Multimedia technology in the secondary classroom: Teaching strategies and interdisciplinary curriculum design

Susana Chesus-Beck

MULTIMEDIA TECHNOLOGY

IN THE SECONDARY CLASSROOM:

TEACHING STRATEGIES

AND INTERDISCIPLINARY CURRICULUM DESIGN

A Project

Presented to the

Faculty of

California State University,

San Bernardino

In Partial Fulfillment

of the Requirements for the Degree

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in

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Susana Chesus-Beck

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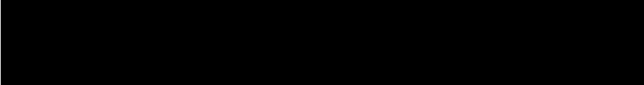
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ABSTRACT

This is a handbook of multimedia technology and
multimedia production teaching strategies that include the
following: lesson and unit plans, worksheets, with teacher
directions and student instructions, interdisciplinary
activities for use in secondary level classrooms, lists of
useful reading material, and sources of supplies used in the
described student multimedia activities.

The essay portions of this project examine the uses of
multimedia technology to provide interdisciplinary relation-
ships to curriculum and to address multiple learning styles
of students and multiple teaching styles of educators.

This handbook is best used in conjunction with and for
the support of an accompanying instructional video tape
demonstrating aspects of multimedia project development and
techniques in the secondary classroom.

For the purpose of clarification, the term "multimedia"
shall mean information that is accessed, presented or stored,
with the aid of various technology equipment, in a combi-
nation of different forms, using text, sound, graphics,
video, and animation. The process of "multimedia production"
shall focus on student interactive work with technology.

TABLE OF CONTENTS

INTRODUCTION

This instructional package is developed around the philosophy that technology is, first and foremost, a "tool" in the classroom. Therefore, students should use technology to *make things*. This philosophy is aligned with preparing students for good jobs in many fields...preparing students to use what they know in ways that are productive and purposeful.

Additionally, the strategies addressed in this handbook employ multimedia technology equipment and software as unification tools. Using these strategies, the instructor may then holistically integrate many disciplines in a relevant framework of self-directed learning and discovery.

Multimedia technology use is an excellent path for research. When technology is used as a tool for searching out information, the user uncovers vast and rich sources of information about subjects faster than when using traditional modes. The researcher can search world wide for textual, auditory and visual aspects of any topic, without leaving the technology station. Therefore, students should be able to cover more complex information in a shorter period of time when using this adaptive technology.

In 1988, the California Department of Education began an outreach to educators and educational administrators in search of components to what was to become known as the "restructuring" of education. The goal was to improve the learning outcomes of students.

Many new approaches to dealing with the changing behavior of students were presented to teachers and administrators in the form of staff in servicing and district sponsored workshops. Due to the changing emotional makeup of students, California district and county schools have sponsored workshops that promoted changes in teaching that addressed the following: the multiple learning styles of students, the multiple intelligences of students, multiple teaching styles and models, holistic language arts training, teaching across the curriculum with interdisciplinary units, and new methods of classroom discipline.

Some of the more pronounced student behavior challenges that were identified in the classroom discipline workshops included: Attention Deficit Disorder (ADD), Chemical Dependency Behavior, Violent Behavior, and Apathetic Behavior. The application of multimedia technology projects in the classroom has produced interesting and successful results when working with students identified as having these particular behavior challenges.

It is this author's opinion that most students identified as having Attention Deficit Disorder, have been trained into this condition. They have been trained through constant exposure to television programing since their spines were strong enough to remain propped up in front of a television. The basic television programming format is seven to ten minutes of related information, presented through multisensory stimulation, and then, two to three minutes of unrelated segments of information, presented through

multisensory hyper-stimulation. Hyper-stimulation is a process through which the viewer is barraged every fifteen seconds with scores of distinct segments of information, including simultaneous text, sound and visual information, all pertaining to a key concept. At the beginning or end of these consistent periods of hyper-stimulation, the viewer is also given the discretion of changing information delivery sources at any time, by changing channels.

Teaching strategies are greatly altered when the "Attention Deficit" condition is viewed not as a *deficit,* but as a *skill*, an "Attention Diversity Skill," where the young viewer has learned to juggle ten to thirty concepts per hour, extracting from each concept whatever is meaningful, useful or entertaining for the viewer. Curriculum developed to take advantage of this *skill* is rewarding for both teacher and student and assists students in learning how to extract meaningful and useful information from the many multimedia style presentations that they are exposed to on a daily basis. Furthermore, students can be taught how to use and manipulate a variety of multimedia presentation styles to deliver their own ideas.

At the same time that the restructuring workshops, focusing on the presentation of curriculum content and discipline methods, were being offered in school districts all over California, school districts were being encouraged by State Agencies to cut back on classes teaching the fine arts, including music, art, dance, and photography. This encouragement was fostered by a desire to control costs of

public education for a rapidly increasing number of students in California. However, despite the cutbacks in fine arts curriculum, multimedia computer programs, then being introduced into classrooms, provided a continuing means for students to interface with the fine arts of music, photography and graphic arts.

As the number of students entering into California public schools increased, classroom ratios changed, with student-to-teacher numbers climbing from an average of 23-to-1 in 1980 to 32-to-1 in 1990. This information was disclosed in the U. S. Department of Education's "Digest of Education Statistics," published by the National Center for Education Statistics in Washington, DC, in 1992. This ratio imbalance occurred despite numerous formal research reports by General Motors, Chemical Bank, and Bank of America, among others, addressing the inefficiency and ineffectiveness of managee-to-manager ratios exceeding 21-to-1 (Peters & Waterman, 1984).

Also, at this time, another force was at work in the classrooms of California, the introduction of computer technology. Apple Computers, Inc., as part of a brilliant 1985 public relations strategy devised by Steve Jobs and Steve Wozniak, gave one Apple IIgs model computer to each of thousands of schools across the state. Small five-station to ten-station computer word processing labs were packaged by school districts, as funding allowed, and set up on elementary, middle school and high school sites. Usually one or two teachers on each site were selected to operate these

labs. A small percentage of school sites opted to acquire IBM clones or PC's (personal computers) as the computer platforms for their campuses.

In most cases, the one or two teachers selected to oversee these labs became technology "experts," with full discretion about the accessibility of the technology equipment by student groups and other staff members on that particular campus. These few teachers were "experts" in virtue of their regular proximity to the technology equipment. Limited training was provided to teachers in methods of managing a computer lab, operating the equipment or using the software applications acquired for the labs.

No one, and this is certainly true for teachers, wants to be visible as having too little knowledge. Consequently, only a limited number of these "experts" regularly shared their information with the rest of their immediate educational community. These persons went on to initiate computer and multimedia workshops, conference presentations and mentoring programs for fellow teachers. Well recognized leaders in this area included the following: David D. Thornburg, Bernard J. Poole, Craig Blurton, Royale Van Horn, Sylvester Robertson, and Isabelle Bruder, among others.

However, due to a condition known as "technology avoidance" or "technology paralysis," where a person is so unfairly intimidated by the complexity of technology that he or she avoids using technology, or the practical obstacle of not having enough time to learn the operations and applications of complex technology, many campus teachers were left out of the loop of technology literacy. Administrators,

with literally no reference base, were obligated to go along with decisions about equipment and software purchases made by the one or two technology "experts" on each campus. Few systems of accountability were put in place for the effective use of technology in schools and, for the most part, computers were used for low-creativity, drill and practice, or supplemental activities (Thornburg, 1991). As of 1989, "drill and practice CBI (computer-based instruction) [accounted] for much of the available instructional software in most subject areas" (Lillie, Hannum & Stuck, 1989). Word processing became the predominant level of usage for computers until 1992.

In 1992, Roger Wagner, of Wagner Publishing, released an educator's software version of a program called "Hyper-Studio." "HyperStudio" is a multimedia, color, text and sound, video importing and manipulating software program for the Apple IIgs. Groups of teachers began to share their student-created "multimedia" projects, known as "stacks," at state technology gatherings, such as the Computer Using Educators (CUE) conferences, the California League of Middle Schools and California League of High Schools conferences and other technology gatherings.

The enthusiastic embracing of multimedia software by students at the elementary level underwrote the increasing number of multimedia software program titles being developed and the expanded usage of computer desktop multimedia programs at the secondary level. The students' voracious appetite for this kind of multisensory-stimulating manipulation of information and discovery learning became one of the driving forces and part of the foundation of the growth

of educational multimedia technology today. Students were "hungry for [the] novelty" of this form of discovery learning (R.N. Caine & G. Caine, 1994).

Today, teachers and administrators are educating themselves about using multimedia technology in the classroom in order to keep up with students' and parents' demands, as well as the unavoidable prospect that from now on, multimedia technology will be a driving force of information age industries.

During these same years of growing technological awareness and acceptance, one more force was helping to shape the growth and importance of multimedia applications in education. The entertainment and publications industries, each being one of the largest employment base industries in California, with traditional objectives to outperform the competition and out-awe the subscribing audience, began relying heavily on computerized special effects in movies, music recordings, photography and advertising. The charac-teristics of "attention deficit" found in young people around the world were being catered to by the entertainment industry with a bombardment of sensory stimulation.

RATIONALE FOR MULTIMEDIA STUDENT PROJECT PRODUCTION

In the mid 1980's, Apple Computers, Inc. introduced the color graphics and sound Apple IIgs computer and made these machines readily accessible to public schools in California.

Children aged 5 through 18, using the Apple IIgs computers, were easily engaged by the process of writing when it was done as word processing on a television-like piece of equipment. The advent of color graphics and sound, combined with original student-generated text, was also appealing to parents and teachers. However, teachers and parents were not provided with sufficient hands-on training in computer operation or software application to take full advantage of this multisensory work platform. Consequently, students with access to this equipment were often left to their own devices in figuring out how to "make a computer do neat things."

I was a novice with classroom technology as well, and did not have enough hours in the day to study the numerous software application manuals and began having the students experiment with software programs to determine which ones were engaging and user friendly. When a student or group of students discovered ways to use a certain software application, they would be given time to train me, along with their peers, in what they had learned through the discovery process.

For all of these subsequent years, I have continued to have students take the first "test-run" of new software programs, work out the nuances and then train other students and me in how to use that software. This procedure is highly

recommended. The benefits to the students go beyond technology literacy to encompass highly valued social skills development and heightened self-esteem.

Over the past several years, I have had the pleasure of studying aspects of my own education with some remarkable professors at California State University, San Bernardino. In 1989, in a Literature class taught by Dr.Margaret S. Doane, I became intrigued with a particular essay, <u>In Defense of Poetry</u>, by Percy Bysshe Shelley, that was concerned with equating the brain to a muscle that needed regular exercise. Shelley described how the senses stimulated the brain and provided such "exercise." During the classroom discussion of this essay, the prospect that combinations of different sensory impacts might cause a variety of intensity levels of exercise for the brain was pursued. For instance, if an individual was receiving the sensory input of music, while at the same time he or she was looking at a black and white photograph, would the level of exercise for the brain be equal to or lesser than that same individual listening to the same music while viewing a *color* reproduction of the same photograph? This line of thinking was and still is extremely interesting to me.

During the last eight years of my teaching on the Middle School level, I have guided my students in projects that test this possibility and have come to believe, based on students' productivity outcomes, that levels or intensities of exercise for the brain are directly related to highly specific combinations of sensory impact. However, the intent

9

of this project is not to track and substantiate this particular theory.

In 1991, while taking a course in adolescent development taught by Dr. Renate N. Caine, I was introduced to the theories of brain-based learning that Dr. Caine and her husband, Geoffrey Caine, were investigating. The notion of "deep immersion" into the learning of a concept, enabled by the natural ways that the brain absorbs information, through multisensory input (Caine & Caine, 1994), prompted me to begin a series of elaborate lesson plans for my students. The lesson plans were devised to provide simulated experiences for my students. The objective of these lesson plans was to have students write knowledgeably about experiences that they engaged in only through viewing videotape travel logs. Upon viewing the travels and insights of others, captured on video tape, my students were to adopt those experiences for themselves and be able to write from "memory" of these experiences. The lesson plans proved successful because students were able to "create meaningful and personally relevant patterns" (Caine & Caine, 1994) out of the information presented. Clear recognition and perception enhancements were documented in the students' writings. I have revised these lesson plans many times and present herein the most recent efforts, entitled, "Interdisciplinary Video Lesson Unit Plan."

Other courses that have contributed substantially to this project include: Readers Theater, a course taught by Dr. Amanda Sue Rudisill, presented ways to stage compressed

action in front of a video camera; the Music Production and Studio Recording Techniques courses taught how to build and develop a physical space for effectively recording students' speech and sound effects; advanced computer/media courses that contributed toward building an important "cutting-edge" body of information on computer systems configurations, technology applications, and software analysis; and the Radio and Television Production courses demonstrating methods of control over the planning, implementation and editing processes that are inseparable from multimedia production. Additionally, I sought out an accomplished instructor, David Master, Fine Arts and Technology Department, Rolland Heights High School, Rolland Heights, California, to teach me the fundamentals of computer and clay animation.

Based upon the continued demand, by teachers and administrators who have attended the workshops that I have presented over the past five years, for multimedia production techniques information, I now lay out some means for using a portion of the awesome cadre of technology available to educators. The end products of the multimedia curriculum I propose herein include: comic books, flip books, cartoon animation, Claymation and object animation, computer graphics, computer animation, and video tape programs.

