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Consortium Project.

Coastline Community College and Rancho Santiago College, both in Orange County, California, will contribute personnel, expertise, facilities, equipment, and materials to this project. Both of the districts serve large populations of distant learners or men and women who would benefit from access to distance learning in the form of telecourses with interactive materials to enhance their learning experience.

Personnel, Expertise, and Facilities

Coastline will provide the Project Director, who will serve as the instructional designer-writer-editor for this project. He is a professional author and editor with more than 30 years experience producing instructional materials. For more than eight years he has prepared most of the print materials used with Coastline's telecourses, and in recent years has been exploring how computers and multimedia might be incorporated into each telecourse's instructional system. To ensure that the CD-ROM disc meets the specifications and serves the instructional purposes of this project, the Coastline Project Director will coordinate his efforts with those of a multimedia/CD-ROM technician at Rancho Santiago. Together, they have the interactive authoring capabilities needed to incorporate video, audio, text, and animation into instructionally sound interactive materials. Two faculty advisors—one from each college—will be consulted on content and instructional impact. They will be actively involved in the design and evaluation of the interactive materials. Coastline's Advisor on Assessment and Research, a regular faculty member, will assist in the preparation of the evaluation instrument to measure the impact of the CD-ROM created under this grant. There will be an administrative Project Supervisor from each college.

Coastline's parent organization, the Coast Community College District, holds the copyrights to the telecourses and Coastline has the video masters that will be needed to add the high-impact of video to the multimedia, interactive CD-ROM. Coastline brings to this consortium its long experience developing media-based learning systems for distant learners.

Rancho Santiago has constructed a multimedia production facility—including the capability of mastering CD-ROM discs—that will be
utilized in preparing the interactive CD-ROM for psychology. These facilities and the technical personnel to employ them, plus Ranch o Santia go's familiarity with the needs of telecourse students, significantly complement other capacities.
Economies of Scale

This consortium should provide the technology and organization to achieve certain economies of scale at various stages in the work on this project. Different people at each school will be engaged in tasks to which they can apply their particular expertise. They should experience the efficiency of employing technology with which they are familiar. The proposed organization of the consortium will minimize inappropriate duplication of effort. This demonstration project should increase our skills in preparing interactive materials at increasingly lower costs and without having to bring in outside consultants to direct the design, content, or technical aspects of the project.

Institutional Commitment

Coastline and the Coast District are thoroughly committed to the continued production and dissemination of telecourses and are particularly enthusiastic over the idea that adding interactive components should improve students’ ability to learn and increase their interest in taking and completing the courses. Rancho Santiago College and its district are equally supportive of the proposed project, wanting to increase faculty utilization of CD-ROM technology and further explore its instructional potential.
Our project will be designed to have a significant impact on the systemwide need to promote student access to postsecondary education and to facilitate student success. We hope to demonstrate the value of interactive, multimedia in distance learning by preparing a CD-ROM for use with Coastline's introductory psychology telecourse "Psychology: The Study of Human Behavior." Telecourses meet the needs of students whose personal, occupational, or family circumstances may discourage them from enrolling in traditional classroom courses. Most telecourse students are adults who are attracted to the convenience, independence, and flexibility of the distance education format. We not only want to make it even easier for distant learners to study when and where it is most convenient for them, we want to maximize their chances to complete the course and complete it successfully.

If evaluation shows that our interactive CD-ROM meets its objectives, as detailed below, we will be able to justify creating similar and even more effective materials for other Coast telecourses. We will have demonstrated that such technology can give more distant learners, throughout California, easier access to higher education, reduce attrition, and improve student outcomes.
Independent Study is the eligible program or service this application addresses and Student Access and Success is the Basic Agenda area. Because our project is to produce an interactive CD-ROM that enhances the instructional impact of telecourses—which are a proven form of independent study—it directly addresses that specific eligible program. And because we will design and evaluate our interactive materials precisely to inspire and facilitate greater student access, reduce attrition, and improve student outcomes, our project clearly touches the Basic Agenda area of student access and success.
Specific Problems Being Addressed

The video programs in a telecourse should be highly informative, evocative, and entertaining. Because they serve in place of classroom lectures, it is important that distant learners look forward to viewing them and derive maximum instruction from them. The problem is that some students find that telecourses do not require enough active student involvement in the learning process. The viewing of videos and reading of a textbook and study guide lack the challenging give-and-take one expects with instructors and classmates. This is a problem facing anyone involved in independent study or distance education. Many telecourse students, lacking the motivation characteristic of traditional classroom interaction, may find it hard to stay with the instructional program, lose interest, and even drop the course.

