Distance Learning Through the Automated Classroom

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Consortium Project.

The proposed project sets up a partnership with several departments within De Anza College: The Business and Computer Systems Division--Computer Applications and Office Systems Department, Physically Limited Services Program, and the California Community College's High Technology Center for Assistive Technology which is housed at De Anza College. The project collaboration will increase the number of options for those who utilize adaptive equipment and need to do their course work at the Assistive Technology Training Center or at home. (See attached letter from De Anza College's Physically Limited Services Program). In addition, outreach and training services can be offered to other disadvantaged populations now hindered by various problems in coming to the computer lab.
Automating testing, grading, and recording of student assignments will enable De Anza College to offer a comprehensive, independent study/distance learning program. In the past, many physically limited students found it difficult to take classes in our lab. The use of the computer to do testing and deliver vocational instruction will expand access to students who may have been unable to take courses in the past. Students will not have to come to our lab to do their course work or to take tests. Our partnership with the Physically Limited Services Program at De Anza College will create a model to help other colleges set up similar programs. Once in place, this program could be expanded to allow any student to do remote learning.
This project will address the following educational programs:

A. Nontraditional forms of instruction
   · individualized instruction
   · independent study

B. Program Development

Special learning needs of educationally disadvantaged students.

Educational services for new clientele including older working adults and the physically limited.

It will address the following Basic Agenda Criteria: A. Transfer Education B. Vocational Education C. Student Access and Success

This project will assist De Anza College in improving its existing individualized vocational program by making it more accessible to students with physical or learning disabilities. Students enrolled in De Anza College’s Physically Limited Services Program won’t have to come to our lab to test or to do their course work.

Computerized testing and automating test scores and assignments will enable our vocational education/transfer students to obtain immediate feedback and allow them to meet their educational goals faster. In addition, computerized testing can statistically analyze student test scores to flag weak test questions and evaluate test validity. This will improve the quality of instruction for all vocational students enrolled in our courses. Creating a paperless classroom will enable our staff to spend more time with students. By adding computerized testing, we will be able to add a comprehensive, independent study/distance learning component to our program. This will include offering courses via television or other independent learning modes.
De Anza College provides over 40 self-paced, competency-based vocational education courses to approximately 3,000 students per quarter. Each course requires students to pass several objective tests and to turn in anywhere from 5-25 assignments.

Because our program uses mastery learning, students cannot advance to the next lesson until they have successfully completed the previous assignment/test. All students must come to the campus to turn in assignments and to take tests. All tests are paper and pencil based and are distributed by a proctor at certain times of the day. Tests and assignments are graded and recorded by instructors manually. This means that instructors must process and grade over 36,000 tests/assignment per quarter (2-6 tests, 8 assignments per course x 3,000 = 36,000)

Problem: 1) Manual testing and recording of student test scores and assignments at De Anza College is not effective and needs automation:

2) Current methods of testing/grading inhibit student access to our vocational programs especially for the physically limited, older workers, or other students who may find it difficult to complete their course work/testing on campus or to come into the lab when tests are being administered or to hand in assignments.

Computerized testing and automation of test scores

Problem 1 Manual processing of student tests and scores is time consuming and delays feedback to the student. Because of the large number of papers to be graded, students must wait for test results before they can advance to the next lesson or retake a test.

Solution: Computerized testing will enable students to get immediate feedback on their test results or questions missed. It will enable students to advance to the next lesson or study and retake the test immediately. Immediate feedback will improve educational quality and allow students to meet their educational goals more rapidly. Studies have shown that immediate feedback rather than delayed or no feedback is a more effective form of learning.
Problem 2  Reviewing of tests is only performed with an instructor during certain time of the day.

Solution: Computerized testing will show students incorrect answers and provide students with immediate reference to appropriate resources to learn the correct answer so that they can retake the test as soon as possible.

Problem 3  Currently, retake tests are not provided nor are test questions analyzed to evaluate test validity.

Solution: Computerized testing can statistically analyze student test scores to flag weak test questions and evaluate test validity. Additionally, randomized test questions allow students to retake tests but still have test results accurately measure student proficiency. Each retaken test will include a random set of new and old test questions. It will also improve course quality by reducing cheating. Rarely will two students receive the same test questions.

Problem 4  Currently paper records to document the work of approximately 36,000 tests/assignments are used.

Solution: Computerized testing and automated recording of tests scores would eliminate the clerical time needed to grade and record test scores. Moreover, it will reduce paper and printing costs. Class assignments can also be transferred to the testing data base electronically.

