Grant/Loan Project to Develop a Social Science Learning Laboratory and Laboratory Manuals

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Background/Introduction

[No information provided in this document for this section.]
This loan/grant project will address the Board of Governors Basic Agenda Priority for EDUCATIONAL QUALITY- Maintaining quality instruction and excellent support services. Specifically, the project addresses these priorities:

- Maintain and improve the quality of instruction to promote excellence in the classroom, in both teaching and learning.

- Challenge students to increase their performance to the best of their ability.

This loan/grant project will address the Eligible Programs and Services in the area of NONTRADITIONAL INSTRUCTION. This project will focus on the following criteria, quoted from the Request for Applications:

Eligible Programs and Services. Alternative educational programs, which promote improvement or innovation through: a provision of instruction which is nontraditional as to its form, content, or methodology. (1) internships and experiential learning opportunities; (3) independent study.

In summary, the overall purpose of this grant/loan project is to enhance the ability of Irvine Valley College, and eventually other colleges who are interested, to provide learning experiences of the highest quality to students taking social science courses. Students will greatly benefit from the challenging, innovative, individualized, and experiential nature of the instruction that will be available to them.

NEEDS

The School of Social and Behavioral Sciences needs a computing lab which is dedicated to helping students, both majors and non-majors, clearly learn scientific basis of the Social Sciences. More specifically, the aims of the Psychology and Sociology Departments at Irvine Valley College are to provide students, both majors and non-majors, with a strong basic foundation in the fields of Psychology and Sociology, and an understanding of how the scientific method is applied to problems and issues in the social sciences. For majors, an additional, but essential goal is to provide students with research skills and experiences necessary for success in upper-division social science courses. In addition to reading and hearing lectures about research, we want our students to become actively
engaged in learning about research and doing research.

The School of Social Science's emphasis on "hands-on" computer laboratory experiences is supported by the professional educational literature. Like Perone (1991), Anderson & Hornby (1990), and Eckerman (1991), we recognize the many advantages that a computer-based methodology laboratory offers over traditional laboratory equipment. Compared to traditional equipment such as pursuit rotors and mirror tracing apparati, computers are less expensive, more reliable, much more versatile, and increase the speed and efficiency of data collection. Due to these advantages, the use of computers for laboratory instruction will grow rapidly as will the diversity of courses benefitting from a computer lab (Anderson & Hornby, 1990).

HOW NEEDS WILL BE DIMINISHED BY THIS GRANT/LOAN PROJECT

The primary goal is to provide the large number of students who take social science courses (1,500 seats annually) at Irvine Valley College with a quality education and a foundation for scientific and technological literacy in the social sciences through active learning experiences, self-directed scientific inquiry, and the development of computer literacy.

Specifically, needs will be diminished by:

- Establishing a Social Sciences Computer Lab having state-of-the-art desktop computing equipment and the most appropriate software for immersing students in research simulations, replications of classic studies, simulations, original research, data analysis, computer literature searches, and scientific report writing.

- Expanding computer-based scientific inquiry components in the following key courses: Psychology 1 (Introduction), Psychology 2 (Research Methods), Psychology 10 (Statistics), Sociology 1 (Introduction), Sociology 2 (Social Problems), Sociology 3 (Methods) and Sociology 10 (Marriage & Family).

- Activating the Sociology 3 (Research Methods) course. (Due to the lack of computing equipment and software, this course has never been offered at IVC.)

- Phasing-in laboratory use by the other disciplines within the
School of Social and Behavioral Sciences (Economics, Anthropology, and Political Science).

- Developing laboratory manuals for guiding students through a variety of experiential, computer-based learning activities. The manuals to be developed for this grant/loan project will be for students taking undergraduate courses in psychology and sociology.
This loan/grant project will address the Board of Governors Basic Agenda Priority for EDUCATIONAL QUALITY- Maintaining quality instruction and excellent support services. Specifically, the project addresses these priorities: To improve the quality of academic offerings, the Board of Governors proposes the following initiatives: 1) Maintain and improve the quality of instruction to promote excellence in the classroom, in both teaching and learning; 2) Challenge students to increase their performance to the best of their ability. This loan/grant project will address the Eligible Programs and Services in the area of NONTRADITIONAL INSTRUCTION (California Education Code 56652 -Eligible Programs and Services). This project will focus on the following criteria: Alternative educational programs and services which are eligible are those which specifically promote improvement or innovation through provision of instruction which is nontraditional as to its form, content, or methodology (1) internships and experiential learning opportunities; (2) individualized instructional contracts which require students to develop learning objectives; and (3) independent study.
Limited and inadequate equipment.

