CALIFORNIA COMMUNITY COLLEGES
AND
GROSSMONT/CUYAMACA
COMMUNITY COLLEGE DISTRICT

#92-0006
Multimedia Staff Development for San Diego County Community Colleges

This proposal is a grant request. Seven of the eight community colleges in San Diego County will join together to provide a major multimedia staff development activity for faculty and A/V personnel.

Current multimedia technology provides students, who have traditionally learned by listening, reading, and memorization, with the opportunity to combine the power of audio and video with the power of personal interaction and choice. Multimedia expands the borders of classroom delivery and enables information to be compiled in a variety of different formats—text, audio, still images and video—and allow accessibility to that data on demand.

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The project will begin during "flex week" (August 1992), extend for a period of one year, and will involve:

a) MAJOR MULTIMEDIA PRESENTATION FOR ALL FACULTY
Multimedia presentations will be given by Fred Hofstetter and Dr. Steve Mamber, both IBM Consulting Scholars. These educational, inspirational and motivational presentations will take place at the East County Performing Arts Center (ECPAC), a 1200 seat performing arts theater in El Cajon, and will involve interested faculties from the consortium colleges.

b) MULTIMEDIA TRAINING FOR SELECTED FACULTY
Pre-selected faculty members will explore, and learn to develop, appropriate and effective uses of multimedia in three days of hands-on training with an expert from IBM. This class will be held at Mesa College, a centrally located campus, and IBM will provide the necessary equipment, software, curriculum, and staff.

c) MULTIMEDIA HARDWARE SUPPORT FOR AV STAFF
The merging of computer and A/V media technologies leaves most college AV staff members unprepared to configure multimedia projects. An IBM multimedia expert will provide hands-on training on the support of multimedia systems.

d) MULTIMEDIA SOFTWARE DEVELOPMENT
When the training is completed, each college "multimedia team" will return to their campus with a complete multimedia hardware/software system, a network of
specialists at other colleges, and the expertise to implement multimedia instruction. Teams will be asked to develop multimedia materials, targeting system-wide needs, for a class they teach, train five additional faculty members at their college, and share their presentation at a county-wide multimedia event.
Multimedia Staff Development for San Diego County Community Colleges

1. Specific Educational Program Being Addressed

Eligible Programs Addressed

This is a proposal for a Fund for Instructional Improvement (FII) consortium grant for $63,641. The proposal addresses instructional improvement objectives as outlined in the California Education Code, Article 7, Section 84381. The current proposal specifically addresses the following eligible programs:

1. Nontraditional forms of instruction (Priority 1). This proposal will provide the tools necessary (computer equipment, software, training, and A/V support) to equip instructors with the ability to create and use computer-based multimedia tools to develop classroom presentations.

2. Special learning needs of educationally disadvantaged students (Priority 2). The multimedia projects developed by the consortium colleges will contain some that specifically address the needs of the educationally disadvantaged student.

3. Improvement in traditional instructional programs (Priority 3). The project will actively seek faculty from traditional programs to develop multimedia instructional materials.

4. This proposal also addresses a Board of Governors Basic Agenda Priority to Ensure Educational Quality. This priority will be addressed by improving the quality of classroom instruction by using multimedia, and by creating an opportunity for students, through computer-guided independent study, to develop a fuller understanding of course material.

BACKGROUND INFORMATION
Traditional versus Nontraditional Instruction
Traditional instruction, what Axelrod (1973) calls the content-centered style and Laurillard (1987) calls the didactic model, is used here to refer to the lecture model that dominates undergraduate education in the United States. *A Nation At Risk*, the 1973 assessment of the United States educational system, documented serious deficiencies in the way we educate people in our society. Almost 20 years later it is difficult to feel more optimistic: high drop-out rates, illiteracy and lack of commitment are regularly encountered in educational institutions throughout the county. What is true in education is true in industry. Over 20 percent of assembly line workers at a major U.S. auto manufacturer cannot read their instructional manuals and at a major technology company 80 percent of job applicants are unable to pass a fifth-grade math test (Braun, 1991).