This project aims at supplying more, and more meaningful, interactivity that could reduce attrition while increasing student motivation and success. The idea is to give students an interactive learning device that can increase their control over what and how they study. With it, they can review and learn-inspired by their own curiosity-both what is indicated in their course study guide and whatever catches their fancy. In either case, the interactive CD-ROM will reward their efforts by demonstrating that they can quickly get answers to their questions and build a store of new knowledge.

The challenge is to increase the interactivity of the telecourses while preserving students’ independence as distant learners. Because CD-ROM technology can combine the interactivity of computers with the visual richness of video, our proposed project may be a significant new way to improve telecourses without compromising distant learners’ ability to study when and where they choose. And because CD-ROMs have become the interactive technology with greatest appeal in the consumer market, their currency and availability seem assured for the foreseeable future.

Properly designed and tested, the technology of our prototype should be relatively easy to replicate for use with Coastline’s other telecourses and to make available to other institutions. We chose to develop these interactive materials because they held the greatest promise of opening the way to delivering cost-effective interactive distance instruction. And because CD-ROM drives are proliferating and their capabilities rapidly improving, this
technology seemed most appropriate for this project. (See also
Section 1: "Impact on systemwide need," above.)
The primary target for the materials produced by this project will be 50 to 100 of the students taking the Coastline psychology telecourse at Coastline and at Rancho Santiago College. Eventually, the instructional methodology developed and evaluated in this project could be applied to other telecourses offered at other community colleges, reaching tens of thousands of California students each year.

The population to be served by this project includes telecourse students and others enrolled in distance education and independent study programs. Most are adults, many are coping with the need to gain new skills in a changing job market, most have families and other personal constraints on their time that make it imperative that their educational program permit flexibility in determining where and when they can get the education they seek. This target population includes many economically deprived individuals and members of minority ethnic groups. A goal of this project is to increase the incentives for enrolling in distance education courses, to demonstrate that interactive materials are highly motivating, easy to use, and an effective means of improving student performance. (The reason an interactive, multimedia component is needed for telecourses is also addressed in sections 4 and 1 above.)

Most simply put, distant learners studying independently need the powerful motivation and educational fulfillment that such technology and instructional design offer. A CD-ROM such as the one we plan to develop has broad utility. It will, of course, be useful to able students who are already highly motivated, who have clear reasons to study independently. But it should also serve students with less motivation and academic ability. Such students need and will appreciate the CD-ROM’s potent instructional mechanism. They will benefit from the easy navigation through enormous amounts and different levels of information. (See also Section 6.)

Telecourses with an interactive component can be employed by students with home computers or at a campus computer lab, technology center, library, or other facility for students without computers. Eventually, computers with CD-ROM drives may be available to be rented by or loaned to distant learners. The technology for delivery is developing rapidly. The greater need is for learning materials—such as the project being proposed in this application—to deliver to students via emerging technologies, such as interactive cable, modem, or codec, satellite, or phone delivery to homes.
The short-term impact on the population served by this project, as determined by the evaluation process described in Section 9, below, should be to demonstrate that this project can improve student outcomes in some or all of the following ways: lower attrition, better grades, acquisition of a wider range of information provided in the course, and greater enthusiasm for the course and for distance learning.

In the long-term, the prospects for this project (should its objectives be attained) include going beyond the demonstration and evaluation version to develop a complete interactive psychology CD-ROM and its documentation, which would be made available to all institutions offering the Coastline psychology telecourse. Ultimately, the success of this project could facilitate creation of similar interactive materials for all telecourses and other distance learning systems, thereby extending the demonstrated impact to many thousands of students.
Performance Objectives

1. Under the grant for this project, we will design and develop a prototype of a multimedia, interactive telecourse component for "Psychology: The Study of Human Behavior," one of Coastline's most widely used telecourses and a basic course for students seeking to transfer to 4-year colleges or to meet a requirement in a wide variety of vocational programs. Design and development will be completed by 11/4/94, leaving enough time for manufacture of the CD-ROM to be used in the spring 1995 term at Coastline and Rancho Santiago.