Funds are needed to help the college establish a Social Science Learning Laboratory. The Psychology and Sociology Departments currently have no computer hardware of its own for student use. The Psychology Department has limited access to the Humanities Learning Lab which houses 14 Apple Ile computers. This lab can be scheduled for students in Psychology 2 (Research Methods), but on a very limited basis. Psychology and sociology students have access to the college computer center during open lab hours. But due to the crowded state of this center, students are only given assignments which they can complete relatively quickly.

The lack of computing equipment prevents the psychology and sociology departments from offering truly effective research components in their courses. Because the campus computer center must provide general purpose software applications such as word processing, and must accommodate students with assignments from a variety disciplines, it cannot adequately accommodate the large number of students attending our psychology and sociology courses. We are unable to bring a group of 20 to 45 students into the lab for a block of time. As the college continues to grow, availability of the campus computer lab-equipment is diminishing. Although we sometimes can schedule a class to meet in the school's Humanities Learning Center, our existing CONDUIT software is compatible only on the Apple He computers, and access to the 14 Apple Ile computers owned by the Humanities School is very limited. Besides being in a state of decay, the Apples Ile computers have limited speed and poor storage capacity. The major frustration is that the School of Social and Behavioral Sciences has no computing equipment and very limited software.

Fragmented laboratory exercises.

Beside a loan to help acquire computing equipment, grant funds are need to enable social science faculty to develop laboratory manuals for promoting the best possible learning experiences for students. The existing laboratory exercises need updating, refinement, and cohesiveness if they are to provide learning experiences of high quality. Because of a limited budget, the majority of our software has been limited to that available for free from publishers. As a result, many of the computer exercises we have in place are awkward, lack proper sequencing, and common format. Grant
funds are needed to enable our psychology and sociology departments to develop laboratory manuals which present students with the best, most current exercises, simulations, and tutorials. The manuals will sequence and reformat the activities to best reflect the learning objectives of the courses for which they are designed.
Irvine Valley College Students: One population to be served by this project includes all the students taking Psychology and Sociology classes each year at Irvine Valley College. A breakdown of how the students will be served by this project is shown below.

<table>
<thead>
<tr>
<th>COURSE</th>
<th>ANNUAL SECTIONS</th>
<th>ANNUAL SEATS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychology 1-Intro</td>
<td>20</td>
<td>800</td>
</tr>
<tr>
<td>Psychology 2-Research</td>
<td>3</td>
<td>100</td>
</tr>
<tr>
<td>Psychology 10-Stat</td>
<td>2</td>
<td>80</td>
</tr>
<tr>
<td>Sociology 1-Intro</td>
<td>10</td>
<td>400</td>
</tr>
<tr>
<td>Sociology 2-Problems</td>
<td>2</td>
<td>70</td>
</tr>
<tr>
<td>Sociology 3-Research</td>
<td>1*</td>
<td>35*</td>
</tr>
<tr>
<td>Sociology 10-Mar/Fam</td>
<td>2</td>
<td>80</td>
</tr>
<tr>
<td>TOTALS</td>
<td>40</td>
<td>1,565</td>
</tr>
</tbody>
</table>

* Sociology 3 hasn't been offered due to lack of equipment.

College: The college will benefit from this loan/grant project by being able to provide a unique, high-quality learning environment for students enrolled in many social science courses. Although the School of Social and Behavioral Sciences faculty have made the establishment of a computing laboratory the top priority in each of their past four annual planning reports, a lack of funding has prevented us from taking action.

Social Science Faculty and Students at IVC and Colleges Statewide.

The project's final report and the accompanying laboratory manuals should have systemwide importance because they will represent successful efforts to bring about important changes to the way community college students are taught in social science courses. Watkins (1989) reports that 42% of the 12.2 million students enrolled in higher education are 25 or older. These students often are highly motivated and "they bring to the classroom an adult perspective and a whole range of valuable life experiences" (Giczkowski, 1990). Despite these changing demographics on campus, "colleges--
community colleges included—and universities are hampered by obsolete equipment and entrenched curricula, as well as teaching patterns not adjusted for adults" (Eurich, 1990, p. 36). The proposed laboratory and accompanying laboratory manuals will offer students the opportunity to do real social science research about concerns in their lives. Student-generated activities can be powerful, and realistic experience is an important element for student success (Kain, 1987). Rather than talking and reading about research that has and is taking place in the social sciences, modern computer software and hardware make it possible for entry-level students to test their theories with real data, such as the General Social Survey, census data, election data, etc. Our philosophy derives from Knowles (1980) who argues that for effectively teaching adult learners we must shift from dependency to self-directed, experiential learning. Despite the fact that science is the defining feature of the social sciences, beginning students typically hear about it social science, rather than doing it. Unlike the required labs in physical, chemistry, and biology, few social science students are provided laboratory learning experiences.
Objectives

a) Task - Implement a Social Science Computing Laboratory at Irvine Valley College

b) Completion Date - June 30, 1994

c) Bench Mark Standard - All students enrolled in Psychology 1 (Introduction), Psychology 2 (Research Methods), Psychology 10 (Statistical Methods), Sociology 1 (Introduction), Sociology 2 (Social Problems), Sociology 10 (Marriage and Family) will participate in course specific laboratory exercises in the new lab.

