CALIFORNIA COMMUNITY COLLEGES
AND
PERALTA
COMMUNITY COLLEGE DISTRICT

#89-0019
# Self Study Tutorials to Improve Geographic and Demographic Literacy

<table>
<thead>
<tr>
<th>FISCAL YEAR</th>
<th>ID NUMBER</th>
<th>COLLEGE</th>
<th>DISTRICT</th>
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<td>1989-90</td>
<td>89-0019</td>
<td>Alameda</td>
<td>Peralta</td>
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**FUNDING CATEGORY & AWARD**
- Grant = $18,000

**ELIGIBLE PROGRAM**
- A2 --- Individualized Instruction

**PROJECT CATEGORY**
- Developmental Model

**PROJECT PRODUCT**
- Computer Programs
- Curriculum Development

**PROJECT TOPIC #1**
- Geographic/Demographics

**PROJECT TOPIC #2**
- Inter-Disciplinary

**ACADEMIC SUBJECT**
- Computer Programs
- Curriculum Development

**PROJECT DIRECTOR**
- Rita Haberlin

**PROJECT SUPERVISOR**
- Frank Plucker, Assistant Dean

**PROPOSAL DESCRIPTION**

This project resulted in the development of five self-study computer tutorials promoting global and multicultural awareness. Targeted skills included analysis and interpretation of maps, graphs, diagrams and statistical data. Staff development workshops were provided to introduce faculty to this form of learning and skills development. A data collection system was included to integrate with a videodisc project.
Self Study Tutorials to Improve Geographic and Demographic Literacy

The College of Alameda in the Peralta Community College District proposes to create five self-study computer tutorials that promote global and multicultural awareness. These tutorials will develop skills in analyzing and interpreting maps, graphs, diagrams and statistical data. This proposal also includes staff development workshops for Peralta faculty.

Most of our students have had very little exposure to geography or population studies. In addition, many students are unable to understand the multiplicity of graphic data in the news media. These tutorials will help improve geographic and demographic literacy among underprepared students in business, history, world cultures, political science, cultural geography, and economic geography. They will also help improve the student's skills in interpreting graphic data. This non-traditional form of independent study will also appeal to older working adults, the hearing impaired, and students with English as a second language.

The tutorials will use the theme of population to focus upon some of the unique geographic and cultural characteristics of selected regions. These regions include California, the United States, the World as a whole, a developing nation (India) and an urban, industrial nation (Japan). The tutorials will go beyond mere 'place-name' geography. They will use various geographic distributions to explain why people live where they do and how they survive.

Any subject that uses maps, graphs, and statistical data to clarify concepts can apply the methods and techniques developed for this project. The step-by-step question and answer format will have wide application in other disciplines. For these reasons, this project includes staff-development workshops to introduce faculty to this form of learning and skills development. The workshop will encourage faculty to use these tutorials in their own subject areas.

This FII project will use $36,500 worth of computer equipment donated by Sony Corporation and IBM Corporation. The project requests $25,174 to develop the tutorials using the combined skills of an instructor-programmer team. Part of the funds go toward the faculty workshops.

This project builds upon the experience of an instructor-programmer team that previously developed meteorology courseware and interactive videodisc tutorials for the Fund for
Instructional Improvement. These self-study tutorials will include a data collection system that was developed for the videodisc project.

Community colleges throughout the state, local media centers, and members of the California Geographic Alliance can purchase these tutorials and supporting documentation at the cost of duplication.
Self Study Tutorials to Improve Geographic and Demographic Literacy

1. Specific Educational Program Being Addressed

[SEE THE “PROBLEM” SECTION IN THIS DOCUMENT.]
2. Specific Problems Being Addressed

TUTORIALS TO IMPROVE GEOGRAPHIC AND DEMOGRAPHIC LITERACY
EDUCATIONAL PROGRAM OR SERVICE ADDRESSED
The College of Alameda in the Peralta Community College District proposes to develop and coordinate a project that meets five criteria of the California Community College Fund for Instructional Improvement described in Article 7, Section 84381, Creation of Fund Programs.