Deep Immersion and Multisensory Literacy

The work of many human behavioral theorists, including Skinner, Bandura, Atkinson, Caine, Gardner, Shiffrin, Norman, Rumelhart, Jasmine, Piaget and Bruner is pertinent to the development of multimedia technology curriculum. Each of these theorists proposed descriptions of how humans process information. Although their interpretations differ, some similarities emerge. All agree that there are "structures" to human brain input. These structures are commonly referred to as: *sensory register or sensory reception*, where human sensory receptors record and encode environmental stimuli, with the memory of each sensory encoding lasting two to three seconds; *short-term memory*, where originally encoded sensory records are converted into "bits" of information that are retained about twenty seconds (computer memory processing was initially modeled on this); and long-term memory, where information is processed for enduring, unlimited capacity retention.

The way humans use this stored information depends on how vivid the original stimulus was and how further pro-cessing is applied to that information. Meaningful, addi-tional processing results in *recognition*, where a person combines the information derived from direct sensory stim-ulation with information from his or her long-term memory. Another form of additional processing is called *attention*, where a person selects a portion of the sensory stimulation to focus upon and disregards or places a low monitoring priority on the rest of the sensory stimulation in the immediate environment.

Deep immersion, the exclusive *attention* to specific
pieces of information and the conversion of that information
to *long-term memory*, is a learned process. According to Dr.
Renate M. Caine, Professor of Education at California State
University, San Bernardino, *deep immersion* in the processing
of information can take place when *attention* and *recognition*
occur at the primary, *sensory register* level of information
input and the sensory input is <u>vivid</u>. This process causes
"embedding" of the information and "all education can be
enhanced when this type of embedding is adopted" (Caine &
Caine, 1994).

Providing a classroom environment for students to
achieve a state of *deep immersion* in information processing
can be achieved with multimedia technology equipment,
multimedia work areas and individual or group multimedia
projects because "multimedia systems lend themselves
naturally" (Poole, 1995) to this approach.

Multimedia technology projects are multisensory,
encompassing a substantial variety of the aspects of sight:
light and dark patterns; colors; static or moving text in the
form of headlines, copy, style, font, size; graphics in the
form of photographs, original art work, predrawn clip art,
graphs, charts; art animation; and motion video. Multimedia
links the sense of sight with the sense of sound, through
patterns of association and rhythm of movement, which is the
ideal process for presenting information (Caine & Caine,
1994). It impacts the user with a wide variety of auditory
stimulation: music as transitions or support of ideas; rhythm

associations with pleasure, pain, fear, danger; voice; and
sound effects. Multimedia projects also stimulate the sense
of touch: handling of the "mouse" and computer keyboard;
drawing and selecting textured surfaces and structural
materials to build original artwork; the handling of clay and
other objects used in animation; and full body motion with
the handling of video cameras and other pieces of production
equipment.

This complex variety of linkages between the senses
creates a mental repository of learned multisensory literacy,
which allows for future connections with countless related
details that have been experienced by the student. This
process creates a vast pool of schemata to draw upon for
creative, innovative and effective problem solving. Con-
sidering that success in learning and understanding depends
on multisensory immersion (Caine & Caine, 1994), the student
is then positioned for educational success.

Paradigms of Teaching Multimedia Production

"Even the most experienced teacher is constantly looking for new ways to make lessons really connect with the student" (Fontana Unified School District, 1996). Teaching curricula that incorporate multimedia technology projects allow the instructor to use a variety of teaching paradigms or models (Bruder, 1991) and this diverse and enriched environment will support students in reaching a level of competence that is essential in our society (Jasmine, 1996).

The following paradigms have been found to be the most useful by this author. These models of teaching all allow the instructor to function within the theory and approach of Constructivism, which is well suited to using technology as a *tool* to *make things*. Constructivism emphasizes the dual role of the teacher and the student, which is "what a learner can do independently [mastery level] and what can be accomplished with the assistance of a competent adult or peer [instructional level]" (Harris & Pressley, 1991). Most teachers use two or more of these models of teaching every day in the presentation of the curriculum that they are currently teaching. Teachers who wish to expand their curriculum to include multimedia technology training and product development should use the paradigm that they are most familiar and comfortable with and add to that model, as they incorporate additional components of the multimedia curriculum from this handbook as well as from other sources.

Prior to restructuring the approach to teaching and revising the curriculum to incorporate multimedia technology,

teachers are cautioned to take the time to become competent with these technologies. Make no mistake, the foreseeable future of teaching will demand competency in the usage of computers, audio and video equipment, laser disk-search, CD-ROM equipment, and networked telecommunications equipment for problem-solving, research, data collection, information management, internet communications, multimedia presentations and technology equipment management. "Teachers will need to be able to design and develop student learning activities that integrate [these technologies] for a variety of student grouping strategies and for diverse student populations" (Poole, 1995).

Inductive Thinking

This paradigm was developed by Hilda Taba and presented in her 1967 work, "Teacher's Handbook for Elementary Social Studies." The Inductive Thinking model is used to help students work in collaborative groups to learn information, assemble ideas and points of view, and solve problems. Students learn to collect and organize information and then to manipulate that data. They must identify elements of a problem, explore the relationships between those elements (cause and effect) and then predict the outcomes or con-sequences of those elements in a given situation. This model is often used by social studies and science teachers.

I use this model when teaching storyboard and script development for making video camcorder reports, Claymation and object animation development, and video live-studio production.

Nondirective Teaching

This model was developed by Carl Rogers and presented in his 1982 work, "Freedom to Learn for the 80s." Nondirective teaching is when the teacher functions as an advocate, helping students understand themselves, illuminate their goals, and accept responsibility for their actions. The teacher engages the student in a teaching-learning partnership.

I regularly use this model when teaching storyboard development, script development, video camcorder report development, and comic strip and comic book production.

As students become competent in a particular technique, I have them train other students toward becoming competent. I also have them train me, my fellow educators, administrators and parents. The program that I have developed for this teaching-learning partnership is called the "Junior Mentor" program, which I describe in depth elsewhere in this handbook.

Synectics

This paradigm, first developed by William J.J. Gordon in his 1961 work, "SYNECTICS," is used to broaden students' perspectives on problems, to generate more responsible, ethical, rational and creative approaches to problem solving and product development and to increase compassion and understanding of others. The teacher uses analogies to make a concept relevant to the student.

I use this model whenever students are developing storyboards and scripts for their projects. Analogies help a student more clearly to grasp a subject and then express it

in a powerful fashion. It is also useful when appraising a student's proposal to use violent scenes in a video production, Claymation or cartoon. I find that most often, as with the movies they have watched for years, students want to show violence for the sake of entertainment rather than to demonstrate a rationale for caution.

Role Playing

In this model, designed by Fannie and George Shaftel and first presented in their 1967 work, "Role Playing for Social Values: Decision Making in the Social Studies," and updated in their 1982 work, "Role Playing in the Curriculum," students enact problem situations, analyze values and increase cooperative behavior.

This is a very effective model when teaching video studio production and Claymation production. The students act out all of the parts of the script that they write. Both the hero's and the antagonist's points of view are explored, along with that of the "bystanders." Students learn to have empathy for others and to look objectively at their own behavior.

Jurisprudential Inquiry

This paradigm, developed by Donald Oliver and James Shaver and examined in their 1966 work, "Teaching Public Issues in the High School," has students create projects that study social policy, perform values clarification, and resolve conflicts between interests and values, or as one of my students put it, "the clash of rights."

I use this model in approximately 90% of my teaching, as Public Service Announcements are the main type of projects

18

that my students create. So, the objective of almost every student project is to create an educational commercial that demonstrates good behavior, admonishes undesirable behavior in society, and shows ways to achieve appropriate resolutions.

Cybernetics and Learning from Simulations

In this model, based on the 1966 work of K.U. Smith and M.F. Smith, "Cybernetic Principles of Learning and Educational Design," students learn from their direct experiences when they are presented with tasks and then receive feedback about their actions. Students teach themselves by observing the results of what they do.

I use this model when teaching flip book creation, cartooning, animation and computer graphics applications. It is an extremely effective method when students are learning a complex process. I allow the student or students to begin a task and then, as they become intensely involved in the activity, I question them about what they are learning and how they can apply this new knowledge to other areas of their lives.

Computer games provide a strong vehicle for this model of teaching. However, games do not always provide the desired depth of educational interactivity for students. Strive to build classroom computer desktops to eliminate repetitious action "game" programs and heavily weight the choices with software *tools* that allows students to create original animations and graphics, clip art animations or architectural renderings. Design curriculum activities that give students a

feeling of satisfaction from creating and completing a useful product and select software that promotes self-directed learning, discovery and stimulates ideas.

Learning Self-control

In this model, presented in D. Premack's 1965 article "Reinforcement Theory," featured in <u>Nebraska Symposium on Motivation</u>, published by the University of Nebraska Press, teachers use rewards to obtain on-task behavior by students. Through this behavior, students learn to understand the parameters of their personal and social situations and to manage their behavior productively.

This is very important to classroom management in a technology environment. Students must be self-controlled when they are interfacing with and using expensive and sometimes delicate pieces of technology equipment. They must learn to share the limited numbers of pieces of equipment with other students and use their time with the equipment effectively and productively.

By offering the use of certain pieces of equipment as a reward for learning to use other pieces of equipment properly, students rotate through a variety of hands-on technology hardware. By offering the use of certain computer programs as a reward for learning to use other programs effectively, students rotate through a variety of educational software applications. In each case, students choose to advance themselves and perform more challenging levels of *work* as a "reward" for completing prerequisite assignments. I do not rely upon candy, play-time, bonus points, or other such traditional classroom motivation techniques. I let "a

job well done" be the reward. The students receive a great deal of recognition in my classes for craftsmanship, competence, and quality assurance. These practices are also the hallmark of success in the adult work world.

Mastery Learning

In this model of teaching, presented in <u>Mastery Learning: Theory and Practice</u>, 1971, by Benjamin Bloom, in his article, "Mastery Learning," and John B. Carroll, in his article, "Problems of Measurement Related to the Concept of Learning for Mastery," learners adjust the pace of instruction and record their own progress. Subject matter is organized into small, prioritized sets that flow into each other to complete the purposes and objectives of the course. This approach is most natural to learners, who have "two separate but simultaneous tendencies in the brain for organizing information. One is to reduce information into parts; the other is to perceive and work with it as a whole or series of wholes" (Caine & Caine, 1994). There are progress assessments contained in each unit or set of learning.

This is the primary model that I use. I apply the Mastery Model in a modified form for teaching my quarter classes and in the full-blown format for teaching the second quarter of a semester class. Using this model allows opportunities for a greater number of students to succeed. In fact, the running average over the past eight years has been that approximately eighty percent of my students achieve a grade of "B" or better. A grade of "B" meaning that the students have substantially completed all required tasks and demonstrated "mastery" or competence in meeting learning

objectives. The performance of my students is in keeping with the findings of Mastery Model research (Gagne, Briggs & Wager, 1992).

In the second quarter of a semester class, students have already learned the basic processes of working in each of the project areas during the first quarter of study. They have made mini-projects in groups and independently. The students' semester "Mastery Projects" are individual projects that, when completed, will demonstrate the level of the student's understanding of a particular multimedia technique. Because so many elements of developing multimedia projects overlap from one project type to another, when a student is competent at developing any one of the project types, they usually have a firm grasp of the basics of all the project types.

A teacher can facilitate the beginning of "Mastery Projects" by helping the students to select a project type and the mixture of multimedia equipment that they will use to present their ideas. Students should select projects and equipment that they are most comfortable with, as "each medium has its own expressive power and this power may better suit the needs of some people than others" (Thornburg, 1991). It is empowering for students to select their projects and equipment and helps students to be actively engaged in the production process and remain largely self-directed learners.

The teacher should then guide the students in ways to organize their ideas with storyboards, script outlines, brainstorming-cluster diagrams, one and two paragraph summaries of the objectives of their projects, and pencil sketches of the background scenery and the main characters

that will appear in their projects. This is viewed as "active learning time and feedback" (Jacobsen, Eggen & Kauchak, 1989). Provide the students with the production materials that they require and schedule the use of the equipment that they have chosen to work with. Then, the instructor functions as an "assistant" or helper to each student. This is viewed as providing "corrective procedures and instructional cues" (Jacobsen et al., 1989).

In my classroom, the students can "employ" me as a resource to help with any element of their project. This is a very powerful position for the students. They are the director, producer and "boss" of the project's development and they can ask me to work *for* them. They tell me what to do and I do it. There are limits on what I will do. I will not *do* the project for them, but I am a knowledgeable resource or "expert" whom they can call upon to help do minor tasks such as drawing one of the eyes on a cartoon character, helping to refine the direction of a script's story line, counseling on the choice of colors used in a Claymation background, helping to review music selections to be used in a production, etc. This is useful training for work in the adult business world, where project managers need to know where to find skilled workers, what to ask of a worker and what output to expect of a skilled worker.

During the development and production of Mastery Projects, students learn good personnel management skills. The students are given a deadline for turning in the completed project. I keep track of their progress from week to week, performing "brief diagnostic tests to measure the student's

developing progress" (Bruce & Weil, 1986), as formative
evaluation. Using this approach, no student gets behind in
his or her production schedule and the students learn time
management. The students work at their own pace, within the
guidelines of a project deadline.

A common understanding among educators who employ the
Mastery Model is that "if students are given sufficient time
to attain an acceptable [competency] level and they use that
time effectively, they can succeed" (Jacobsen et al., 1989).