2. We will manufacture the psychology CD-ROM disc to be used in demonstrating and evaluating the utility of such interactive multimedia instructional technology. Manufacturing should be completed by 12/16/94, in time for use in the psychology telecourse offerings during the spring 1995 term at Coastline and Rancho Santiago.

3. The project will be implemented in accordance with a plan that includes establishing criteria for determining which students will utilize the interactive materials (the test group) and which will take the course as it is customarily given, without the benefit of the interactive materials. How the interactive materials will be made available to students will be central to implementing this project. The project will not only test the interactive materials, it will provide data on what modes of delivery are possible and which are most practical. For example, students with their own computers and CD-ROM machines, will be provided discs to use at home. Others will be encouraged to use computers, at such resource centers as libraries, learning labs, or other sites where we will make the discs and documentation available. In addition to the documentation, which will give step-by-step guidance in using the new technology, we will provide phone support to help students deal with any technical problems they may encounter. The implementation plan will be completed in December 1994, the implementation itself will be carried out during the spring 1995 term.

4. This project will culminate in the evaluation of the impact of the interactive CD-ROM on 50 to 100 psychology
telecourse students. Preparation of the evaluation instrument will be carried out in concert with creation of the interactive materials. The assessment materials will be employed at various junctures in the spring 1995 term, providing feedback throughout the term.

Our standard of evaluation of the impact of the use of the CD-ROM component on students enrolled in the psychology telecourse will be learner-centered improvement, reflected in instructor evaluations and student questionnaire responses, student completion rates, test scores, and final grades. We will compare students who employed the interactive component with those who followed the customary telecourse instructional regimen, without the interactive materials (See also "Non-Performance Objective," which follows, and Section 9.)

We will report our findings, including analysis of student reactions and outcomes by 6/30/95, at the end of the one-year life of this grant.

Non-Performance Objectives

We hope to demonstrate that distant learners are particularly well served by the interactive dimension of this project, which enables them to direct their learning, to pose their own questions, and pursue answers and information along lines they choose to follow. Because knowledge is acquired through individual student curiosity and initiative, the process should build students' confidence and increase their sense of satisfaction and accomplishment. It should make it easier for them to retain what they learn and make them more enthusiastic about the course, distance learning, and about their chances for success in postsecondary education. And it will provide experience with using new technologies.

We also want this project to have a demonstrable effect on any faculty who will be employing these interactive materials. We need their assistance in determining the appropriate course content and activities. We will help them gain familiarity with the new multimedia, interactive instructional technology and learn how to use and exploit its full potential. We realize that to maximize student response to these new materials and methods we must obtain faculty feedback in their design, modification, and use.
1. Our first objective will be to assemble the Project Team, including the Project Director, Michael Werthman of Coastline, the Multimedia Technician from Rancho Santiago, one faculty member from each college to serve as content advisors and aid in the assessment of the CD-ROM and its documentation by testing these new materials with their students, and the Assessment Specialist from Coastline and the Administrative Project Supervisors.

2. Our next objective will be to analyze the Coastline psychology telecourse's video programs and print material to identify the learning activities that might best be presented in an interactive format.

3. On a Macintosh computer, using hypercard authoring software, the Project Director will then create the prototype of the interactive CD-ROM, consulting with the faculty advisors on content and pedagogy and with the Multimedia Technician on how best to pre-master the materials on computer. We will pretest the interactive materials, revise them if necessary, and prepare them for mastering.

4. The implementation plan will be prepared, including criteria for deciding which students will constitute the test group that will utilize the interactive materials and which will take the course as it is customarily given. This plan will also address how the interactive materials will be made available to students--on CD-ROMs for use on home computers, at libraries, learning labs, or other resource centers. And support procedures will be established to handle technical problems students may experience.

5. The evaluation materials will be prepared, including questionnaires and other appropriate assessment devices.

6. Various members of the Project Team will attend conferences, seminars, and workshops on CD-ROM and interactive technologies--several of which should be held within driving distance during 1994-95.