1 a. Non-traditional forms, content, and methods of instruction

This project involves an innovative use of computers and a non-traditional form of instruction. The five self-study tutorials will provide an interactive learning tool using a combination of text, graphics, and animation. Students will analyze graphic data using a structured step-by-step question and answer format.

b. Programs for improving teaching abilities of faculty

Staff-development workshops are an important part of this project. We will share with Peralta faculty the skills and experience we gained while developing the tutorials. We will show instructors how to use the tutorials and the student data collection system in their subject areas. The student data collection system and a student activity log will help faculty analyze student responses, run times, and problem areas.

c. Programs addressing special learning needs of educationally disadvantaged students

The self-study tutorials will provide remedial activities for the below average student who has difficulty analyzing statistical data and interpreting graphic materials such as maps, graphs, charts, and tables. The tutorials also offer an alternative learning method for the hearing impaired, as well as geographical enrichment for the gifted student. The self-study tutorial format allows the students to work independently and at their own pace.

d. Educational services for new clientele including older working adults

The self-study tutorial format is appealing to older, working adults and to students with English as a second language. These students prefer to study in the computer learning center on their own time schedule.

e. Efforts to improve traditional instructional programs

These self-study tutorials require a style of learning that demands analytical reasoning of visual data rather than rote learning. They will be an improvement on traditional instruction for students in geography, world cultures, business, history, and political science.
Global Awareness

In California, social and economic life are intricately interconnected with the rest of the world, yet our students know little about world geography. According to Bill Honig, California Superintendent of Public Instruction, "Our students are more illiterate in geography than anything else." In the United States, a two-year national study by the Educational Testing Service of Princeton, New Jersey found that 85-90% of college students have an inadequate knowledge of the modern world. Few students entering community college have previously had a geography course. At most, these students learned some map skills and geography in an overall course in social studies. It is difficult to make up these deficiencies during a one quarter or semester college course.

Geography today is much more than place location. In addition to where things are, cultural geography is concerned with why they are there. The course uses maps, graphs, and diagrams to illustrate environmental, social, economic, and political trends. It studies the changing patterns of population growth, and the relationship between the industrialized world and the developing nations. It also studies the background to the many social and political conflicts among the world's diverse peoples.

These self-study tutorials can be used in any subject that assumes the student has had some basic geographical knowledge. These include such subjects as business, history, political science, cultural geography, and physical geography.

Demographic Literacy

To understand population-related problems such as health, education, and environment, students need an understanding of the nature of human population growth. However, most of the United States students tested in the Second International Science Study, did not understand the basic concepts of population growth. To help students understand the world and its increasing population the self-study tutorials will use population as a theme to help them become demographically as well as geographically educated.

Basic Skills

Many teachers find that students "tune out" when faced with analyzing statistical data and graphs. Yet the ability to read and interpret the information conveyed by graphic data requires a skill not only for the social sciences but also for everyday living. More and more the news media presents information in the form of diagrams, maps, charts, and tables. The self-study tutorials will show students in a step-by-step format how to interpret various kinds of graphic data.

Tutorial Help to Improve Student Retention and Success

In previous projects, The College of Alameda developed computer study guides and tutorials for students in physical geography and geology. Those tutorials helped keep students in the
courses. Students who missed classes due to illness, work, or personal problems were able to catch up by using the tutorials on their own time. In addition, students found that the computer graphics and animation that accompany the text helped them learn and remember the material. One student said, "The picture was burned into my memory!" The students that used the physical geography and geology tutorials are now asking for tutorials in their other subjects. We have found that students are more motivated when using an interactive computer tutorial than a textbook.

Lack of Appropriate Courseware

Geography today is much more than place location. The few computer materials that are available for geography are mostly limited to rote learning of places. The self-study tutorials proposed for this project will go beyond "place-name" geography using various geographic distributions to explain why people live where they do and how they survive.

Professional Development

Any subject that uses maps, graphs, and statistical data to clarify concepts can adapt the methods and techniques used in this project. The step-by-step question and answer format used in the tutorials will have wide application for other disciplines. For this reason, we include staff-development workshops in this project to introduce faculty to this technique of learning and skills development. We will encourage faculty to use the tutorials in their own subject areas.
3. Population To Be Served

POPULATION SERVED
The districts served by the community colleges participating in this project are urban areas with large minority populations. Many of the students are Chinese, Japanese, Vietnamese, Filipino, and Hispanic with English as a second language. Tutorials that combine computer graphics and animation with step-by-step instruction are especially helpful to these students.

This FII self-study courseware project will serve three different groups:

Group 1. The tutorials will initially benefit cultural geography students at the College of Alameda. Approximately 120 students a year enroll in cultural geography classes at the College of Alameda.

Group 2. On professional days, we will offer workshops to instructors in all disciplines in the Peralta Community College District. We expect a minimum of 300 faculty at these workshops. During the workshops, social science faculty will learn how to use these tutorial-c in their classes to provide background geographic information. We believe that the social science students that use these self-study tutorials will become more geographically educated and will develop skills in graphic analysis.