Paradigms of Learning Multimedia Production

Learning Styles

It is generally agreed that there are four Learning Styles. These are Auditory, Tactile, Visual and Multi-Sensory. These are the styles or ways that a student best relates all prior learned schema to new concepts and processes. Each child has a particular favorite, comfortable way of assimilating new information. "Broadly construed, a person's learning style is the intelligences put to work" (Armstrong, 1994). It is important for a teacher to remember to instruct for the benefit of all of these styles in order to effectively reach all of the students in the classroom group and to establish an environment where every child has the opportunity to succeed. The teacher must draw pictures, describe and demonstrate each new concept or process to the students and then have the students physically recreate the concept or process along with the instructor. Renate N. Caine's research demonstrated that no one teaching method adequately addressed all of the various workings of the human brain. "Teaching should be multifaceted to allow all students to express visual, tactile, emotional and auditory preferences" (Caine & Caine, 1994).

Auditory

Simply put, the student identified as an "Auditory Learner" is a student who best learns from direct instruction lecture. They need to hear the concept described in order to understand the concept. It is important that the teacher talk at a comfortable, even pace and speak clearly, in "layman's language" when presenting new information.

Tactile

The "Tactile Learner" is a student who must handle manipulative materials and equipment for themselves in order to understand certain concepts and processes. The teacher needs to plan ahead for providing enough samples of the materials or for rotating each student to the equipment when presenting new information. Teaching for this style of learning takes much more time to accomplish than instruction for auditory or visual learners because so much preplanning and gathering of manipulatives must be done.

Visual

The "Visual Learner" is the student who must see information written on the board, printed in the form of handouts, or depicted in educational films. They must see processes physically performed by the teacher in the classroom or see the information in textbook "hardcopy" form in order to understand a concept. The teacher's movements must be slow and sequential and the teacher should repeat the process two or three times when presenting new information. One excellent means of teaching for visual learners is to have a video camcorder, connected to a classroom monitor, provide close-up visuals for the students to watch.

Multi-sensory

The "Multi-sensory" learner must see, hear and touch during instruction in order to understand concepts and processes. This student needs to have the benefits of all of the above forms of presenting new information.

26

Multiple Intelligences

The current line of thinking, according to the major theorists on multiple intelligences, is that every student possesses all seven of the intelligences initially identified and formulated by Howard Gardner. These seven intelligences, Linguistic, Logical-Mathematical, Spatial, Musical, Bodily-Kinesthetic, Interpersonal, and and Intrapersonal, have been documented by Gardner in 1983 and 1993, Kirschenbaum in 1990, Armstrong in 1994, Lazear in 1994, and Jasmine in 1996, among others. It is part of a teacher's responsibility to encourage, enrich and teach students, in a way that develops to higher levels, as many of these intelligences as possible. This is done by providing a multisensory, multimedia, "prepared environment," in the Montessorian tradition, by planning a variety of experiential learning opportunities for each student, and by using a variety of teaching models that teach to and honor the whole mental and physical child.

According to Thomas Armstrong's (1994) evaluation of Howard Gardner's theory of multiple intelligences, "Gardner suggested that intelligence has more to do with the capacity for (1) solving problems and (2) fashioning products in a context-rich and naturalistic setting" than with intelligence quotients and aptitudes assessed by standardized testing. The theory of multiple intelligences lends itself well to working with multimedia technology. Bernard Poole's (1995) analysis of technology systems that are multisensory and multimedia-based is that these technologies "enable the user to follow links between data of all types--text, film, still images, and sound...thus, knowledge acquisition is multidi-

mensional and associational--like a voyage of discovery."

The multiple intelligences are not clear cut, they are demonstrated in "ways in which people show their gifts *within* intelligences as well as *between* intelligences" (Armstrong, 1994).

I have students who are not good at sports, yet possess superior bodily-kinesthetic intelligence when sculpting clay puppets. I have students who have great difficulty with the tasks of reading and writing, but they tell fine jokes and stories for their classmates, demonstrating linguistic intelligence.

Linguistic Intelligence

Documented by Howard Gardner in 1983, in his making of "the case for the plurality of intellect," Kirschenbaum in 1990, Armstrong in 1994, and Julia Jasmine in 1996, linguistic intelligence is demonstrated by students who "like to read and write and speak, and like to play with words" (Jasmine, 1996).

Those of my students who can use words effectively for storytelling, poetry, script writing and explanation of concepts are identified as having linguistic intelligence. However, all students enrolled in my courses perform activities that improve their language arts skills and significantly increase their vocabulary. Students are trained in the development of what is known in the entertainment business as a "storyboard." The storyboard incorporates cartoon sketches, that depict a particular scene within short original stories written by students, a running textual

script of each character's lines within the student's story, and a narrative footnote to each scene. The first form of story boarding is done as a comic strip, than as a script for a Claymation production, then as a 40 to 60 page, full length comic book, and finally, as a preliminary script for a live video studio production. This final and most complex of the story boarding uses, also has written instructions for camera direction and staging of the action of the characters.   The students having linguistic intelligence are identified by the actual product that they create, which has depth of under-standing, humor, drama, excellent analogies, strong character development and basically tells a good story. In a class of 30 or more students, I will usually have three or four students who stand out for their linguistic intelligence.

The following activities are recommended for nurturing and strengthening linguistic intelligence in a multimedia technology supported curriculum classroom: regular assignments of script writing and story-board development; oral interpretation; acting; singing; group discussion work; opportunities for socializing, conversation, and complimenting on the good work of peers; performing phonics work while making Claymation projects; using the "spell check" capability of computer writing programs; reading out loud; giving oral reports recorded as video projects; and doing crossword puzzles of the curriculum vocabulary   .

Logical-Mathematical Intelligence

Students who are good at math, or statistics, science, computer processing or who otherwise show an ability to find

logical patterns and relationships in information are identified as having logical-mathematical intelligence. This is "often characterized as [having] critical thinking [skills]" (Jasmine, 1996).

There are students in my classes who do not get good grades in their math classes but demonstrate for me their ability to sit down at a computer and create a complex set of 500 or more scripted computer animation sequence links. Other students shine in their ability to understand and manipulate the photography formulas for video taping Claymation projects. From my experience of working with almost eight thousand students, while teaching computer animation, Claymation and graphics units, I have concluded that a student may possess one or more "critical thinking" characteristics and that mathematics skills may not be one of the student's strong assets. I have observed two characteristics that are common to students gifted with logical-mathematical intelligence, one is that all of them are well organized and, secondly, they are methodical about how they proceed with constructing a project.

Activities to nurture and strengthen this intelligence include: perform many graph paper and pencil projects for blocking out movie sets and studio background scenery; use rulers and compasses in drawing; call attention to the mathematical formulas used in stop-frame videography and in video and sound editing; use computer assisted design (CAD) software programs for wire-frame computer art and architectural drawing; work with geometric shapes in perspective

drawing; devise strategies for showing compressed action in studio video production; have students make charts and time lines for scheduling student production work; have students learn how to design lighting patterns and lighting placement grids for video production; have students always create titles and credits for each production; have students research and present statistics that support public service announcement script concepts; and have students develop sequential cause and effect storyboards.

Spatial Intelligence

Students who are good at visual-spatial perceptions, architecture, wire frame CAD programs, and two dimensional art projects, and who can easily graphically represent ideas, are identified as having spatial intelligence. These students "learn readily from movies, pictures, videos, and demonstrations using models and props" (Jasmine, 1996).

This intelligence is especially important to the visual/multimedia technologies fields. I stress development of this intelligence in my curriculum. Each of my students is taught the basic art concepts of perspective, proportions, balance, use of color, cartooning, incremental motion of subjects, and ways to draw character's emotions. During the units involving videography instruction, they further learn about lighting, camera angles, camera shots, camera movement, and the anesthetics of composing a frame or scene.

Effective ways to nurture and strengthen this intelligence include: have students make maps, diagrams and jigsaw puzzles; do pretending exercises, such as, pretending to be

different characters during impromptu video interviews; set up a separate area for drawing, painting and working with clay; set up an editing bay area for students to view video production projects; keep a variety of well-illustrated art and animation technique books in the classroom for students to browse; have students build Claymation sets and paint video production scenery; have students make diagrams of prop placement and actor placement and movement for use "on stage" in production work; and have students create storyboard sketches to go with scripts.

Bodily-Kinesthetic Intelligence

Students who use their bodies to express ideas and feelings in sports, acting, dancing, sculpting clay for Claymation with the dexterity of a surgeon, who have a good mechanical ability, who demonstrate coordination and balance and who can handle objects skillfully are the students that I identify as having bodily-kinesthetic intelligence. These students "prefer to communicate information by demonstration or modeling, they move around, act things out, and touch people they are talking to" (Jasmine, 1996). They are good at crafts and equipment operation.

I teach all of my students about the rhythm of body movement important to acting, how to create clay puppets over wire armature, construction of mini-theater sets for Claymation projects, the balancing of a camcorder on their shoulders while video taping events, the manipulation technique for revealing a deck of animation "flip cards," and the handling and maneuvering of professional and sophisticated video production equipment. I teach them how to "compress

32

action" in front of a video camera so that an actors'
movement, that would normally take a great deal of space to
act out, can be accomplished in three or four feet of studio
space. Most of my students show high levels of bodily-
kinesthetic intelligence by the end of the live studio video
production unit of my course.

A variety of ways to nurture and strengthen this
intelligence include: send these students on errands for you;
have them dance; have them act out parts of a script; have
them read out loud; have students use manipulatives for
constructing projects; send students out of classroom to do
"location" video taping of events and other classrooms; have
students put up lighting equipment and perform set construc-
tion; have students make costumes; have students do special
effects makeup on other students; have students move class-
room furniture for you and move furniture around the movie
set; help students to develop hand-eye coordination while
working with computer programs; have students learn and use
the internationally used hand signals for audio and video
production; and when beginning Claymation unit, divide clay
into tennis-ball sized balls and throw clay to students and
have them catch it and rework the clay shapes for the lesson.

Musical Intelligence

These students like to whistle, hum or sing all the
time, even while they are working in the classroom. They use
musical rhythms to help them memorize complex sets of facts
and other information. This can be distracting to other
students and to you. This is the "least encouraged of all the

33

intelligences... often seen as....disturbing the class"
(Jasmine, 1996). Many of these students play musical
instruments. Students who can perceive what music to use to
express the right mood for a movie scene, who can compose
music on computers and electronic keyboards, or use their
voice in singing scat music, who have a keen sensitivity to
rhythm and melody, and who have a strong aesthetic
appreciation are identified as having musical intelligence.

I teach all of my students about the importance of music
in supporting the ideas of a story. Most movie clips that we
analyze, whether done by professionals or by the students,
have music that helps to carry the feelings and intentions of
the characters and the director. Students learn how to use
music in making transitions from one scene to another and how
to manipulate the emotions of the viewer by using specific
rhythm, pace, or instruments in the musical selections that
they use or create for their productions.

Ways to nurture and strengthen this intelligence
include: have tape players with earphones for students to use
during project work; have students write original music and
lyrics using computer programs; have students write songs
that tell the story in their script; use electronic keyboards
and let students experiment with unusual, hand-made folk and
ethnic instruments; have students listen to, analyze, and
edit copyright free music for incorporation into a projects;
have students make their own instruments; and have students
create an audio library of sound effects that they can use in
their projects.

Interpersonal Intelligence

These students are identified as students who "don't like to work alone, enjoy socialization...[and] are extroverted" (Jasmine, 1996). They "seem to be street-smart" and "seem to be a natural leader" (Armstrong, 1994). Students who have an ability to discern the moods, feelings and motivations of their fellow students and can draw facial expressions well, can use their voice to characterize the different parts in student stories, usually the leadership students, who know how to produce and direct the actions of their peers, are the ones identified as having interpersonal intelligence. They are counselors for their peers and do peer-mediation and conflict resolution and have a good sense of humor and a sense of intuition about how to handle problem production situations.

Even though I give all of my students an opportunity to produce and direct their own original projects, only one in ten of my students has what I recognize as a keen interpersonal intelligence. This is hard to teach. In this regard, I have found a very intriguing circumstance among those of my students who have been enrolled in Gifted and Talented Education (G. A. T. E.) classes for a number of years. These students, despite their documented high intelligence quotient (I. Q.) levels, have limited leadership skills. However, the students who have been on "regular tracts" or "special education tracks" have a higher percentage of students who demonstrate leadership skills. By

35

demonstrating leadership skills, I mean that they have developed a powerful charisma about themselves that is attractive to other students and they have a sense about how to manipulate or control the actions and loyalties of their peers. Plus, they have a clear sense about right and wrong, although they can misuse their power to manipulate others due to lack of empathy.

I speculate that, students who have been placed with a certain, same group of highly intelligent students for extended periods of time, allow only one, two, or three of their ranks to rise to leadership positions. I question whether or not the systematic isolation of high I. Q. students is not having a side-effect of keeping approximately 27 of every 30 G.A.T.E. students from developing leadership abilities and interpersonal intelligence. It would take a study spanning approximately 25 years to indicate impacts of this phenomenon upon corporate leadership in the United States.

Ways to nurture and strengthen interpersonal intelligence in a multimedia technology supported classroom include: have students work on many collaborative projects; plan for group discussions and critiquing of projects; hold public service announcement issues debates and have certain students represent both sides; have students practice complimenting each other on their work; have students experience producing and directing a video project; have students teach their peers and adult teachers about a concept or technology technique or software program; have students perform

36

conflict resolution when production problems arise; have students help draw up a production crew assignment schedule for the class; and have students work with the social dynamics of clay puppets that portray people, including feelings and reactions, in given story situations.