The traditional approach to instruction poses particular problems for students with ethnic or racial backgrounds other than native American. These students bring with them challenges of cultural transition, economic disadvantage, and, often, a native language other than English. Already, in California, New York, and Florida, the majority of K-12 students belong to a racial or ethnic "minority" (Fjeldstad, 1991). Many reflective observers argue that traditional education approaches are not working well.

As Glick (1990) points out, traditional instruction focusses on what the teacher does. However, a healthy paradigm shift is now occurring that helps us remember that it is not what the teacher does but what the student does that results in learning. Some innovative educators and school districts are experimenting with nontraditional approaches to facilitate student learning. Increasingly, the approach of choice involves computers and multimedia technology. Bork (1987) for example, believes that "Computers are going to become the dominant delivery system for education. That is, more people will learn, in the future, more things from computers than any other way of learning" (p.3). A multimedia approach includes an integration of multiple media text, graphics, sound, animation and video - into a coherent educational or training module. If the adage that people retain about 20 percent of what they hear, 40 percent of what they see and hear, and 75 percent of what they see, hear, and do is correct, then multimedia delivered instruction should lead to better retention of material than traditionally delivered instruction. Evidence is accumulating from industry and educational institutions that multimedia can indeed transform student learning (e.g., Kahn, 1992; Janson, 1992).

What is it about multimedia computer applications that can actively engage the minds of students where traditional instruction cannot? In a word: Interactivity. Or, as Kozma and Johnson (1991) put it, the power of the computer lies in "its ability to employ a wide range of symbols and to operate on symbolic expressions in powerful ways, for these are the capabilities that most closely correspond to human cognitive and social behavior" (p. 12). In other words, multimedia instruction has an unmatched potential to foster interactivity through its wide range of symbol systems (the way information is symbolized, such as audio linguistic or graphical) and because of the control the learner has over the pacing and sequencing of the material. Gagne's (1985) research on the factors that promote optimum learning identified the following, all of which underscore the importance of student involvement with instructional material: attention, selective perception, rehearsal, semantic encoding, retrieval, response organization and corrective feedback.
A large and growing body of research exists to substantiate the claim that computer-delivered instruction increases student learning. For example, consistent with other research finds (e.g., Niemiec & Walberg, 1987), Kulik and Kulik (1987) reported the results of meta-analysis of 199 comparative studies, 101 of which were conducted in colleges and universities. The authors state that each of the 199 studies analyzed “was a controlled, quantitative study that met our predefined standards for methodological adequacy” (p.4). The conclusions reached by Kulik and Kulik include the following:

1. Students learned more in classes in which computer-assisted instruction (CAI) was used. The outcome measure used was examination scores which increased an average of 0.31 standard deviations.

2. Students exposed to CAI learned the material with less instructional time. The average reduction in the 28 studies that measured this was 32%.

3. Students in a CAI condition responded more favorable on affective measures relative to controls. Attitude-toward instruction scores increased by 0.28 standard deviations in the CAI conditions.

The primary focus of this FII project is to create pedagogically sound, multimedia instructional materials. Unlike traditional instruction, which is based on sequentially developed books, and lecture material, well-designed multimedia instruction allows for greater flexibility and accommodates different student learning styles. For example, more intellectually sophisticated students have the ability to skip over basic definitions and examples to pursue multimedia material that challenges and stimulates their abilities to learn. Students with less academic preparation work through the material differently, pausing for definitions and examples in a pictorial, visual or auditory format. Only with carefully developed multimedia instruction can each student learn at the rate commensurate with his/her ability to learn.

While community college instructors attempt to individualize instruction to maximize each student’s learning opportunities, the reality is that classroom instructors are asked to provide instruction to an extremely heterogeneous student population. With highly interactive multimedia resources available however, each student would be afforded the opportunity to review course materials in a computer lab setting in which review, practice, corrective feedback and learning checks can be accomplished at the student’s own individual pace. The interactive element built into multimedia instruction encourages, even requires, the student to become an active participant in her/his own learning.