Group 3. The tutorials in the IBM PC compatible format will serve teachers and visitors to Contra Costa and Alameda County Instructional Media Centers. We will also show these programs at one-day workshops or conferences of the California Geographic Alliance. Community colleges throughout the state can use these tutorials for the cost of the diskettes.
4. Objectives

[NO “OBJECTIVES” ACCOMPANIES THIS DOCUMENT.]
5. Workplan Narrative

ACTIVITIES
Project Team
Rita Haberlin is the Project Director and Instructional Designer. She has taught cultural geography for twenty-eight years and has been developing computer-assisted instruction for the past nine years. She is co-author of the IBM Earth Science Series. In 1988, she received a Fulbright Award (Seminar on Ancient and Modern India) to study for 8 weeks in India. (See Curriculum Vitae - Appendix A)

Pat Kulda is the Programmer/Artist. She has been working with computers for the past eighteen years and has been writing educational software for the past nine years. She is co-author of the IBM Earth Science Series. (See Consultant - Appendix B)

This project team has developed courseware for the Peralta Community Colleges, the National Science Foundation, the Fund for Instructional Improvement, and IBM Corporation.

This project will use existing IBM PC compatible equipment donated to the College of Alameda by IBM Corporation and Sony Corporation. Students will use the self-study tutorials on a drop-in basis in the Computer Learning Center.

We will purchase media supplies for this project. These supplies include scanning and compression software to capture statistical and graphical data, graphing utilities, and programs containing source data from the World Bank and Population Data Reference Bureau.

The self-study tutorials will be tested in the Computer Learning Center at the College of Alameda. Workshops will be held at the College of Alameda, and at Laney and Merritt Colleges during August and September 1990.

Timetable

Activity Schedule 1989-90

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<th>Period</th>
<th>Activity Description</th>
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<tr>
<td>Sept-Oct</td>
<td>The Instructional Designer prepares the objectives for each tutorial and develops the instructional sequences.</td>
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<tr>
<td>Nov - Dec</td>
<td>The Instructional Designer selects and prepares the graphic data and determines the animation needed for each tutorial.</td>
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<tr>
<td>December</td>
<td>The Programmer/Artist critiques the graphic data and animation requirements.</td>
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January The Project Director invites the Director of the Computer Learning Centers and interested faculty to join an evaluation team to review the tutorials and documentation as they are developed.

Jan-June The Instructional Designer writes the text and develops the questions and reinforcement responses.

Jan-June The Programmer reviews and critiques the text as it is written. Members of the evaluation team also check the material.

January The Programmer/Artist programs the text and designs the graphics and animation. Computer graphics are created on a graphics tablet. Statistical data and line art are assembled in a scanning system.

January The Project Director submits a half-year report to the Fund for Instructional Improvement.

Jan-June The Instructional Designer tests the programs with cultural geography classes at the College of Alameda. Students are required to take pre-test and post-tests. The effectiveness of the instruction is evaluated by these tests and computer-collected student data. Students rate the courseware by completing online questionnaires.

Jan-June The evaluation team reviews the material and makes suggestions to improve them.

Jan-June The Instructional Designer rewrites the text and redesigns the graphics in response to the student comments, test results, student data, and observation.

March-July The Programmer redesigns the tutorials in response to feedback from students and the evaluation team.

July-August The Instructional Designer prepares the resource materials for the workshop. The Project Director makes arrangements to have workshops at the three Peralta Colleges. Advance notice is given to Peralta District faculty.

August-Sept The Instructional Designer and Programmer hold workshops at Peralta Colleges. Instructors evaluate the workshops using questionnaires.
September The Project Director and Programmer work with faculty to encourage them to use the self-study tutorials.

September The Project Director prepares a final report and submits it to the Peralta Community College District and the California Community College Fund for Instructional Improvement.

September The Project Director and Programmer review all the courseware developed in this project in preparation for its use in educational media centers.

1990-91 The Project Director submits papers to Northern California Geographic Alliance workshops on the results of this project.

PROGRAM DESCRIPTION

(Omit one topic)

Tutorials

Geographic and Cultural Characteristics of California ** TOPIC OMITTED **
The United States
The World as a Whole
A Developing Nation (India)
An Urban, Industrial Nation (Japan)

For each of these four geography topics there will be a computer diskette containing a 30-40 minute tutorial and a 15 minute quiz on the tutorial material. Each tutorial will include four or five sequences. Using a combination of text, graphics, and animation, the tutorials will provide an interactive learning tool. Each tutorial will make extensive use of maps, diagrams, and charts. In addition, each tutorial will contain a data collection system designed and developed in a previous FII project. This system captures student names, times, answers, and scores. Using a utility print program (Student Activity Log), instructors can evaluate the data.