The best general advice that I can offer in nurturing the level of interpersonal intelligence is to give students as many opportunities to be leaders as possible.

Intrapersonal Intelligence

The student with intrapersonal intelligence has "a realistic sense of his/her strengths and weaknesses...[and] marches to the beat of a different drummer in his/her style of living and learning" (Armstrong, 1994). Students who are very introspective, can cartoon themselves well, demonstrate self-discipline and have a great deal of self-esteem are identified as having intrapersonal intelligence. They write about their dreams and create very surrealistic art work. These students study lengthy computer program manuals, then learn and use the applications for their own projects. They have strong religious beliefs that are displayed in their writing and art and have a sense of morality and a strong values system.

Interpersonal intelligence skills are developed through values clarification projects such as the writing and producing of Public Service Announcements (PSAs). Students are encouraged to be accepting of all of their own efforts. When students are drawing cartoon characters or sculpting clay characters, a sense of playfulness is incorporated as much as possible with the work and we try not to "evaluate"

37

the professionalism or "slickness" of completed work but rather the careful craftsmanship of work. I do not allow students to put down or kill the ideas of other students but encourage acceptance and appreciation of different perspectives and talents. Every student feels good about a job well crafted. It takes patience on my part and their part. Students are given many opportunities to peer-train when they have demonstrated competence in any production area.

Effective ways to nurture and strengthen this intelligence include: when the classroom is noisy, give students "quiet time" with headsets that are not hooked up to equipment; have students keep PSA journals; have students make personal oral journals with an audio cassette recorder or on A/V computers; have students do comic book construction and computer animation on issues that concern them; provide space, books and time for lots of recreational reading; have students write about how some PSA topics relate to their own experiences; and give students opportunities to placate their own preferences and interests.

Interdisciplinary Learning

None of the curriculum units that I teach can stand alone, they all interplay and overlap in concepts and applications. This is an effective strategy when considering that "almost everyone has several types of intelligence... [called] intelligence clusters" (Jasmine, 1996). Students need to be taught in "interdisciplinary ways that reflect the ever-changing demands of an increasingly complex society" (Armstrong, 1994).

38

- To be a good storyteller, a student must have language arts skills, an understanding of human nature, and the ability to choose the appropriate format for telling the story.
- To be a good cartoonist, a student must know more than basic art techniques, they must know about the expression of human emotion and gestures and verbal articulation of sounds, and they must be good storytellers.
- To produce a flip book, a student must understand the incremental motion of things, art techniques, timing, and must be able to tell an idea or concept in fifty frames of incremental animation art movement.
- To produce a Claymation, a student must be able to tell a good story, use appropriate art techniques, operate video equipment, manage the work activities of their peer collaborators, understand camera techniques, lighting techniques, music selection and oral interpretation of the script.
- To create a computer animation, a student must be able to tell a good story, apply appropriate art techniques, understand incremental motion, use music and sound effects, demonstrate patience and persistence, understand and apply camera techniques and know how to operate the computer and software program being used.
- To produce and direct a studio video production, a student must be able to tell a good story, interpret that story into photography, understand lighting, use sound effects and microphones, camera techniques,

compressed action, oral interpretation of the script,

know how to use graphics, know how to use music and be

able to direct the work of peer collaborators and crew

and most of all, to be able to do many of these things

at the same time.

This is the essence of multimedia literacy. The

selection, manipulation and effective use of all the schemata

known to the student and then the restructuring of that

schemata into something entirely new, original, useful and

culturally valued. Furthermore, the teaching of inter-

disciplinary multimedia literacy must "orchestrate the

learner's experience [so] that all aspects of brain operation

are addressed" (Caine & Caine, 1994).

The Equalizing Nature of Multimedia Technology

My first recognition of how the usage of multimedia technology created equal ground between disparate students, was during my first year of teaching Claymation production. I had assigned three eighth grade boys the task of collaborating on a Claymation about a concept they were studying in their science classes. Each of the three boys was identified in different educational "tracks." One fellow was a G.A.T.E. student and was multilingual. Another boy was following the "regular track." The third boy, identified as as a "special education" student, had been placed in my class as part of a mainstreaming effort. The three boys were not friends and did not have any other common class activities. They were each of different ethnic origins. They did not have any particular levels of respect for each other, either. Each of the three boys asked me to reassign them to another project group. I refused to reassign them and, so, they proceeded to begin production on a Claymation about the food chain concept.

The boys worked on the project for one week. During this time they began to recognize that each one of them had a particular talent that worked very well in this collaboration. The G.A.T.E. student was a good writer and created a very humorous, English and Spanish script about a snake eating a mouse. The "regular track" student" was especially good at operating the camera and performing the stop frame recording. The "Special Education" boy was clever at crafting the clay puppets and operating them during the video taping. They all contributed to the final editing and addition of the audio track voices to the video portion of the program. When

41

the project was finished and premiered before their peers in the classroom, it was well received and the boys asked me if they could work together on another project.

I let this trio collaborate on all the remaining projects for the Semester. Not only did they become friends, who respected each other for the quality of work they each performed, they drew into their collaboration friends who were also from disparate groups and categorical tracks. I watched, as these young people, utilizing various pieces of equipment and materials, all rose to the occasion of pro-ducing a quality product. As they worked, they each shared the techniques that they excelled in and each of them learned the craft and uses of multimedia technology to the extent that, several of the projects produced in this class won State of California media competition awards.

As a result of this experience, I became convinced that collaborative projects, using multimedia technology, provided an environment that was socially equalizing while nurturing the more pronounced talents of each student involved. Other "uncontrolled" factors, such as the personality of the in-structor, the time of day, and the personal bias levels of each student involved in a collaboration, among others, impact the success of collaborative projects. However, based upon the frequency of similar outcomes in my classroom, I believe that the success rate of student collaborations is measurably improved by the incorporation of diverse multi-media equipment.

The next insight about the equalizing effect of using multimedia technology with students occurred at the end of

the first semester of my second year of teaching at King

Middle School. Several of my students were very shy, Hispanic

girls. They came into my class, at the beginning of the

semester, apprehensive about touching any of the expensive

technology equipment. At home, they were conditioned to

having only the father and other adult males in the household

allowed to handle and use the VCR, TV channel changer,

stereo, etc. (Shanker, 1992). They were very reluctant to

hold and operate the video camcorders and studio cameras, let

alone the laser disk player, and audio and video editing

equipment. It took a lot of coaxing on my part to get these

girls to begin working with the electronic equipment. By the

end of the first quarter of the class, most of the girls were

eager and skilled at using video cameras and the audio mixing

board. By the end of the second quarter of the class, these

girls were very assertive about using the equipment to create

their projects. The had developed stronger interactions with

the male students and were doing well in the role of

producer/director of projects, where they were in a position

to give orders to the other students about how to use the

cameras, audio equipment, editing equipment and had the power

to "hire and fire" crew members on their Mastery project

productions. At this time, I confirmed the research that I

had read, stating that technology skills were gender

equalizing (Sanders, 1986).

The students, themselves, demand, and are very sensitive

about, equitable access to the technology equipment. This

sensitivity become more pronounced as "each [student]

develops their own method and style of learning...through

their life experiences" (Sims, 1995). I have arranged the curriculum components and interior classroom design of the multimedia lab and classroom to allow for fair and equitable access to each and every item of multimedia equipment by each and every student during the quarter. I do not believe that my classes would be successful if students felt unfairly managed or cheated out of the use of any piece of equipment. At the end of each project cycle, usually five to seven school days, I offer two "free days" to my students. Any student who has completed their project and received a passing grade of "C" or better, in writing, may work at any open equipment station of their choice during a "free day." This is similar to the currently used practice of "PAT" (preferred activity time), however, the activity is *work* and the activity is student-directed and may be individual or collaborative, at the discretion of the student. This is also a time when each student develops a "feel" for what pieces of equipment they most enjoy working with and what projects have the most appeal for them. Even though the students chatter and socialize during this time, they simultaneously perform production tasks. This is very empowering to the students, as they take control of the atmosphere and productivity of the class.

To my satisfaction, many students decide to do "extra credit" projects in the same area that they have just completed. The students learn to choose being productive rather than wasting time.

Values Clarification and Other Project Objectives

From year to year, my students have always demonstrated a great interest in working with the multimedia projects generated by my curriculum. They have been easily engaged in making the projects and sustain levels of deep immersion in the project processes. This circumstance has allowed me to interject several unannounced objectives into each project. The most prominent undeclared objective is that of values clarification. I ask the students to create projects constructed around a Public Service Announcement (PSA) theme. Examples of a PSA theme include: "Don't Play With Matches"; "Look Both Ways Before Crossing The Street"; "Brush Your Teeth Every Day"; and "Stay in School." In the curriculum portion of this workbook, I include a reproducible list of the most popular PSA topics that my students have worked with over the years.

In addition to the rather generic examples given above, I also use the PSA vehicle to have *at risk* students examine the motives and consequences of unacceptable behavior. Those students identified as being *at risk* of becoming involved with peer hoodlum gangs, are asked to create a script and produce a project on the the theme of "Don't Join Gangs," "Don't Tag," or 'Stop The Violence." Those students *at risk* of engaging in illegal use of controlled substances or alcohol abuse are asked to work on the themes of "Don't Drink and Drive," "Don't Smoke Cigarettes," or Don't Do Drugs." In each instance, I provide the students working on these particular themes with information pamphlets and government statistics

articles about the choices, circumstances and consequences of these behaviors.

The students proceed to look at the issues in depth and the conclusions that the students draw from their "research" into the topics helps them to find answers to their own questions in these areas and redirect their own behavior paths. The proof of this is evident in the actual finished student productions, presenting clear messages to the viewer about the appropriate courses of action a person should follow.

Another undeclared objective that I incorporate into the development of student multimedia projects includes development of proper diction and articulation. The majority of students with whom I have worked with over the past eight years have had a problem with speaking "business" English. They have been raised to speak different varieties of slang found in their homes and in their neighborhoods. Usually these students have had a very active transfer history and have moved from one school to another, many times in mid-quarter of the academic year. Due to the numerous interruptions in their education, they have not had consistent training in grammar, spelling or spoken language skills. I have taught literally <u>hundreds</u> of twelve and thirteen year old students who could not string together more than four words in correct grammatical form. They would mispronounce words and then attempt to write scripts with words spelled approximately the way that they were being mispronounced.

These students' lack of command of language skills kept them from reading and writing and promoted "career limiting"

speech. I have these students spend a considerable amount of time doing word processing of their scripts, for "as research has shown, it improves the quality of one's writing by encouraging rereading and revision of one's work" (Poole, 1995).

Writing many short project scripts each quarter is helpful in aiding these students in improving their written skills. However, it is the animation and Claymation projects that have produced a measurable improvement in their oral skills. In order that the animated character or Claymation puppet appear to lip-sync the words of the student's script, the character or puppet must appear to accurately form the sounds with their mouth movement and shape. My students sit for thirty minutes at a time, holding small make-up mirrors up before their own faces and observing their own lips before modeling the mouth of the character or puppet. The students use the pronunciation guides in the dictionary to help them form the sounds of the vowels and consonants and place the accents correctly. They also reference a worksheet that I provide that depicts the mouth shapes for most vowels and consonants. Within four to five days of beginning this portion of a project, students are noticeably improved in their classroom oral language skills.

A third undeclared objective that I find valuable is in teaching students to manage their time in effective ways. Each student is allowed a specific amount of time to complete a finished product. I post time lines on the front writing board and distribute time line handout schedules to the students. Every day, I remind them of the amount of time that

is left to complete the project and discuss with the students the amount of time it usually takes to do the several portions of each production.

A fourth undeclared objective is my goal to have the students learn to read better. Each student takes a turn at acting in another student's production, where they must read a script written by someone else. Each student must give a preliminary presentation of their story ideas before the entire class by reading a summary of their story and then field questions and suggestions from their peers before they write their own final script. They take notes on suggestions by their peers and must respond, in writing, to these suggestions.

However, the most expedient route to having students learn to read better comes under the umbrella of having the students learn new computer software programs. I purchase one or two new software programs each month. I load each program onto the hard drive of one of the computers in my classroom and then offer the operation manual to any student who would like to work with the new program. The students struggle with the sophisticated technical language but manage to figure out how the applications work. The motivation is that they want to use the information now and discipline themselves to learn the vocabulary and complete the required reading. The reward is "novelty, discovery, and challenge" (Caine & Caine, 1994).

The Interdisciplinary Nature of Multimedia Projects

One of the goals of my curriculum is to build the capacity of each student to effectively use multimedia technology. For the students to do this, they must develop other interrelated skills at the same time. Inherent components of multimedia information include text, either written or spoken, visuals, either still or in motion, and sounds, either human voice, special effects or music. To be able to manipulate these components in the creation of a multimedia project, the student must draw upon an extensive bank of prior schemata. Students must do the following: write stories, chart storyboards, make verbal presentations, design and construct miniature movie sets, draw cartoon and animation characters, perform stop-motion animation mathematical formulas, operate sophisticated electronic equipment, perform photography, manipulate lighting and color, analyze and edit final work, apply sound technologies, perform stage and voice acting, create computerized and optical special effects, do research, critique others' work, and develop a portfolio. Students create multimedia projects that simultaneously incorporate the disciplines of fine arts, vocational technology, language arts, mathematics, citizenship, and science.

Values of Multimedia Production Skills

According to David Thornburg, in his book, <u>Education,</u>

<u>Technology, and Paradigms of Change for the 21st Century</u>:

> Research on multiple intelligences, the psychology of
> optimal experience, and the functioning of the human
> brain dovetail with the rapid development of inexpensive
> multimedia workstations and development systems in ways
> that can let any educator transform education for the
> benefit of all children
> (Thornburg, 1991).