7. The Multimedia Technician will create the CD-ROM disc to be used by faculty and students. It will have to be mastered, tested, and multiple copies produced.

8. In the spring term 1995, the target course, with the new interactive materials, will be offered to students at Coastline Community College and Rancho Santiago College.
9. Concurrently, during the spring term 1995, conduct assessment of the interactive materials and prepare the final report on impact of this initial use of the materials prepared under this grant.
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a. In terms of project objectives

We expect this project to support the feasibility of using interactive, multimedia CDROM technology to improve access to independent study through telecourses and to improve student outcomes. If it does so, we can plan to incorporate CD-ROM development into the production of all new telecourses and the upgrading of existing courses.

b. In terms of the impact of the project

If this project being funded proves successful, there could be considerable systemwide impact. Development of a comprehensive version of this project's prototype's interactive CD-ROM would be justified. All community colleges offering Coastline's psychology telecourse would soon be given an opportunity to provide their students the disc's proven benefits.

c. In terms of project's potential for continued support after the expiration of the grant

If such interactive materials are shown to have a significant instructional impact, we can expect to continue their development long after the expiration of this grant. What we learn from this project may be applicable to other technologies and delivery systems that can be expected to be developed as part of the media/communications revolution just beginning. Fiber optics satellite delivery, signal compression, digital television, and many other modalities will permit us to expand upon what we expect our perfected CD-ROM materials will be able to do. In addition to current funding from the Coast District, the success of this project should enable Coastline to obtain external funding from computer and communications firms, educational publishers, and other corporate supporters who should be keenly interested in cooperative ventures that will produce products that will profit both the educational institutions and these rapidly expanding media industries.

d. In terms of the project's potential for adaptation to other institutions or programs

The success of this project would open the way to developing similar interactive materials for all telecourses produced by
Coastline, meaning that, eventually, tens of thousands of distant learners, studying independently, would be able to avail themselves of this technology, which would increase their chances of successfully completing their studies. Success in this project might suggest new ways to employ interactive materials in distance learning involving media other than telecourses. (See also Section 5.)
We will evaluate the program in terms of its objectives and completion of the corresponding activities (see attached Application Annual Workplan). Particular attention will be paid to any problems that are encountered in the course of the project. Primary aspect of evaluation will, of course, be on the impact of the project on students.

The Assessment Specialist will be involved in the project from start to finish. Creation of an appropriate student evaluation plan will be part of the initial design of the project itself. Evaluation data and processes will include: (1) student response to the interactive component; (2) student completion rates, comparing those using the interactive materials with those taking the course without the new materials; (3) student performance criteria, including test scores and final grades; (4) the feasibility of students using CD-ROM players on campus versus having machines available in students' homes, perhaps on a checkout basis, and (5) recommendations in a final report that will influence how the interactive component might best be modified in response to the evaluation.

At the end of the funded year, a meeting of the Project Team will be convened to consider the final evaluation report and plan any appropriate follow-up. The team should focus on how best to modify and fine tune the prototype CD-ROM to produce the most effective interactive materials to be used subsequently by distant learners.
The product of this project—a prototype interactive CD-ROM (and its supporting documentation), which will demonstrate the utility of such technology—will be made available to psychology telecourse faculty and students at the two participating colleges in the consortium applying for this grant. On the basis of this demonstration project, we expect to develop more comprehensive interactive materials and distribute them to all institutions offering distance learning courses incorporating those new materials.

The target population for wider dissemination will be all educational institutions, their faculty and administrators, and any other individuals or organizations interested in independent study, distance learning, and emerging instructional technologies. By using economical, accessible materials to produce these interactive materials on ordinary platforms with widely available authoring systems and other affordable software, we hope to facilitate replication by other colleges and consortiums. The product we plan to develop will not require state-of-the-art software and hardware that current budget strictures make prohibitively expensive.

As soon as the prototype of the interactive component for the psychology telecourse has been created, evaluated, and modified as necessary, the findings will begin to be reported in articles, presentations at conferences, and in a final report that will be prepared and made widely available. Dissemination will begin almost immediately and continue for as long as there is adequate interest in the period following completion of the project. Using the methods developed during this project and in response to the suggestions of telecourse users, we expect to create interactive components for other telecourses produced and broadly disseminated by Coastline.
[No information provided in this document for this section.]