Instructors can use the tutorials as an addition to classroom instruction or as a stand-alone activity for independent study. As each tutorial concept is presented in a clear and concise manner the student is questioned on the material. Students will be asked to interpret statistics that are presented in a graphic form. To reinforce the lesson just learned, all student answers will be responded to with statements, graphics, or animation.

Student Activity Log

Utility programs designed and developed in a previous FII project will print student data. These programs generate various reports on student activity.
The following is a sample of the kinds of information that are included on a Student Activity Log:

- Student Id (Optional)
- Date
- Tutorial Name
- Activity Name
- Time within Activity (in minutes)
- Activity Completed (yes/no)
- Actual Score, % Correct
- Number Answers Right
- Number Answers Wrong
- List of Answers Typed by Student (keyboard)
- List of Choices Made by Student (touch screen)

PROGRAMMING HOURS DETAIL REVISED June 12, 1989

[Chart deleted --- see Print Version]

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<th>PROJECT TOTAL HOURS</th>
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<tr>
<td>TOTAL COST</td>
<td>515 Hours x $23 Per Hour</td>
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<td></td>
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6. Expected Outcomes

EXPECTED OUTCOMES
The desired results of this Fund for Instructional Improvement project include the following:

• This FII project builds upon the success of the physical geography computer-assisted instruction lab at the College of Alameda. In this lab students use computer study guides and tutorials as a supplement to their course in physical geography. We have found that students make better use of interactive courseware if they use it on a regular basis as an accepted part of their instruction.

The self-study tutorials developed under this project will provide a foundation for a computer-based learning lab as a supplement to cultural geography classes. After using these self-study tutorials, students in cultural geography and other disciplines that require a basic geographic background will be more prepared to understand their lecture material. They will learn to observe and think more critically about geographical data and maps. The data collection system used within the tutorials will provide valuable feedback on student progress.

• The staff-development workshops will expose a minimum of 300 instructors to the potential of self-study tutorials on graphic analysis. Some of these instructors may use the tutorials in their own subject areas and other instructors may be inspired to develop their own materials.

• Once a programming model is built for the self-study tutorials, other tutorials can be developed more rapidly. Our goal is to complete a series of tutorials that cover all of the world's major countries and regions. We will apply for additional grants and staff-development funds to achieve this goal.

• The new tutorials developed for this project and other future projects will expand the limited library of educational materials available for college-level geography. The College of Alameda will maintain these tutorials in the Computer Learning Center where students can use them on a drop-in basis. Other community colleges and schools with IBM PC compatible computers can easily use the tutorials. They are appropriate not only for geography classes but any class that needs background geographic information. These self-study tutorials will help students in all disciplines gain skills in interpreting graphs and statistics.

The tangible results of the project include:
   a) Five self-study geographic literacy tutorials on 3.5" computer diskettes for the Sony View System and five 5.25" computer diskettes for the IBM PC.

   b) Printed materials for the workshops including information about using the student data
7. Evaluation Plan

EVALUATION PLAN
Evaluation will take place at each stage of the project using an evaluation team, student testing, and questionnaires. The evaluation team will consist of educators from the Peralta Community College District.

Students will rate the self-study tutorials using a questionnaire on the computer. Instructors will check the students' progress using pretests and post-tests and the computer-collected student data. The evaluation team will review the tutorials and make suggestions. In response to this feedback, changes will be made to the self-study tutorials. Peralta faculty will rate the workshops by using questionnaires.

The Peralta Community College District and the California Community College Fund for Instructional Improvement will receive a mid-year and a final report. These reports will include a summary of progress made in meeting program objectives, results of evaluations, and other information about the project.

Cultural geography courses at the College of Alameda will use these new materials. In addition, the materials developed in this project will become part of a library of courseware for use in California Community Colleges. Other subject areas can easily adapt this style of courseware. This project will have reached its goals if instructors in several different disciplines use the self-study tutorials for their classes.
8. Dissemination Plan

DISSEMINATION PLAN
The self-study tutorials will be given to the State of California. Community colleges, educational media centers, the California Geographic Alliance, and local museums will receive the tutorials at the cost of duplication. The tutorials and the experience gained in developing the tutorials will be shared with other educators at professional conferences. These conferences include Computer Using Educators, California Geographical Society, the California Geographic Alliance and the League for Innovation in Community Colleges.
9. Budget Narrative

[NO “BUDGET SUMMARY” ACCOMPANIES THIS DOCUMENT.]