The skills learned and developed in the creation of

multimedia projects are life skills, which include collab-

oration, problem solving, practical application of theory,

communication skills, analysis, evaluation and the synthesis

of information. All of these are skills that each student can

use, no matter what career path is chosen.

The specific competence and experience gained from

constructing multimedia projects translates into entertain-

ment industry and publications industry jobs. As the future

unfolds continued development of multimedia products,

students who know how to create the information for C-D ROM

disks, laser disks, video presentations, and yet unimagined

products, will have the advantage in the labor pool. There is

now an increasing need for skilled animators, video pro-

duction crew personnel, computer programmers, and technical

and non-technical writers that is not being met. Through my

association with the Personnel Directors from major enter-

tainment corporations and entities, including Disney, Warner

Bros., Hanna-Barbarra, Film Roman, AnimAction, The American

Animation Institute, and the National Student Film Institute,

I am aware that these corporations, and many other major

entertainment firms, are hiring from outside of California because there are not enough skilled persons seeking these jobs. These corporations' Personnel Directors believe that high schools and colleges in California have not yet organized interdisciplinary courses to prepare students for these jobs.

In the Business section of the April 21, 1996 issue of The Sun, page one, the "Trends" column, there was an article printed, entitled "Careers to seek, careers to dump," offering the following advise, "Want to go into a field where you're just about guaranteed a job? Try computer animation... The other careers to get into include online content producing [for the internet]."

The number one value of multimedia production skills is access to jobs.

The Joyous Classroom

There is a very obvious difference between a classroom where only direct instruction to children, sitting in orderly rows of desk-chairs, is taking place and a "Constructivist" multimedia classroom where independent student "discovery learning" and collaborative, "Cybernetic" projects are being made. The difference is the level of <u>laughter</u>. I manage my classroom around the philosophy found in some tried and true old expressions: "Busy hands are happy hands," and "To keep someone from rocking the boat, get them to help row the boat."

My classroom has a very professional aura about it. This requires planning and consistent work, as "the entire environment needs to be supportive and marked by mutual respect and acceptance both within and beyond the classroom" (Caine & Caine, 1994). I let my students know that I expect professional and polite behavior from them at all times. I treat my students with the same professional attitude that I use with my colleagues. The students generally rise to the occasion and to my expectations.

I have a lot of fun teaching the curriculum that I teach. I enjoy the creativity and originality of my students' projects. I relish watching them solving production problems, delegating project responsibilities, and telling their ideas in entertaining and informative ways. These activities let me see some of the adult characteristics these children will have when they are in positions to make laws and run businesses and government activities in the future.

The students have fun in my classroom. The sixth and seventh grade students come running from across campus and burst through my front door with enthusiasm, ready to start working on their projects. The eighth grade students come to class on time and go right to work. They have a clear schedule and know what they are expected to do each day. There is a lot of variety and opportunity to socialize while doing project work. The many educators and administrators who have visited my classroom have told me that they could feel the sense of joy in the students from the moment they entered the classroom. I have a small poster up on the wall that says, "The best learning happens when serious intent is combined with playfulness."

THE CURRICULUM

I began teaching multimedia production classes, in 1989, with a course plan that incorporated Language Arts curriculum with audio and video production, art and computer word processing. I still hold these components in my curriculum. However, I have expanded the usage of computer technology to include what is known as "deep-media." Deep-media is the amalgamated manipulation, by computer, of still and motion analog or digital photography and multi-track sound with animation and/or moving text. Although this is complex technology, teachers and students can perform "deep-media" in a standard classroom environment. In simple terms, the multimedia producer takes a photograph or video clip, inputs the picture to a computer, adds voice, sound effects or music and then adds art animations or text. There are many computer software programs designed to allow this form of production, which can be done on Macintosh or IBM/PC platforms.

Course Suggestions

The following basic **course suggestions** are for training students to create hand drawn video cartoons, computer animations, Claymation and live video productions. Each of these four areas of skill development include the following preplanning steps to be done by students and instructor. Each student is given a list of ideas for their movie's theme. Public Service Announcements are very easy for students to plan around...Stay in School, Don't Do Drugs, Don't Join Gangs, Look Both Ways Before Crossing the Street, Wash Your Hands Before You Eat, Save the Rain forests, Whales, Eagles,

54

etc. (See the reproducible student handout titled, "PSA Topic Suggestions.") Then students are directed to this sequence of activities:

1. Choose one idea and write two paragraphs about what will happen in the (PSA) movie and who will be the main characters. (See the reproducible student handout titled, "PSA Story Summary and Character Descriptions.")

2. Make a sketch of the background where the action takes place and another sketch of what the main characters will look like. (See the reproducible student handout titled, "Location Sketch and Character Cartoons.")

3. Write the script for the movie. (See the reproducible student handout titled, "Script Format.")

4. Make a list of all materials that will be needed to make the movie, including clay, props, costumes, music, sound effects, etc. (See the reproducible student handouts titled, "Pre-Production Planning Worksheet" and "Video Production Crew Assignments.")

5. Create a "Storyboard" of the movie. (See the reproducible student handout titled, "Storyboard Development Plan.")

Stop Frame Animation Formulas

The following formula is used to achieve a semi-professional result when video taping 2-D cartoon art animation, Claymation, object animation, or computer-generated, hard-copy print-outs of sequential art:

Setting Up the Artwork

The 2-D art and computer hard-copy art should be three-hole punched and mounted into a three-ring binder, with the first picture in the sequence on top. The binder can be "folded" over a chair back or a music stand and must remain stationary throughout the taping. As each picture is recorded, the pages are flipped over, exposing the next picture. Each picture is video taped in sequence.

When working with clay puppets or objects, these should be placed in front of a "backdrop" that obscures the motion of other classroom activities. This can be a cardboard box, converted into a mini-theater by removing two sides and drawing or painting a scene on the inside and "floor" area. You can also use a piece of cardboard that is approximately 15 inches high by a length of approximately 36 inches, covered with solid colored construction paper, folded into an "L" shape and placed on top of a table.

To video tape the work, mount the camcorder onto a tripod and use the auxiliary power-pack so that battery depletion power problems will not interrupt the taping sequence. Set the camera 5 feet from the subjects so that the auto focus and zoom functions can be used. Zoom in to a close up, so that the camera operator only sees the desired art and not beyond the edges of drawings or mini-theater backdrops.

When the camera shows beyond this point, it is called

"shooting off the set." If you have the option, connect the

camera's video output to a monitor. This makes it easy for

students to compose each shot while the entire production

group/crew can view the scene the way it will be recorded.

Mastery Recording Technique

Put a blank video tape into the camera. Use the cam-

corder's reset button to reset the tape counter to 0-0-0-0.

Press the record button and record the first shot until

the counter displays 0-0-3-0. Press the record button again

to stop recording. This means that you have taped 30

"frames." It is important to do this so that the viewers'

eyes have a chance to clearly see and identify the context

and content of the beginning of the animation. When you stop

recording, the counter will automatically rewind to 27,28 or

29. This is so that the flying erase head will perform a

clean edit between each shot.

Change the artwork to the next drawing or move the clay

puppets or objects to the next position. As a rule of thumb,

when using clay puppets or objects, move them only 1/4 inch

in any direction each time they are moved between shots. This

will prevent the subject from "jumping" around the frame from

shot to shot.

Look at the digital counter. Determine if the counter

has rewound 1, 2 or 3 shots. THIS IS VERY IMPORTANT. The

counter will display the numbers 0029 or 0028 or 0027

respectively. Your objective is to record only one "frame" at

a time, each time you change your artwork. If your camera

rewound to 0029, this means that your camera backs up 1 frame each time you stop recording. To record one frame each time you record you will need to actually record two frames, to accommodate the back-up amount.

If your camera backed up to 0028 (two frames), you will need to record three frames each time you record new artwork positions. If your camera backed up to 0027 (three frames), you will need to record four frames each time you record. Let students practice this several times to get the hang of it. On average, 30 "frames" of recorded art movement will produce about 30 seconds of real time animation when the tape is played.

When you get to the last shot for the class period or the last shot of the total production (the last picture in the sequence or the last position of the clay or objects), record a total of 30 frames. This allows the eyes of the viewers to verify the final position of the actors and gives "space" for editing the recorded stock from day to day.

Once your students get the feel for producing and recording animations, you will observe that they will become totally absorbed in the projects, maintaining a state of deep immersion learning for long periods of time. They will experiment and teach themselves different ways to improve the end results.

Novice Recording Technique

For very young students, a less complex method for video taping these cartoon frames is: Begin by taping the top frame #1 for twenty seconds, stop the camera, then, change the art work and video tape each subsequent frame for four seconds

each, stopping the recording and changing the art work while the camera is not recording. Video tape the final frame for twenty seconds. This process allows the flying erase head on the video camera to back up approximately two seconds each time you stop recording without completely erasing the prior frame. When you are done, the entire sequence of video taped frames will play in cartoon animation fashion. This method does not produce as rapidly advancing or as professional of quality as the more complex formula. However, it is a good way to get students quickly engaged in the process of creating stop-frame animation.

Problems and Solutions

Problems to end-run: Protect clay figures from being crushed by storing them in small cardboard boxes (see your school's supply room clerk) that are labeled with students' or team's names, by class period. Label your video tapes with the students' or teams' names, also by period. I find color coding of video tapes to be very helpful.

Try to find storage areas that are accessible by one or two students who can act as monitors to hand out the tapes and materials to the student production crews. If the instructor is the only person to have access, this becomes a stressful distribution chore. On the other hand, if all students can get at the materials and tapes, things disappear or get damaged.

Cartooning for Video Animation

Begin by training students to draw characters cell-by-cell (picture-by-picture) with each drawing changing by moving the character only a small amount, either in facial expression, mouth action or body movement.

I start by training students to do simple "squash" and "blink" techniques on 8 1/2 x 11 white paper that has been folded into 16 equal squares. Most books covering training in animation will demonstrate these techniques. Beginning "squash" technique animation shows how a rubber ball looks, frame-by-frame, when it is dropped, compresses and rebounds. The "blinking" technique demonstrates, frame-by-frame, how eyelids close when a character blinks their eyes. The terms "frame" and "cell" are interchangeable and are professional animation terms for each individual drawing in a cartoon animation sequence of drawings.

Another exercise is to give the students 4 1/4" by 5 1/2" plain white paper sections or "frames." You can make these by using a paper cutter to cut 8 1/2 x 11 sheets of plain white paper into four equal sections. The students can draw and trace their own character in the center of each section. Have the students place a pencil dot in the center of each frame before they start drawing and tracing. Place a specific point of their drawing on this dot, such as the chin, neck or waist of their character. This will help to "register" one drawing to the next and allow for a smooth finished video tape of the set of drawings. Also, have the students leave a clear white 1" border at all sides, top and bottom of each section or "frame." This allows you to later

video tape the individual frames without "shooting off the frame" and still get all of the student's art work seen on camera. If you have a small class size, you may opt to have the students use full 8 1/2" x 11" white paper sheets for each drawing.

Keep drawing or tracing the character, with incremental changes, until the student has a set of 30 "cells." Have students number the drawings (cells) in the upper right corner, in sequence, as they are drawing the set of pictures. This will help the students keep the sequential motion in proper sequence during the drawing and tracing portion of this exercise.

When the students have completed the sets of drawings, use a hole punch to put two holes along the top edge of each drawing. Put all the drawings, in sequential order, with number one on top, into a ring binder and put the binder over a chart stand or the back of a chair. Position the camcorder on a tripod about 5 feet away from the drawings, zoom in as close as possible and begin to video tape the drawings, one at a time. Do not move the camera or the ring binder once you begin to video tape. Carefully turn the pictures up and over, one at a time, while video taping. Moving the camera results in a very jumpy and uneven flow to the finished animation.

It is valuable to teach students to perceive and graphically translate emotions. This is a quality in the animated characters found in the finest feature animations. Two of the senior animators for Disney, Frank Thomas and Ollie Johnston offered this advise to aspiring animators on

showing a character's emotions, "There is a special ingredient in our type of animation that produces drawings that appear to think and make decisions and act of their own volition; it is what creates the illusion of life" (Thomas & Johnston, 1995).

Another important technique in animation is interpreting how a shape looks as it changes positions. Buy or make a cloth sack, about ten inches wide by fourteen inches long. Fill about seventy percent of the sack with rice or small beans. Sew the end closed and place the sack on a table in the front of the classroom. If you can arrange it, have a video camera close-up of the sack shown on the classroom monitor. Use the sack as a "figure" to pose in many different ways and have students draw the different poses. This will give some inspiration to the young animators about how other figures, human or otherwise, change positions while retaining their basic recognizable shape.

Teach students the vocabulary of the animation business... squash and stretch, anticipation, arcs, follow through, slow in and slow out, timing, exaggeration, appeal and overlapping action. Of course, you will have to study these techniques first, so that you will know how to demonstrate the procedures.

When a student has learned how to animate things through drawing or Claymation, they will have acquired a marvelous power...the ability to have control over the graphic expression of concepts and ideas. No matter how complex the concept may be, if "a picture is worth a thousand words," than, a moving picture can express volumes.

Computer Graphics and Animation

The process of teaching computer animation techniques should follow training in cartooning. Remember, "animation is the display of a sequence of drawings that gives the illusion of lifelike movement" (Collin, 1994).

