and being able to embrace one another both physically and mentally. The mother is holding the youngest child in a rebozo and the family members are simply dressed and combed, without the need for worldly adornments.

Exit Review

This untitled image was created as the cover for the Bless Me, Ultima teacher's guide. The woman is guiding the young boy along the path of life. The owl is symbolic of death and the various dangers that exist in life. The background depicts a country scene, which is the setting for the novel.

Exit Review

Hecho en Mexico

This a self-portrait of Simón Silva. He utilizes warm colors in the background that occur in the Southwestern landscape. The heart, the center of a person, represents the deep-rootedness of Mexican values within himself.

Exit Review

This image is the introductory page for the children's book, "Gathering of the Sun" by Alma Flor Ada. The book is a union of familiar visual images and vocabulary. As a bilingual English/Spanish preprimer, the child is introduced to reading in a culturally relevant manner. The family is arriving at the ranch.

Exit Review

A es para árbol

A is for árbol (tree). Most farmworker children have been into the orchards or groves to assist their parents. Child labor still exists on many of the farms and ranches.

Exit Review

D

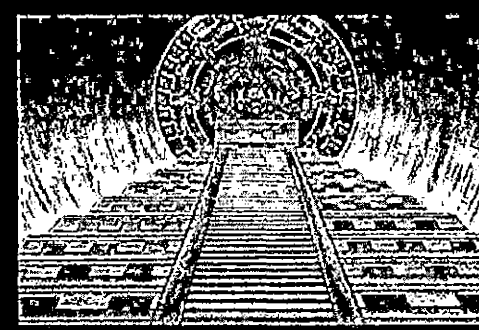
es para durazno

D is for durazno (peach). It is important in early literacy to use vocabulary that is common to the student population. Although several words exist in Spanish for "peach", durazno is the word used in Mexico and the Southwest.

Exit Review

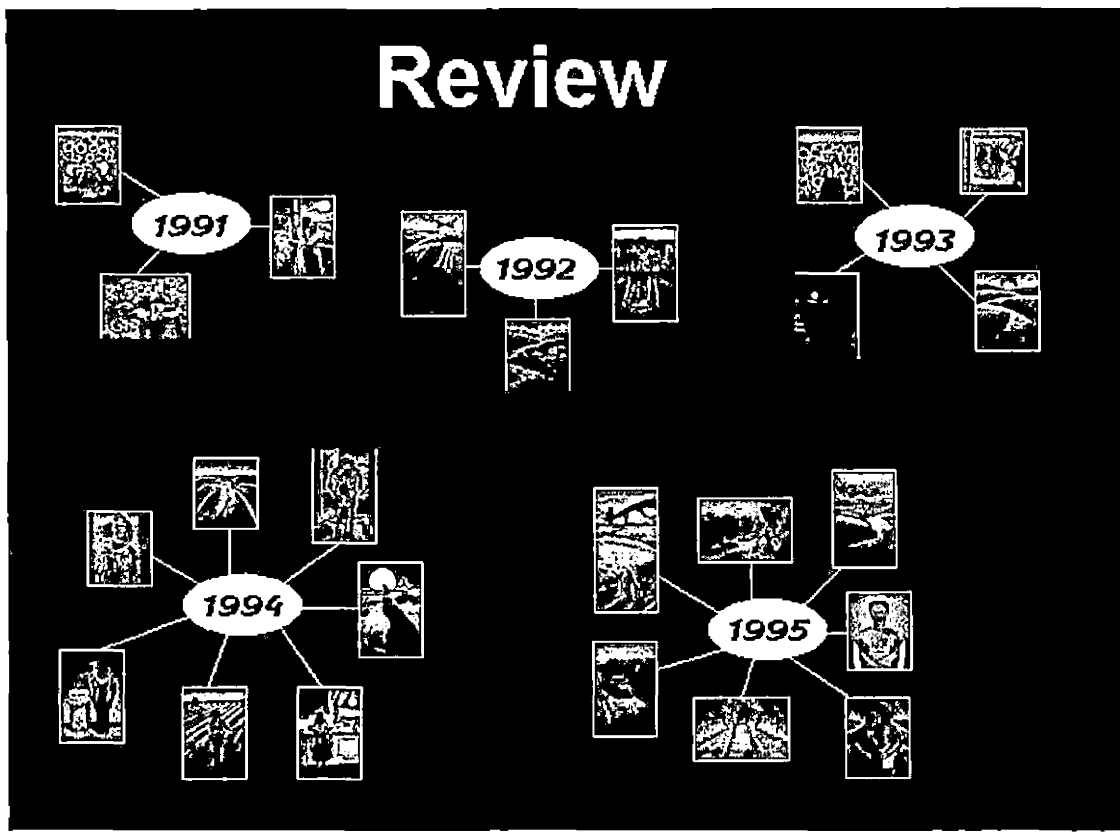
M

es para Mexico



M is for Mexico. Silva has combined two significant Mexican symbols: the Aztec calendar and the Pyramid of the Sun. Both of these national treasures represent milestones in the development of human knowledge.

Exit Review


Review
1991
1992
1993
1994
1995

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