California Community College administrators and educators are concerned and alarmed at high drop-out rates of students. And concerned they should be. While a variety of solutions to the retention problem have been proposed, there is consensus that “business as usual” is simply not promoting student learning at acceptable levels. Is there any reason to think that providing multimedia instruction can improve retention and increase student learning? Evidence from private industry and educational institutions are beginning to show dramatic
improvements when multimedia is used. McDermott and Combs (1991) engaged disinterested, at-risk students in a variety of multimedia projects and succeeded in halting the students’ cycle of failure. Smith and Jones (1991) have used multimedia to teach college chemistry and report superior student performance and decreased institutional costs relative to traditionally taught classes.

Coffin and Thurnau (1991) have shown how multimedia instruction can be used to more effectively teach foreign languages by creating a cultural context for language instruction.

RATIONALE FOR THE PROJECT
As discussed by Griffin (1991), Bergman and Moore (1990), and others, developing multimedia instructional materials is a complex undertaking. Computer-delivered multimedia instruction is a new and innovative phenomenon. Successful implementation of a multimedia project necessitates collaboration and training. Recognizing these requirements, the current proposal has carefully considered the most appropriate means to ensure the project’s success. As detailed in the work statement form, provisions are made for extensive training, frequent progress checks, collaboration among consortium partners, institutional support and well thought-out evaluation measures. Significant contributions for this project have been secured from industry, the eight community colleges involved, and faculty/staff participants.

The project will begin by selecting highly motivated and competent people from eight community colleges to collaborate on a variety of multimedia applications. The selection process (see Appendix C) is rigorous in order to ensure active participation.

The next step will be to hold a major multimedia event, paid for by IBM Corporation, that will demonstrate the possibilities inherent in multimedia computing. This event will be followed by three days of intense training by recognized multimedia experts which will also be paid for by IBM.

The training will be highly interactive, featuring "hands-on" practice with feedback from the multimedia trainers. The training will be conducted with the hardware and software that the consortium colleges will purchase so that all participants work on the same computing platform using the same multimedia tools.

It is expected that representatives from each college will develop a minimum of two multimedia projects, one of which will specifically address the needs of academically underprepared students. In addition, some of the projects will be devoted to improving basic skills education in areas such as English, Reading, or Mathematics.

The completed multimedia projects will improve instruction and learning the at least three ways. First, the multimedia equipment and software will be brought into classrooms and projected onto a large screen with an LCD panel and overhead projector. This will address the "improvement in traditional instruction" objective. Second, the multimedia projects will be placed in a computer lab or learning resource center in order to allow students to work through the material at their own pace. This will address the "special learning needs of educationally
disadvantaged students’ objective. Third, the sixteen consortium multimedia projects will be
distributed to interested faculty to serve as prototypes and to encourage other faculty to
experiment with novel approaches to teaching their discipline. This will address the
"nontraditional forms of instruction" objective.
Specific Problems Being Addressed

This proposal has identified several problems that can be identified with implementing improvements to instruction through the use of innovative techniques. Those critical to this project are bolded below.

Many faculty members are not even aware of what multimedia can do for them. The major multimedia presentations presented by Fred Hofstetter and Dr. Steve Mamber will demonstrate the power of multimedia to these faculty members.

There is no place within San Diego county where instructors can learn multimedia techniques. It currently takes brave and resourceful individuals who work in isolation to learn new methods of instruction. This project will call upon IBM to provide a comprehensive level of training and support that would not be possible for the individual colleges to receive.

Within San Diego County, there is no support group for assisting faculty who wish to launch into multimedia. Every college is re-inventing the wheel as they struggle to learn this new technology. Colleges typically work in isolation instead of sharing resources. This project will provide a "network" of trained individuals who will be able to support each other.

Most of the colleges within San Diego County do not have the equipment nor the software necessary to develop multimedia instructional materials. This proposal will establish a "standard" multimedia system that will be a starter system for each college.

Audio visual technicians within the county are not prepared to support instructors who wish to use multimedia in the classrooms. This proposal will provide specific training so that the A/V personnel will be able to work as a contributing multimedia team member.