When having students produce computer animations, be sure to have the students keep several formatted disks available for storing their work. Have students use high density formatted floppy disks. Computer animation is memory intensive. The classroom computer should be upgraded with a substantial amount of random access memory (RAM) storage space. Sixteen megabytes of RAM or more is recommended. Additionally, have the students purchase a plastic protector case to house their floppy disks. Disk copies and "hardcopy" print-outs of student work are great additions to student authentic assessment portfolios and are valuable demonstration tools for showing subsequent classes what finished projects look like.

An excellent program to start with is HyperCard. It is a black and white program for the Macintosh computer, with low memory requirements. The process is easy to follow and students can be trained to create multiple-cell computer animation projects in one or two class sessions.

Begin with each student drawing a large face with open eyes. The first animation change can be a talking mouth, then blinking eyes. A second session can be developing a computer animated "squash technique" project. By the time students see how easy it is, they will want to develop their own animation projects. The students who learn and apply the process first

make good trainers to help with the slower students. Have the students save their work so that they can return to a particular animation and expand upon their original work. Having students save their work by the date it was created is an efficient way to keep track of the most recent and updated versions of their animations. An animation saved onto a disk after completing the HyperCard scripting process can be played on any Macintosh computer.

Resources

The following computer animation software programs are excellent for student work:

- Cartooners and VCR Companion for the Apple IIgs.
- HyperCard, HyperStudio, Animation Works, Amazing Animation, Dabbler, and Hollywood for the Macintosh computer platform.
- Disney Animation Studios for the IBM or Amiga platform.

Computer Animation Process with HyperCard Software

1. Open file menu to "New Stack." Type student's name and click "NEW."

2. Open "Tools" menu, drag the cursor arrow down through the bottom of the tool box and move it to the lower side of the computer screen and let go of mouse button.

3. With "A" tool, click and label the first "card" in top right corner by typing in the number one "#1."

4. Draw a face with the pencil or paint brush tools.

5. With the dotted box "capture tool", enclose your drawing with a box of "dancing ants."

6. Open "Edit" menu and go down to "Copy Picture," highlight and let go of mouse button.

7. Open Edit menu again and go down to "New Card," highlight and let go of mouse button. A new blank screen card appears.

8. Open Edit menu again and go down to "Paste Picture," highlight and let go of mouse button. The picture from the prior card appears on the new card.

9. Click on the "A" tool and label in corner as frame #2

10. From the "Tools" menu, use eraser and pencil to alter drawing a little bit. For example, change the mouth shape and fill in mouth opening or move hands or feet of character.

11. Repeat steps #5 through #9, advancing the frame label number and changing the picture a little bit each time.

12. Continue until a few frames are drawn and labeled.

13. To see the animated flow of the frames completed at any time, **hold down** the right arrow on the keyboard. To see a prior frame, click the left arrow. To slowly advance forward, just click the right arrow.

14. When all frames are completed (after all editing and changes have been made to the animation), use the right or left arrow key to move to the first frame.

15. From the "Tools" menu, choose the top/center "button" symbol.

16. Open "Objects" menu and select "New Button." Using the cursor arrow, place the "button" where you want it on the first frame. Along the bottom edge is usually appropriate.

17. Open "Objects" menu again and select "Button Info" and name the button by typing in a word, like "push." Then choose the "Script" box at the bottom of "Button Info"...a new command box will appear with the words, "On mouseUp"

"end mouseUp"

18. Type in the following command to look like this:

"On mouseUp

   repeat with i=1 to x (x = the number of your last card

                              in the animation stack.)

   go to card i

   end repeat

   go to card 1

   end mouseUp"

19. Click on the close box at the top left corner of the command box and the prompt "Save script?" will appear.

20. Click on "YES."

21. Open the "GO" menu from the top menu bar and select "First Card" and then click on your button "Push" and your animation will begin and can be repeated each time you click on the "push" button.

Claymation and Object Animation

When teaching students to do Claymation, use a non-hardening clay that is identified as "modeling clay" and has been premixed with plastic, called "plastalina." This is available at toy stores and art supply stores as well as through school district supply sources. However, it is my experience that the modeling clay provided through school districts is available in very limited colors and has very little plastic in the mix, making the clay overly soft. Two sources for plastalina modeling clay are Aaron Bros. Art Marts and Standard Brands Paint Stores. A 10 lb. block of plastalina modeling clay costs around $10.50. Cut the clay block into sliced portions for students, using a nylon string tied to two short pieces of wooden dowel or a 20" piece of 12 gauge wire, secured at both ends onto short pieces of wooded dowel.

I recommend starting the students with simple facial movements, like blinking and lip movement, and having groups of students create small figures that tumble toward the camcorder. Be sure to place a solid backdrop behind the clay figures during videotaping. Using a backdrop eliminates unwanted and distracting movement behind the clay figures due to students moving around the classroom.

Have students bring a pencil to class to use for carving clay, sketching backdrops and taking notes on Claymation videography formulas.

Miniature theater backdrops can be created using card board boxes and cardboard panels. This allows you to place Claymation project groups in close proximity to each other.

A great source for cardboard boxes is your school cafeteria. The large food packaging boxes work well as Claymation theaters and backdrops and the small boxes are good for storing student projects and your stock supply of modeling clay.

Problems and Solutions

A problem that you may encounter occurs when students take clay from the projects and throw little pieces of it at fellow students in other classrooms and on school buses.

It has been helpful for me to have a different color of clay for each class period. That way, I can zero in on what class is spiriting away the clay from my classroom. Having one color of clay per class also eliminates the mixing of clay colors into masses of marbleized colors. Marbleized clay does not show well on video. The marbleizing distracts from the details and features of the clay puppet. I invite students to buy their own clay if they want to work with multicolored clay puppets. They bring it in to my room, put it in a box with their name on it and, when the student is finished working with the clay for that period, I lock it away so that other students do not play with it.

Adding a unit on Claymation to your curriculum will require you to preplan classroom storage areas for the clay project boxes, space for the ongoing projects work areas, and storage for the cardboard theater backgrounds.

An outstanding book on demonstrating professional Claymation technique is, "<u>Tim Burton's Nightmare Before Christmas</u>," by Frank Thompson, 1993, published by Hyperion, ISBN: 0-7868-8066-X.

Video Live-Studio/Lab Production

Have students audition for the main parts and "screen test" the students on video before their peers. Then, have the class vote for best performances. Kids look and sound different on screen and many times you will discover hidden talents.

Make copies of the complete script for each member of the cast and each member of the class. Then all students can follow along and make suggestions and be included in the making of sound effects, graphics and other artwork and help plan the video shots.

Have the entire class work on drawing and painting the backdrop scenes that you can paint on butcher paper and hang on the wall behind the actors. Plan to shoot one scene per day. This is the beauty of video production in the classroom. You can stop and start up again when class time allows and students don't have too much to memorize at a time. One often encountered problem is when students playing main characters are absent from class. So, just like in real show business, have understudies.

Shooting one scene per day also allows for a more relaxed atmosphere while you are undertaking to do a very stressful activity. Each time you shoot a part of a scene, stop and video tape the same segment again two or three times. This is called making "back-up takes." Then, when the entire show is finished, you will have choices. You can edit around mistakes and you will find that the students get better each time they say their lines. Also, the production crew work is smoother with each "take."

Use props like a drinking glass, a hand mirror, a car steering wheel, pillows combined with sheets draped over student desks, a potted plant...any of these add up to elements of a theatrical world. Also, photographs of real objects look like the real thing on video tape. Props of cut out photographs of spiders and snakes look truly menacing.

Have the class listen to and select appropriate music to underscore the action of your movie. Use sound effects from prerecorded tapes and have students make live sound effects.

Keep your stage area well lit. You can't take a picture without light. Lighting makes colors appear brighter and improves contrast, mood and details. Use cheap ($5) clamp-style light scoops from the local hardware store.

INTERDISCIPLINARY VIDEO LESSON UNIT PLAN

Preparation and planning are critical to a smooth and successful video production that engages all of the students. <u>Important perspectives to keep in mind:</u>

1. This is supposed to be an enjoyable as well as educational experience. Take your time. Give everyone a chance to try each production job.

2. There is no production mistake that happens that will ruin the rest of your life. Allow for happy, interesting and productive mistakes.

3. Do not seek *perfection*. During production activities, the work crew is made up of children doing things that adults get paid a lot of money to do after years of training. This is *not* network television.

4. Experiment. Don't say you can't until you prove you can't.

5. Let every student act "goofy" in front of the camera at least once. Record them and let them see themselves making faces and acting silly. This is a very important part of the production process because this helps to calm nervous and hyperactive children.

6. When dealing with unruly children, remember that the best way to keep a child from rocking the boat is to get that child to row the boat. Have non-crew students watch the activity and critique, in writing, the performance of crew and talent. Have these same students make suggestions, in writing, for improving the production and *use their*

suggestions.

7. Choose the approach before you begin. Decide whether you want to "shoot-to-show" or "shoot-to-edit." When you "shoot-to-show" each segment of the program is rehearsed and only one "take" or recording session is kept on the master program video tape. When you are finished producing the entire program, the video tape is called the "Master" tape. When you "shoot-to-edit" each segment of the program is video taped two or three times and when all of the production is recorded, the best "take" of each segment of the program is edited together with the other best takes to create a final, edited program video tape. The final video tape is then called the "Master" and copies are made from the Master to distribute to the students. Editing takes a lot of time.

8. Schedule student crew work and talent before you begin production. Post, in writing, a list of crew and talent assignments. Place the posting in a prominent place easily accessible by students. The student crew assignments should allow for a rotation of all students through the use of each type of technology equipment and each type of creative production work, including: research, preparing the story-board, painting the backdrop, typing the scripts, arranging props and models, making costumes or masks, setting up the lighting, operating the camera, operating the audio cassette recorder, making sound effects, drawing pictures and support graphics, creating music, making titles and credits

to show on camera, and acting.

9. A note about support materials: Only a slight
suggestion of a theme, character or setting will transform
the atmosphere of a small area of the classroom into a
"studio" or movie set.

Instructor Preparations

First of all, select the core subject focus, such
as a science project, social studies project, math or
language arts project.

The second area of teacher preparation is pre-production
planning and training. Every minute spent on preplanning is
equal to thirty minutes of production time and one hour of
post-production editing work. This is true for the students
as well as the instructor.

Thirdly, arrange for equipment availability. The
components, equipment and materials needed for this unit
are listed below.

I. Audio

    1.. Equipment

        a. Cassette recorder.

        b. Microphone. Select a "Cardioid" microphone if
                you can. This type of microphone has a
                sound pick-up pattern resembling a heart
                shape. Sound is "picked up" best from the
                front of the microphone at the tip of the
                "heart" pattern and very little sound is
                picked up from the back of the micro-

phone. It is a good type of microphone
for recording in group settings. A
microphone can be attached to the
cassette recorder or attached to the
video camcorder.

2. Music

    a. Prerecorded professional music can be used.
       However, remember copyright laws. If you
       intend to make copies of the finished project
       for students to take home, to enter into
       media competitions, or to be shown in public,
       you will need to obtain a letter of permission
       to use the music from the copyright holder,
       which is usually the music publishing
       company. Look for "copyright free" music,
       available on cassettes and compact disks,
       allowing you to use the music and distribute
       copies, without breaking copyright laws, in
       return for giving formal credit to the music's
       composer. Don't break copyright laws. **The
       penalties for you, your school and your
       district can be thousands of dollars in
       fines and can result in the lose of
       your teaching credential.**

    b. A wonderful alternative to prerecorded
       professional music is student generated music.

Students can use very low-tec instruments such
as a comb and waxed paper, glasses filled with
various levels of water and then struck
(played) with wooden or metal spoons, bells,
or tin-can drums. Some students may play band
instruments and can bring these to class to
create music during a jamb session.

c. Electronic keyboards facilitate a great source
of original music material by students. Also,
there are many good, user-friendly computer
software programs that allow students to
digitally create music for their productions.

d. Sound Effects. There are many cassette and
compact disk collections of copyright free,
prerecorded sound effects. However, the most
creative way to provide sound effects
for your productions (and the most fun for
your students) is to use old-time-radio
"Foley" sound effects techniques. Students
crinkling cellophane paper in front of a
"live" microphone simulates the sound of fire.
Students can imitate the barking of dogs, the
caterwauling of cats, chirping frogs
and bird calls. Use what you have in your
classroom for telephone dialing and doors
opening and slamming shut. Have students use

their voices to imitate sirens or the howling

wind. Use large glass jars, tin cans and boxes

as "echo chambers" for students' voices.

Acquire some Golden Age of Radio audio tapes

and play the productions from which students

can learn.

e. Oral Interpretation. Have students practice

different "voices" and character's emotions.

Record the students' voices and play back

for student analysis.

II. Visual

1. Equipment

a. One or two video cameras (camcorders). Study the

operation manual and take the camera home to

practice with. The more familiar you are with

the technology equipment, the easier it will

be to train the students to operate the

equipment.

b. One or two large television monitors. Locate the

monitors on stands that place the height of

the monitor above the heads of seated

students for a theater-like atmosphere.

c. One still video digital camera. This allows

students to go outside of the classroom to

capture images that can easily be shown on a

TV monitor or on computer screen and studied

by the class before inclusion in the project.
Before working with the students, you will
need time to become familiar with this type of
camera. Most digital camera recording formats
allow the user to take 35 to 50 photographs,
save the best photographs onto the computer,
and then record new pictures over the old
ones, just like rerecording onto video tape.

d. Two Video Tape Player/Recorders. These will be
used to show the preliminary prerecorded
educational videos, then to show the
student recorded work and finally to edit
the finished project.

e. One audio/visual computer with 16 megabytes of
RAM memory and cables to connect the
cameras and video tape recorders.