a) Task - Develop manuals having computer lab exercises for the social sciences courses.

b) Completion Date - June 30, 1994.

c) Bench Mark Standard - Laboratory manuals for each lab-related psychology and sociology course (see list above) will be completed and available for student use.

a) Task - Disseminate products of this loan/grant project.

b) Completion Date - August 30, 1994.

c) Bench Mark Standard - A project abstract which describes the laboratory and the manuals will be sent to the social science school at every community college in California. The report will be sent to UCLA for publication in the ERIC system.
The laboratory equipment and software will be ordered and installed. The equipment list was prepared after a literature search regarding the teaching of undergraduate introductory and methods courses in psychology, 2) a review of recent, successful NSF laboratory equipment grant proposals in the Social and Behavioral Sciences, 3) a review of the software presently available, 4) comparisons of the various computer platforms, and 5) several meetings of an advisory board composed of the Vice President of Instruction, the Dean of Learning Resources, the Dean of Economic Development, the Chair of Social and Behavioral Sciences, faculty who work in the campus computer lab, and the project director.

Because of the relatively lower cost and the psychology and sociology instructors' greater experience and familiarity with the IBM PC, the IBM compatible platform was chosen over the Macintosh for the lab workstations.

The file server will be housed in a separate room to which the system manager will have access. The file server will have a high speed modem to access external services such as databases and bulletin boards. The file server network will primarily serve the student workstations with data analysis programs and databases from MicroCase. The EtherNet network was selected to facilitate integration of information available on CD ROM and because it is compatible with the district's mainframe hardware.

Each student workstation will have a hard drive to increase the database storage capability of the network, and each will be loaded with WordPerfect, Micro Experimental Lab (MEL), MyStat, ChipenDale, 3 CONDUIT tutorials, SPSS/Windows, and PsychSim 11. When the workstations are used for word processing, they will not slow the network's ability to provide data files, etc. For high quality graphic and text printing, the workstations will share 2 laser printers.

Dot matrix printers will be available for long printouts. The Microcase Curriculum Plan was chosen because the college will have unlimited use and redistribution of virtually all the Microcase software applications: the Microcase Analysis System, the data sets (e.g., NORC's General Social Surveys), and the ShowCase Presentational Software. We plan to package sets of MicroCase software and, along with laboratory manuals authored by the principle investigators, sell them to students via the campus bookstore. This procedure, both approved and recommended by MicroCase, will
finance the annual $900 fee. The MicroCase Software will provide our students the opportunity to formulate and test numerous hypotheses from data banks of real data.

The Micro Experimental Lab (MEL) software was selected because, beside offering some 25 laboratory exercises, the MEL language will enable the authors and interested students to generate additional experimental modules for future use in our courses (St. James & Schneider, 1991).

The SPSS statistical software was chosen because of its power, versatility, and popularity at local colleges and universities. SPSS will facilitate a great variety of analyses and will provide majors with the SPSS background expected for upper division and graduate school courses. In order to fund the site license after completion of the grant period, the principal investigators plan to author SPSS workbooks which will be sold through the bookstore.

Finally, the ScanSurvey software will enable students to create customized surveys which accommodate bubble-in responses. Completed surveys will then be scanned on the Psychology Department's 8200 Optical Reader, creating a database for comprehensive analyses of the survey responses. The EFC chip is needed to extend the Optical Reader's memory.

The Laboratory Manuals.

A full-time Psychology and a full-time sociology instructor will develop the laboratory manuals. Both instructors will acquire a wide array of samples of software and accompanying documentation. Each instructor will then evaluate the software and select the most appropriate software and exercises for each course. Each instructor will write modules to support student use of each software program. Each module will feature 1) background information on how the exercise (activity, tutorial, experiment, or simulation) relates to the state-of-knowledge of the discipline, 2) how to conduct the exercise, 3) and a series of post exercise questions for the student to answer in order to complete a lab report. The modules will be grouped according to their appropriateness for each psychology and sociology course.
a) Outcomes
1. Outcomes in terms of objective 1 (implementation of social sciences computing laboratory). Irvine Valley College will benefit from this objective by being able to provide a unique, high-quality learning environment for students enrolled in many social science courses. Other colleges may be able to benefit from the project report which, hopefully, will inspire other social and behavioral sciences faculty to begin to supplement their lecture approach with action-oriented, laboratory strategies of teaching.