Alternatives to solving the problems listed above would involve the concentrated effort on the part of a few resourceful faculty members who usually work in isolation and without proper support (often on their own equipment in their own homes). Because the technology is fairly new, and college leaders are unaware of the potential, multimedia developers typically have limited access to assistance, little support for the release time necessary to develop the project, and few places to showcase the product if it is good.

Simply put, the alternative to the recommended consortium approach to this problem is the "status quo" which hasn't been working successfully.
3. Population To Be Served

Populations to be Served

General faculty members from each consortium college will be invited to the major multimedia presentation, produced by nationally known experts, at the East County Performing Arts Center. Here they will be introduced to the potential of multimedia in the classroom.

A/V representatives from the colleges will receive one day of intense training on how to support multimedia presentations.

Sixteen carefully selected faculty multimedia developers, from a range of academic disciplines will receive three days of intense hands-on training in the design and implementation of multimedia presentations.

Students will ultimately benefit from the skills gained by their faculty and support staff. Given an expected outcome of 16 multimedia projects that will be available to each consortium college, a very conservative estimate is that several hundred students will benefit from the consortium effort. As the multimedia development effort is expanded, each of the consortium teams will train five additional faculty and many more students will be impacted by the continuing effort.

These groups will benefit from this training because in this information age, the “transfer of information” is our engine of productivity. Multimedia is a proven tool that adds new dimensions to education for both faculty and students.

The short-term impact on the population will be the immediate presence of a “campus multimedia team”, who have a network of other teams throughout the county. This team approach will enhance multimedia presentations, provide a support system which will raise the level or standard of each product, and will provide new learning resources to students.

The long-term impact of this proposal will be the expected growth in multimedia presentations which will have a direct impact on the quality of education at every level and in every discipline. Multimedia will become a standard method of instruction within a few years. As multimedia expands, retention and instructional quality will improve.
4. Objectives

Proposal Objectives

Task 1: Select a multimedia team from each consortium college to receive training
Completion Date: 5/28/92
Evaluation or Bench Mark Standard
Two interested faculty and one A/V support staff member will be selected for the project.

Task 2: Present two major multimedia presentations and invite faculty from consortium colleges.
Completion Date: 8/17/92
Evaluation or Bench Mark Standard
Twenty-fifty faculty from each college will attend and will evaluate the program as "outstanding".

Task 3: Provide a multimedia team with skills necessary to begin the production of multimedia instructional materials.
Completion date: 7/13/92
Evaluation or Bench Mark Standard
All team members will complete the training and evaluations of the training, by the faculty, will demonstrate their confidence in being able to apply their new skills to actual multimedia development.

Task 4: Each consortium college will develop two multimedia presentations to be used in a class. One presentation will address the needs of the underprepared student. Presentations from the traditional areas will be encouraged.
Completion Date: 12/30/92
Evaluation or Bench Mark Standard
Projects will be developed, evaluated, and implemented.

Task 5: Each consortium college will present their multimedia presentations at a county-wide multimedia event.
Completion Date: 2/15/93
Evaluation or Bench Mark Standard
Multimedia presentations will be distributed.

Task 6: Each consortium multimedia team will conduct 20 hours of multimedia training for five faculty and/or staff members.
Completion Date: 3/2/93
Evaluation or Bench Mark Standard
Faculty members will attend training, evaluations will be "above average."
Work Statement Narrative

The consortium colleges will participate in a major year-long staff development activity which will provide them with the necessary skills to develop multimedia instructional tools.

General faculty members will be educated and inspired by learning about the potential uses of multimedia technologies in the classroom. Selected faculty leaders, who are also excellent instructors will receive training in Toolbook, a popular and proven multimedia product. They will develop multimedia presentations, which will be used by their own students, and by students in the other consortium colleges. Assistance will be provided by their A/V support staff, the support staff at other colleges, and IBM. In many cases, their efforts will focus on meeting the needs of basic skills and educationally disadvantaged students.