2. Recommended software applications include:
Superpaint, Dabbler, Painter 2.0, Flying
Colors, The Multimedia Workshop, Morph, and
HyperStudio, which, among others, allow
digital photographs and movies to be imported
to the computer application and manipulated.
This means that the photograph can be altered
and students can combine original art work
with the digital photographic images.

III. Lighting

1. Daylight.

2. Classroom overhead lighting.

3. Two or three flashlights.

4. Holiday light "strings" that are constant or
   blinking.

5. Three incandescent light bulbs with metal scoops
   attached to spring clamps. Use these for the
   main Key light, the Fill or Flood light and
   the Back light. Three point lighting will help
   to keep your production from looking "flat" on
   video tape and will help make colors more vibrant.

IV. Backdrops

1. Butcher/bulletin board paper that is taped to the
   walls and then painted with scenery.

2. Black butcher paper hung on the walls in the corner
   of a classroom makes a great background for one,
   two or three students to act or narrate in front
   of.

3. A plain area of wall space, without posters or
   student work visible.

V. Costumes

1. Three to four foot sections of cloth used for togas,
   capes, shawls or aprons.

2. Hats of all kinds.

3. Masks. Student made or store bought.

4. Make-up. Halloween kits are a low cost source of

great make-up effects. The best kits contain a
variety of water-soluable sticks of face paint.
Make sure that all make-up is hypo-allergenic and
for sensitive skin. Keep a bar of face soap and
some hand cream or petroleum jelly available for
clean up.

VI. Props

1. Everyday objects from outside the "schoolroom"
   environment work very well. Keep props simple.

2. Photographs of things look like actual three-
   dimensional items when seen on two-dimensional
   video tape. Students can hold a photograph of a
   spider and, on video tape, it will look like they
   are holding a real spider.

VII. Student Worksheets

Make copies of the student worksheets for each
student to keep in their classroom portfolios. These
worksheets are applicable to any multimedia project.
The reproducible worksheets are located at the back of
this workbook in the APPENDIX. The worksheets include
the following:

1. PSA Topic Suggestions

2. PSA Story Summary and Character Descriptions

3. Location Sketch and Character Cartoons

4. Script Format

5. Pre-Production Planning Worksheet

6. Video Production Crew Assignments

7.Storyboard Development Plan

VIII. The Storyboard

The storyboard separates visual elements of the production from the narration and sound. The storyboard sets up the logical sequences of information. A storyboard is a form that provides space for students to write down what will be seen, as the video portion of the program, in one column and, in a separate column, what will be heard, as the audio portion of the program.

IX. Basic Video Procedures

Teach students the basic rules for operating a video camera: how to turn on power and load the video tape cassette, using the record button, how to attach a camera to a tripod and adjust camera for a level picture, and how to properly compose a picture. Teach students about camera moves: how to tilt up and down, zoom in and out, pan right and left, dolly in and out, and track right and left. Teach them about the various types of shots: extreme close up, close up, mid shot, long shot and extreme long shot. Take one day for each of these important sets of procedures and allow students to handle the camera and show you that they understand the procedures.

X. Production Commands

Take one day to teach basic production commands. These are hand signals that represent critical

activities during video taping production.The most important signals include: "Quiet on the set," where the producer holds up right hand in the air; the "cue" to start acting or speaking, where the producer points at the talent to start; and "stop all action" or "cut," where the producer points one finger at his or her throat and pretends to "cut their throat." There are several other hand signals used in production and these are explained in most video production handbooks. These hand signals are used throughout the entertainment industry, worldwide.

A Multimedia, Interdisciplinary Movie

Grade Level: 6 through 12

Curricula Areas:

This project incorporates the following discipline
aspects: Science: Ecology and Eco-Systems

Language Arts: Creative and Descriptive Writing

Drama: Oral Interpretation of Original Prose

History: Sixteenth Century Printing Techniques

Music: Appreciation, Composition and Understanding

Art: Illumination Style Lettering and Perspective

Landscape Drawing

Technology: Computer Word processing, Videography,

Photography, working with Audio/Visual

Equipment

Skill Reinforcement:

Cooperative learning, independent research, self-
expression, analysis, sequential planning,
selective judgment, values clarification, graphic
interpretation, oral interpretation, musical
interpretation, using analogies, vocabulary
development, word processing, technology operation,
and self-control.

Teaching Models: Inductive Thinking, Nondirective,

Synectics, Cybernetics, Self-control, and Mastery.

Learning Styles: Auditory, Visual, and Kinesthetic.

Support of Dominant Intelligences: Intrapersonal,

Linguistic, Spatial, Interpersonal, Bodily-Kinesthetic,

Musical, and Logical.

Objective:

Students will combine schemata from science, social

studies, language arts, fine arts, and multimedia

technology studies to create a final video taped

project. The project will combine original student

artwork with student oral interpretation of original

student prose and original student musical compositions.

STUDENTS WILL: Watch a travel-log video, write

descriptive analogies about what is seen in the

video, select the best one line descriptions and

combine these with the best descriptions of other

students, edit the final prose, create photographs

and artwork to accompany the writing, compose

original music and sound effects to accompany the

written prose and graphics, perform oral interpre-

tation of the final edited prose, and record onto

video tape a mix of the original student music,

sound effects, graphics and live oral interpre-

tations.

Lesson Plans

LESSON PLAN #1

Students will watch a travel-log video. One example would be the video program by Windham Hill, "<u>Four Seasons</u>," depicting an aerial trip across the United States and showing the effects of the four seasons on the landscape.

While watching the video program, students will each take turns orally describing what they see and then write one line descriptions and analogies about the visual images contained in the video. Students are to use highly descriptive language, guided by the instructor, who encourages an unusual, fantasy perspective. Each student is to generate a great quantity of bits and pieces of written interpretation of visual input. Students will keep their writing in their own class portfolios.

===

LESSON PLAN #2

Students will use a Thesaurus to enhance their language. Each student take a turn reading out loud all of the one line descriptions that they wrote about the images in the video program. Each student will select the five best analogies or descriptions from their own writing. Each student will write the five best descriptions on a separate sheet of paper and put their writing in their classroom portfolio.

===

LESSON PLAN #3

Students are divided into cooperative groups of six students. Students elect a group leader. Students help each other to edit the written descriptions down to the two best descriptions from each member of the group, for a total of twelve lines of prose that is transferred, via computer word processing, to a separate sheet of paper. Copies are made for each member of the group. Students leaders orally share their group's prose composition with the entire class.

===

LESSON PLAN #4

Each student then plans and creates one original drawing, painting or photo collage to accompany each of their own two descriptions. Guided by the student group leader, each group organizes the artwork into a sequential presentation.

===

LESSON PLAN #5

Students study the art work of 16th Century Illumination Lettering artists. Each student then creates, using the Illumination Lettering art style, a rendering of the words of each of their own two lines of description. Each line is rendered on a separate sheet of paper and color is added.

===

LESSON PLAN #6

With the guidance of the student group leaders, the student groups insert the Illumination Style Lettering of the descriptions into the collection of original student art work. Student groups each select a title for their production and, using Illumination Style, create a title page and a page of credits, listing all the members of the group.

==

LESSON PLAN #7

Groups begin the composing of original music to accompany the presentation of their artwork and lettering. The instructor allows students to listen to a variety of instrumental music selections for inspiration and melody ideas.

Students determine the kind of instruments they will use, which can be hand-made, band instruments, computer software music, or electronic instruments. Students practice their compositions, which should be about three to four minutes in duration.

==

LESSON PLAN #8

Students take turns recording their music onto an audio cassette.

==

LESSON PLAN #9

Students practice and coach each other with oral interpretation of each of their own lines of prose. They practice delivery into a microphone and record their voice onto an audio cassette. Each student listens to their own voice and critiques their own delivery. Then students practice delivery of their lines in front of a video camera. They view the video tape and critique themselves about their posture, gestures and voice. Finally they practice delivery in front of a video camera, while the audio cassette of their group's music is played. Then they practice delivery of their lines, while music plays and the camera is set up to show the landscape and lettering art work they have created. Crew assignments should be agreed upon.

The instructor is to allow several days for this portion of the unit. Students should be given an opportunity to view their work in progress. They can then evaluate any processes they need to change to make the production flow more smoothly and be given time to rerecord any portions they deem in need of improvement.

All of this activity should be viewed as "dress rehearsal."

==

LESSON PLAN #10

Student groups, one group at a time, are to do a final production of their work. The balance of the class is to sit quietly, as an audience, during final production days. Have students bring blank video tapes to school and make copies for them to take home to show their parents.

==

LESSON PLAN #11

The culminating activity is to show the finished video productions to the class and then to share the video tapes with other classes, along with a bound copy of each group's prose and artwork.

The final projects can be placed into the permanent resources of the school library to be checked out by other teachers. These projects are great for PTA and Staff Meeting presentations, also.

==

ADDITIONAL VIDEO PROJECT IDEAS:

1. WEATHER REPORTS, with charts and photographs.

2. Original student MYTHOLOGY STORIES acted out and
   video taped to include student artwork.

3. READERS THEATER presentations of poems by famous
   authors.

THE JUNIOR MENTOR PROGRAM

I started the Junior Mentor Program in 1992. The program is based in the practice of peer-tutoring. Each quarter, I let my students vote to select three students per class, who they feel are highly competent in the various operations and usage of multimedia hardware and software. These students are given the opportunity to train anyone in the class who needs specific training in technology operation and techniques. The areas of training occur in: video camera operation and videography; computer animation and graphics applications; animation cartooning for stop-frame production, comic book construction or flip book creation; studio video production equipment operation and editing; deep-media computer applications; Claymation puppet creation or videography; and script format writing.

Any time that a new student is enrolled into one of my classes, they are taken under the wing of one of the Junior Mentors. This allows me to continue with the classroom objectives of the day without substantial interruption. For the service of tutoring a new student, the Junior Mentor receives the extra credit equivalent of 10% of their total grade, in the score of an "A." The Junior Mentor works with the new student until the new student has received cursory training in all project areas of the course and has embarked on creating a project of his or her own.

The Junior Mentors also receive 2% of total grade value, in the score of an "A" for each regular student peer that they coach on a specific technology. After training five

students, the Junior Mentor then is qualified to train adult campus staff in the use of multimedia technologies. They also are given assignments to go to other teacher's classrooms to video tape culminating projects.

When I determine that the Junior Mentor has successfully worked with several adults on our campus, I promote them to the rank of Mentor. This gives them the privilege of greeting guests to our department, guiding tours of our technology facilities and training guests. The top Mentors are selected to visit other elementary schools that feed into our programs and present an overview of our multimedia productions program. These top students also work with me in producing "all about technology" television programs for our local access cable television station.

When Junior Mentor students graduate from our campus, I provide them with a letter of recommendation to their future teachers, addressing that particular student's skills and accomplishments while enrolled in my department.

ASSESSMENT OF STUDENT WORK

The type of evaluation that is best suited to the multiple teaching models and variety of projects incorporated into the multimedia productions curriculum that I have developed, is known as Authentic Assessment, Performance-based Assessment, Alternative Assessment or Portfolio Assessment. Basically, these terms are interchangeable.

"Alternative Assessment is not objective...it is subjective" (Jasmine, 1996). It uses observations, verified by checklists that are based on task analysis, of goals that are linked to specific activities. These goals include craftsmanship, general organization, thoroughness, appropriate behavior, time-on-task, and competency with equipment usage, among other goals that are specific to the task at hand.

The goals are repeated every week for a consistent record of progress over a period of real time. The checklist findings are transferred to a grading summary sheet. Weekly anecdotal records are kept. These are in the form of lists or statements of positive findings about the student's work, stated objectively, and used to document behavior and explain what the student can do. I write these statements on the front of each student's portfolio folder. I also include comments about any extra credit peer training or mentoring work with others. The assessment is not *exact*, it is ongoing. "Authentic Assessment...regards assessment and teaching as two sides of the same coin" (Armstrong, 1994).

The student portfolios are letter-sized manila folders that are kept at the front of the classroom. They are

accessed only by the appropriate student, their parents, administration, and myself. Sometimes, with a student's permission, the portfolios are shared with visiting educators. These portfolios contain a collection of: each student's written assignments and notes; 2-dimensional art work; photographs; a copy of that quarter's syllabus, with a rubric of the specific rules for levels of competency; and written self-assessment reflections of the student, written down by me, based on student-teacher interviews at the completion of each project. "Students are active participants in the learning process and become responsible for creating or constructing their responses" (Fischer & King, 1995). The students learn for the sake of learning and they learn to appreciate the intrinsic value of creativity.