2. Outcomes in terms of objective 2 (development of laboratory manuals for use in psychology and sociology courses). The manuals will benefit the learning experience of the approximately 1,500 students taking psychology and sociology courses at Irvine Valley College each year. The manuals will be designed to provide focused, structured laboratory experiences which require students to employ critical thinking when completing their laboratory reports. Many teaching colleagues at other colleges should find the laboratory manuals helpful for planning similar exercises for their courses. The manuals, which will derive from the best available software, will be written according to a common format and will aim to optimize the sequencing of learning activities.

b) Potential for continued support after the expiration of the grant. The potential for continued support is excellent. The college and the faculty of the School of Social and Behavioral Sciences are dedicated to successful implementation of the social sciences laboratory. The FII loan will enable the college to purchase the necessary hardware and software. The FII grant will enable two social and behavioral science faculty to evaluate software, and write lab manuals which will promote very efficient use of the new laboratory by students in many of our social science courses. The Dean of Learning Resources and the Vice-President of Instruction both agree that sufficient technical and maintenance staff will be available to keep the laboratory running properly.

c) Potential for adaption to other institutions or programs. The products of this project, the social science laboratory manuals, should be very useful to sociology and psychology instructors at other colleges who wish to challenge their students with experiential, self-directed learning experiences. The laboratory approach is meant to replace passive learning about how social science operate with activity-oriented exercises (replications of classic
experiments, tutorials, simulations, original experiments, statistical analyses, computer literature searches, etc.) which involve the doing of social science. The abstract report of this project will be sent to social science departments statewide. 'Me manuals and the full report will be made available to those who are interested. The report will be submitted for inclusion in ERIC. Both faculty will send summary reports about the project to newsletters such as Network, the newsletter for psychology teachers at two-year colleges. Many IVC psychology majors are members of the college’s chapter of Psi Beta, the National Honor Society of Psychology at Community and Junior Colleges. The Psi Beta club will encourage students who produce original research reports in the laboratory to present their reports at student sessions of regional and national meetings of the American Psychological Association.
A detailed evaluation plan is provided below. Benchmarks and standards are provided for the activities listed under each objective. Every evaluation component includes: 1) the specific measure(s) of the activity or product, and 2) the date by which the activity or product should be completed.

A report which documents this project will be issued at the end of the grant period. The final report will contain a project evaluation section which will 1) describe the problems, if any, incurred during the project and how these problems were resolved, 2) summarize the software and laboratory exercises found most effective for teaching critical social science concepts, and 3) provide a list of recommendations which colleges can use to establish an effective social science computer laboratory.

Detailed evaluation plan. The following project benchmarks and evaluation standards should help ensure timely completion and proper evaluation of this project.

OBJECTIVE 1: Implement Social Science Computing Laboratory.

Evaluation questions:
1. Was a properly equipped space made available for the lab? Critical features for this space include proper air-conditioning, electrical outlets, and room security. Due date: 6-30-93

2. Was the hardware and general systems software acquired and installed? Due date: 10-15-93

3. Was the curriculum specific software, as identified by the social science faculty, acquired and installed? Due date: 12-15-93

4. Were students able to begin using the laboratory? Due date: 1-20-94

Benchmark: A fully functioning computer laboratory for students enrolled in social science courses.

OBJECTIVE 2: Laboratory Manuals for Sociology and Psychology Courses.

Evaluation questions.
1. Did the psychology and sociology instructors review a wide array of academic computing software designed for college level social science courses? Due date: 8-15-93

2. Was the most promising software acquired and evaluated for possible adoption in the laboratory? Due date: 10-15-93

3. Were modules written for each of the computer activities (e.g., replications of classic studies, experiments, tutorials, simulations, statistical procedures) adopted for future use by students? Due date: 6-15-94

4. Were the modules sequenced and grouped into manuals for class use? Due date: 6-15-94

Benchmark: Two or more manuals each for use in psychology courses and two or more manuals for use in sociology courses.

OBJECTIVE 3: Disseminate Project Products

Evaluation questions.

1. Was a project abstract and a final project report written? Due date: 6-30-94

2. Were the manuals made available to interested social science faculty at other community colleges? Due date: 7-1-94

3. Was the final report submitted for publishing in the ERIC documentation system? Due date: 6-30-94

4. Was the project presented at any relevant conferences or workshops? Due date: 6-30-94 and on-going

The final project report abstract will be made available to social science departments at all the California Community Colleges. Faculty who express an interest will be provided a copy of the complete project report and/or laboratory manuals.

Both the psychology and the sociology instructors involved in this project will give presentations at appropriate workshops and conferences.

The project abstract and report will be submitted to the ERIC Clearinghouse for the Community and Junior Colleges for wide dissemination.
[No information provided in this document for this section.]