The multimedia presentations will be shared and disseminated at a county-wide multimedia event where the county will celebrate the educational and enriching accomplishments of this project. The trained teams will then assist five of their college faculty members in acquiring the same multimedia development skills.
6. Expected Outcomes

Expected outcomes of project activities

In general terms the funding of this consortium project will enable the development of instructional multimedia at a level that would not be possible at the individual college level. Specifically, the following direct benefits are expected:

1. The level of multimedia expertise at the community college level will increase throughout the San Diego County.

2. Each college will be equipped with the minimum set of development tools to get started in a program of their own.

3. Each faculty member attending the major Multimedia Presentations will be educated and motivated to investigate this method of instruction.

4. A spirit of cooperative innovation will exist between the colleges.

5. Faculty members and A/V support personnel will have a network of other faculty members in the county who are developing with the same multimedia tools they are using.

Potential for continued support

The potential for continued college funding of this project will depend on the success of the project as a whole. Eight colleges, and 24 initially trained faculty and staff, will be producing a minimum of 16 multimedia instructional programs to be used by the consortium colleges. An additional 40 trained faculty will emerge near the completion of this project. The potential for continued support by the consortium colleges and by vendors will relate directly to how well multimedia satisfied the populations of this project. If in fact this project validates the research that multimedia improves instruction at all levels, then the colleges within San Diego County will have conducted their own research and will, from the experience, be committed to continuing the efforts. Obviously consortium colleges will need more than one multimedia station if they expect to both develop and use multimedia. This will be a choice of each college. If this project proves to be successful at improving instruction, as research would indicate, industry support and FII funding for continued expansion may be sought in 1993 to further the development efforts of the consortium.

Potential for adaptation to other institutions

Currently a statewide project similar to this is being developed in North Carolina thru the efforts of Shay Mathews from IBM, Peggy Ball with the State Chancellor's Office, and Sharon Morrisey from one of the ten community colleges involved in the project. This "North Caroline
Project” and ours may develop energy from each other and additional support from IBM because the multimedia platform being used is the same. Additionally, IBM is discussing the possibility of having an East Coast and West Coast multimedia project consortium. Discussions with all individuals will continue as this project develops.

On a more local level, this project can be easily adapted to other institutions, both within San Diego County, and throughout the State of California. Because of the standardized instruction, equipment (IBM Advanced Academic System), and software (Toolbook) generated from this project, all the consortium colleges will be able to utilize any developed multimedia presentation. In addition, this same standard development base is also present in national collections of educational software including WISC Ware, a clearing house for educational software. The skills developed will apply to all disciplines, and may be adapted to meet the needs of students from all walks of life.
Evaluation Plan

Evaluation will be a fundamental component of every phase of this project (see Appendix D). The major multimedia presentations will be evaluated by asking members of the audience to complete an evaluation form. Faculty and A/v personnel who complete the multimedia training will also complete evaluation forms related to the training received by IBM. The multimedia presentations that each team develops will be "beta" tested by having a peer review of partially completed projects.

Completed projects will be used and evaluated by students prior to their release, and finished projects will be rated on a form by attendees at the county-wide multimedia event when the projects are formally presented. Finally, the forty faculty and staff members who participate in the second training round will evaluate the Multimedia Team who trained them.

The data gathered from these evaluative measures will indicate the effectiveness of the methods and outcomes of the project. The overall project evaluation will come if a decision is made by SDICCCA (San Diego Imperial County Community College Association) to recommend the continued support of the county-wide multimedia consortium with an even more committed position taken from IBM. At that time, efforts can be started to measure the impact of the developed multimedia presentations on student achievement and learning (which is after all our ultimate goal).
8. Dissemination Plan

Dissemination plan

In addition to those requested items listed in the RFP, the created multimedia projects, will be demonstrated and disseminated to each consortium college at a county-wide multimedia event. Copies of the outstanding projects will be submitted to WISC Ware for review and possible inclusion in that program. Developers may present their product at the League for Innovation or Educom Conferences. It is also possible that projects from this project will be shared with the North Carolina Project. Summaries of this consortium project will be made available to any college who requests it, and will be summarized in educational journals (Leadership Extracts Journal for Higher Education. T.H.E., etc.)
9. Budget Narrative

[NO “BUDGET NARRATIVE” ACCOMPANIES THIS DOCUMENT.]
References