At any time during the course, the student can review the information in his or her portfolio and have a very clear understanding of their grade position in my class. During the last few days of each quarter, I take time to discuss with each student the grade that I am planning to award to them. Each student has the opportunity to present any additional evidence that they may have for increasing their grade. The final evaluation is almost always mutual. The students have a real feeling of control over the direction and outcome of their education. I prefer this form of assessment to standardized testing and assessment styles because "tests do not provide clear insight into student application of knowledge...and do not [analyze] whether a student is capable of using the information in complex and creative thinking endeavors" (Fischer & King, 1995).
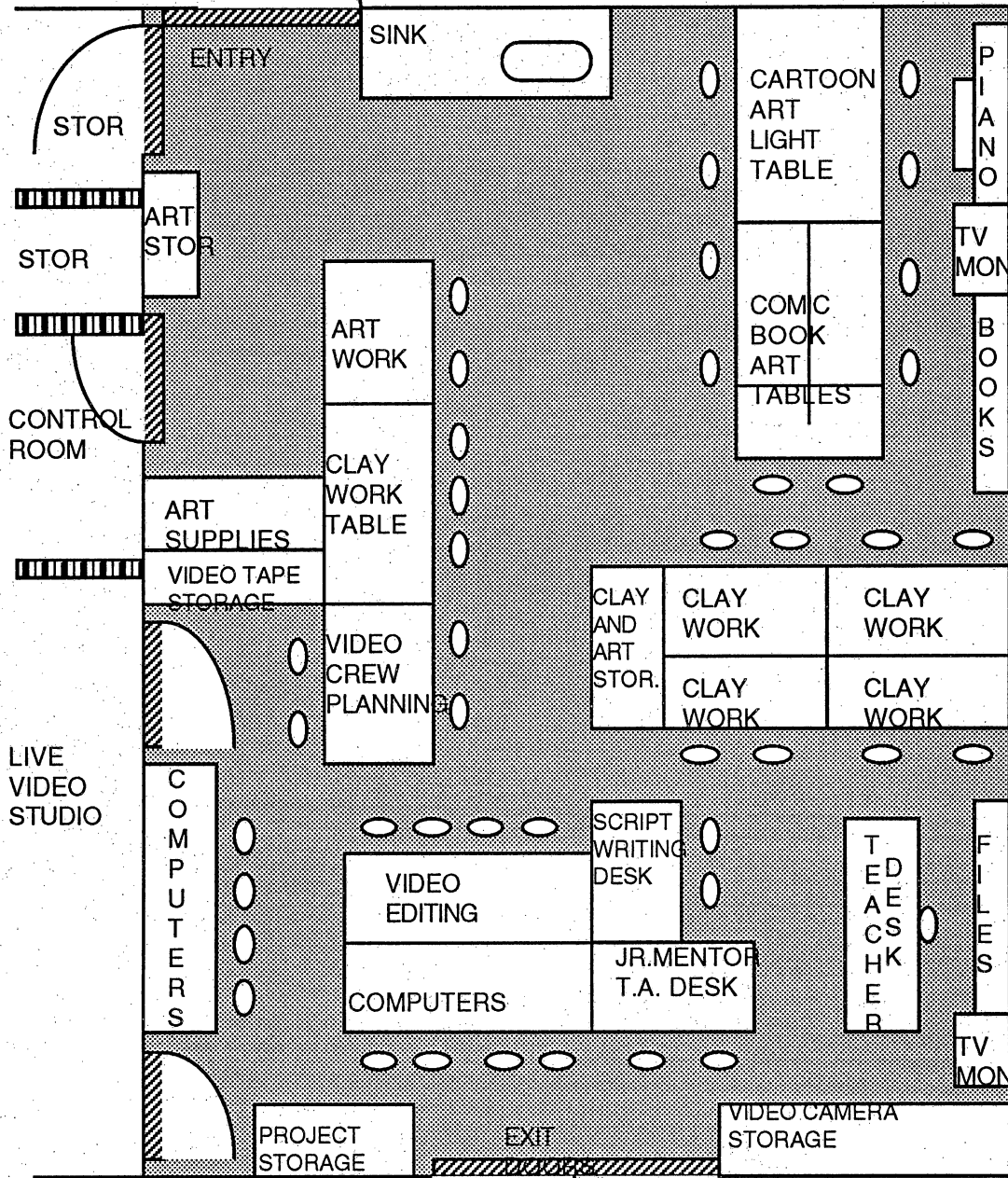
CLASSROOM DISCIPLINE AND MANAGEMENT

The models approach to discipline and classroom management, which allows teachers to experiment with a variety of approaches to fit changing situations, is well suited to the operation of a multimedia productions classroom. I use the Behaviorist approach for a tightly structured classroom, usually at the beginning of each quarter and at the start of each lesson set. I use the Interactionist approach when the classroom is already running in an organized fashion. This allows me to shift more control and responsibility for rule setting to the students. I use the Noninterventionist position, remaining supportive and as non directive as possible, when the situation calls for me to allow personal growth and freedom of the individual students.

The variety afforded by the models approach to discipline also aligns well with the models approach to teaching.

The classroom diagram on the following page shows a convenient placement of equipment and classroom furnishings for a multimedia productions classroom and lab area. The workstations are placed so that work progress can flow from one area to another in a manner that allows for the sharing of supplies, electrical outlets, table space, isle space, storage of ongoing projects and project equipment, as well as access to talent rehearsal and production space.

MULTIMEDIA CLASSROOM/LAB
FLOOR PLAN

ENTRY

SINK

STOR

STOR

ART STOR

CONTROL ROOM

ART SUPPLIES

VIDEO TAPE STORAGE

LIVE VIDEO STUDIO

COMPUTERS

ART WORK

CLAY WORK TABLE

VIDEO CREW PLANNING

CARTOON ART LIGHT TABLE

COMIC BOOK ART TABLES

PIANO

TV MON

BOOKS

CLAY AND ART STOR.

CLAY WORK

CLAY WORK

CLAY WORK

CLAY WORK

VIDEO EDITING

COMPUTERS

SCRIPT WRITING DESK

JR.MENTOR T.A. DESK

TEACHER DESK

FILES

TV MON

PROJECT STORAGE

EXIT

DOORS

VIDEO CAMERA STORAGE

THE CORPORATE RUBRIC

In the adult business world, there is a very simple rubric used in evaluating the competency and mastery of an employee. This rubric evaluates processes as well as production. Based on over 20 years of professional business experience, I offer the following perspective on the four basic criteria for The Corporate Rubric:

Score 4: The employee fully accomplishes the task. This is the top score. The task was done on time, with craftsmanship and creativity, within the agreed upon budget, and with little supervision. The end product is useful and successful and meets all corporate objectives. The employee is appreciated and paid in full, many times receives a bonus, and is in good standing for promotion to more complex and responsible assignments. This type of employee works well both collaboratively and independently.

Score 3: The employee substantially accomplishes the task. This is the average score of people who are employed by the same employer for a number of years. The work was done in a manner sufficient for the balance of the corporation's objectives and activities to remain on target. The portions of the work not completed minimally impact, but do not adversely burden, others in the corporation. The employee is paid in full and usually has their contract of employment renewed from year to year. These employees are assigned both collaborative and independent tasks.

Score 2: The employee partially completes the task. This is a low score. The portions of work not completed cause hardship to the corporation or fellow employees. This is the

95

employee who is laid off first, during hard times. They are paid only for work completed or docked for unfinished work. They receive low pay. They are put on "notice" about poor production. They are not given critical tasks to accomplish. Rather, they are given menial work that does not require decision making. They are supervised by others.

Score 1: The employee does little or no work. Tasks are never completed. This employee causes financial hardship to the corporation. This employee is dismissed as soon as administration/ management becomes aware of the circumstances or as soon as it is politically correct to dismiss such an employee. Sometimes this employee is given a second chance. They are given only minimum pay.

Benefits of applying the "Corporate Rubric" to students include the following:

The student learns that knowledge is worthwhile and will
be rewarded.

The student is "paid" in grades for work done.

The student sets the pace for increasing responsibility.

The student is valued and appreciated by the
teacher/supervisor for competent performance and
is advanced/promoted.

The student becomes an asset to the entire educational
community of the school.

The student works collaboratively and independently.

The student can grow from "employee" to "colleague."

Current policies allowing for automatic advancement, regardless of competency and mastery, defeat the objectives

of productive citizenship in the adult business world.

It is my opinion, having worked for a credible amount of time in both the commercial business arena and the education industry, that the rubric for the business world should be the foundation for the rubric of the educational world.

CONCLUSIONS AND IMPLICATIONS

Educational reform should look to incorporate technology with fine arts and language arts if students are to be prepared to hold significant, skilled jobs in the future labor market of California. Multimedia production skills help young people find exciting, well paid and satisfying jobs within California's larger employment bases, the entertainment and publications industries, and no matter what career the student of today decides upon, multimedia technology skills will remain in demand as an integral part of every industry, world wide, for coming generations.

I firmly believe that for any persons planning to pursue postgraduate work that will be effective and useful in the coming decades of multimedia technology dependence, an Interdisciplinary Studies program would be a highly successful route for connecting the vast array of disciplines and information.

The importance of interdisciplinary studies on the secondary level needs to be examined and, I believe, given prominent development as a model for teaching. This could be done through team-teaching or by educators who are trained and skilled in interdisciplinary curriculum delivery. I believe that the single subject credential will become less prevalent in the foreseeable future. The multimedia markets of the next decades will demand employees who are well versed in the currently diverse areas of oral communications, written language, graphics, audio manipulation and pro-duction, photography, computer processing, and animation. New perspectives on educational delivery and curriculum

development can make these diverse areas relevant to each other in the creation and construction of useful multimedia products by students.

If we have sufficient vision, "the instructional environment of the future [can] provide a non-linear multi-sensory interface to the natural learning styles of students" (Thornburg, 1991) through the incorporation of multimedia technology with an interdisciplinary, student-centered curriculum.

APPENDIX

Reproducible   Student   Worksheets

PSA TOPIC SUGGESTIONS

Say no to drugs
Don't join gangs
Stay in school
Don't cheat on school work
Don't steal
Look both ways before you cross the street
Wash your hands before you eat
Be kind to animals
Eat healthy food every day
Brush your teeth every day
Get daily exercise
Don't tell lies
Practice good grooming
Don't bite your nails
Don't smoke cigarettes
Don't curse and use bad language
Obey biking rules
Be courteous
Don't talk to strangers
Recycle
Keep your room clean
Don't be a litter-bug
Don't fight
Don't pollute
Drink milk

PSA STORY SUMMARY AND CHARACTER DESCRIPTIONS

NAME:_____   PERIOD:_____

PSA TOPIC:_____

Describe the two main characters of your story.

Name of first character:_____

    1._____

    _____

Name of second character:_____

    2._____

    _____

What two important events happen in this story?

1._____

_____

_____

2._____

_____

_____

What is this story about? (Write one or two paragraphs
explaining the action of the story and tell the main
message you want your audience to remember.)

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

LOCATION SKETCH AND CHARACTER CARTOONS

Draw a sketch, using stick figures, of the way your
opening picture will look. This is called "shot #1."

_____

_____

Draw a sketch of the two main characters:

_____

Character name_____   Character name_____

_____

SCRIPT FORMAT

NAME:_____ PERIOD:_____

PSA SCRIPT TOPIC:_____

Scene or Shot #1

    Where does the action take place?

    How many characters are in the scene?

    What are the characters doing?

    Type of camera shot and angle.

    Narrator: (Introduces the story.)What they say.

    Name of Character #1: What they say.

    Name of Character #2: What they say.

    Name of Character #1: What they say.

    Name of Character #2: What they say

    Continue...

Scene or Shot #2

    Where does the action take place?

    How many characters are in the scene?

    What are the characters doing?

    Type of camera shot and angle.

    Narrator: (Tells about what happens next.)

    Character #1:

    Character #2:

    Continue...

Scene or Shot #3

    Continue...

Scene or Shot #4

    Continue...

PRE-PRODUCTION PLANNING WORKSHEET

TOOLS TO PLAN AROUND:

Announcer's copy, sound effects, music, lighting, art work
and props, costumes, makeup, special video/computer effects,
and computer graphics.

AUDIO/COPY:

All the words that the talent will say. this includes the
narrator, plus all sound effects and music. Basically,
anything that will be heard by the audience.

VISUAL:

Description of the kind of camera shots and angles,
Description of any special lighting effects (dark and
mysterious or bright and cheerful, or dramatic shadows), art
work and computer graphics, titles and credits. Basically,
anything that will be seen by the audience.

SPECIAL MATERIALS:

Costumes, stage props, scenery, and special effects makeup.

Write all of the above important information into the
"Storyboard Development Plan."

VIDEO PRODUCTION CREW ASSIGNMENTS

DATE:_____ PERIOD:_____

NAME OF PROJECT LEADER/DIRECTOR:_____

MEMBERS OF PRODUCTION TEAM: _____
_____
_____

TITLE OF PROJECT:_____

TOPIC:_____

TALENT:_____
_____
_____

SCRIPT WRITERS:_____
CAMERA OPERATORS:_____
LIGHTING TEAM:_____
MICROPHONE TEAM:_____
AUDIO MIXING BOARD OPERATOR:_____
SPECIAL EFFECTS GENERATOR/SWITCHER:_____
TITLES/CUE CARDS/CREDITS:_____
GRAPHICS AND ART WORK:_____
SPECIAL EFFECTS:_____
STORYBOARD PREPARATION:_____
_____
MUSIC COMPOSITION/SELECTION:_____
WHO WILL BE IN CHARGE OF:
COSTUMES:_____
MAKEUP:_____
STAGE PROPS:_____

STORYBOARD DEVELOPMENT PLAN

DATE:_____ PERIOD:_____ Page#_____

NAME OF PROJECT DIRECTOR:_____

TITLE OF PROJECT:_____

SHOT #____   VISUAL   **AUDIO/COPY**

_____   _____
_____   _____
_____   _____
_____   _____
_____   _____
_____   _____

==

SHOT #____   VISUAL   **AUDIO/COPY**

_____   _____
_____   _____
_____   _____
_____   _____
_____   _____
_____   _____

==

SHOT #____   VISUAL   **AUDIO/COPY**

_____   _____
_____   _____
_____   _____
_____   _____
_____   _____
_____   _____

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