Electronic transfer of the student’s final grade at the end of the quarter to Admissions and Records would be accomplished electronically. Instructors would be reassigned more hours of working with students to compensate for not having to spend so much time processing paper work. Currently, we close our lab early to process final grades. Automating this task will allow us to keep our lab open longer for students to complete their studies.

Student Access and Success for Target Populations

Problem 1  Manual testing/grading inhibit student access to our vocational programs especially for the physically limited, older worker, or other students who may find it difficult to complete their course work/testing on campus or to come into the lab when tests are being administered or to hand in assignments.
Solution: We will arrange with De Anza College’s Physically Limited Services Program to add a distance learning/independent study component to our vocational courses. It will allow students who are physically limited, older workers, or other students who need flexible on/off-campus services to take tests on the computer via modem and to do their course work at home or at other locations to complete their studies.
The focus of this project is to improve student access to our vocational programs especially for the physically limited, older worker, or other students who may find it difficult to complete their course work/testing on campus. Currently, there are no provisions to do this. Currently, De Anza College's Physically Limited Program enrolls approximately 1,100 students per year. This program provides services for the following disabled populations: educationally learning disabled (EDC), physically disabled, and psychologically disabled.

Additionally, we expect to serve all students who take classes in the computer applications and office technology program. De Anza College serves approximately 1,000 JTPA (economically disadvantaged) students per year. Automating testing and recording of assignments, will improve our individualized instruction program by enabling students to get immediate feedback on their test results and allow students to advance to the next lesson as quickly as possible. Moreover, it will increase the number of hours that staff are available to help students.

The long term impact of computerized testing and recording of grades is that more students in need of vocational skills can be served, particularly those mentioned above.
The project has the following objectives:

1) By January 1995, computerize 30 computer applications and office skills courses so that students can get immediate feedback on their tests.

2) By February 1995, set up remote computerized testing methods to allow students enrolled in De Anza College’s Physically Limited program to test by computer via modem and to do their course work at the Assistive Technology Lab or at other remote locations to complete their studies.

3) By April 1995, automate the recording of test scores, assignments for each course, and final grades for 30 courses.
The workplan includes:

a) Automating testing, grading, and recording of assignments and test scores for 30 courses.

b) Setting up remote computerized testing and learning methods for De Anza College's Physically Limited Services Program.

c) Evaluating and writing up the findings.
The proposed computerized testing, automated recording of assignments and tests, and inclusion of distance learning will

1) Improve student access to our vocational programs especially for the physically limited or older worker who need to complete their course work/testing at remote locations on or off campus. We will be able to offer varied courses via television, etc. to allow for remote learning.

2) Improve our individualized instruction program by enabling students to get immediate feedback on their test results and allow students to advance more quickly to meet their educational goals.

3) Increase the number of hours that instructors are available to help students.

This program can be duplicated throughout campus and at other institutions.

Impact and Adaptation to other Institutions or Programs:
Documentation will be provided for use of the testing and grading programs. We expect to provide training to other departments who are interested in implementing computerized testing through the Teacher Resource Center. Moreover, the automation of recording assignments and uploading final grades to the mainframe could be used throughout the entire district.

Documentation will also be provided for remote testing and learning. Once in place, this program could be expanded to allow any student to do remote learning at any institution.

Continued Support: The future development of the program will be supported by the Business Computer Systems Division should we expand it to allow all students to do remote learning.
We will survey the number of clients served at the Assistive Technology Lab over a one-year period before and after implementation of the distance learning program. This will provide us with information as to whether this program has improved access to our vocational programs. We will identify any problems that students encounter and improve the process.

- We will survey current students, who have previously taken courses, to determine if computerized testing and recording of their scores has improved their learning and helped them achieve their educational goals more quickly. We will analyze test results and improve test questions that are deemed ineffective.

- We will survey the number of hours that instructors spend on recording of grades and issuing final grades before and after implementation of the program.
We believe that other colleges can duplicate the distance learning program that we will develop. We will publish documentation developed to use the testing, recording, and final grading program. We will also publish documentation for the distance learning program. This documentation will be made available through De Anza College's Teacher Resource Center. The software for the grading and recording programs will also be available. To promote the project at De Anza College, we will do a hands-on workshop for the Teacher Resource Center on all of the programs that are developed.

To promote the project at other colleges that have JTPA (economically disadvantaged programs) or physically limited programs, we will make presentations at computer conferences such as NC5 or League of Innovations, or at JTPA conferences, or at the High Tech Center Training Unit of the California Community Colleges which is housed at De Anza College to inform other colleges and institutions about the program. A workshop will be presented in June of 1995 at the Teacher Resource Center.
[No information provided in this document for this section.]