Leveraging Small Grants to Grow STEM Programs: AACC’s MentorLinks Project

AACC National Convention
April 6, 2008
Room 202-B
8:45 – 9:45 a.m.
Forum Participants

- Vince DiNoto, Dean of College and Systemic Initiatives, Jefferson Community & Technical College, KY

- Suzanne Korey, Director, Workforce Education, City College of San Francisco, CA

- Mike Rudibaugh, Geography/GIS Instructor, Lake Land College, IL
AACC’s MentorLinks program is funded by the National Science Foundation through the Advanced Technological Education program (ATE).
The Advanced Technological Education (ATE) program endeavors to strengthen the skills of technicians, whose work is vitally important to the nation’s prosperity and security.

Two-year colleges have a leadership role and work in partnership with universities, secondary schools, business/industry, and government agencies to design and carry out model workforce development initiatives.
MentorLinks Program Objectives

- to help colleges develop or strengthen technician training programs in STEM fields through mentoring, professional development, and technical assistance
MentorLinks Program Objectives

- to establish connections for colleges to identify new ideas and relationships through networking opportunities at program meetings and ATE National Conferences
- to help colleges gain insight about support for building and sustaining new programs
MentorLinks Program

- AACC sponsors a national grant competition to select:
  - A Mentor Team
  - MentorLinks Colleges
MentorLinks Program (2005-2007)

- 10 MentorLinks Colleges selected
- A team of 10 mentors worked with individual colleges in the following fields:
  - Aquaculture/Aquarium Science
  - Biotechnology
  - Geographic Information Systems
  - Information Technology
  - Manufacturing Technology
  - Multimedia Technology
  - Science Literacy
MentorLinks Outcomes

- Curriculum and materials design and development
- Student recruitment into individual courses and certificate programs
- Faculty Development
- Engagement of local business/industry
- Program assessment
- Development of student internship programs
- Increased recognition and program support among administrators
- Leveraging of MentorLinks funding for other sources of support
What is GIS Technology?

- This technology combines relational database structures with computer generated maps.

- Federal, state, and local gov’t offices have all been moving towards GIS. One of the goals of this transition was to increase the flow of information between the three.
U.S. Department of Labor

- One of the ten fastest growing occupations
What does GIS mean to Community Colleges?

**Credit and Non-Credit**
- New curriculum and programs to meet both new and old economy jobs.
- Developing a Vision and a Plan for a National Geospatial Technology Resource Center (NSF-ATE Planning Grant for National Center for Geospatial Technologies)
  - [www.geotechcenter.org](http://www.geotechcenter.org)
  - Handout chapter on institutional research

**Institutional Applications**
- Geospatial technologies represent new approaches to addressing challenges to community colleges like:
  1. Student Recruitment
  2. Measuring Diversity
  3. Campus Safety
  4. Grant Development
  5. Economic Development
Lake Land College
MentorLinks Goals, 2002 - 2005

MentorLinks Question

- How do you promote and grow GIS courses, curriculum and programs at community colleges?
- What I knew in 2002:
  - Rapid occupational growth for GIS
  - Jobs were often embedded within existing industries
  - Growing number of federal and state grants targeted towards geospatial technologies

What I did not know in 2002
Lake Land College
Intro to GIS Program 2002

- Low enrollments
  - 5-8 students average
- Curriculum was not linked to any specific transfer or vocational programs
- Expensive program to run due to computers and software issues
KCTCS GIS prior to 2002

- No GIS classes
- System wide license of most all of ESRI products
- No professional development workshops held in KCTCS
- Several faculty with an interest
LLC MentorLinks Goals

- Attain enrollment of 25 students in the Intro. to Certificate Program
- To develop and deliver the GIS Roster Certificate by Fall 2003
- To develop articulation agreements with two universities
Lake Land 2005
MentorLinks Outcomes

- Enrollment growth
- Intro to GIS added as a recommended course for all environmental and conservation majors
- Developed local and national advisory board sessions for GIS workforce development needs
- Developed customized GIS curriculum (non-credit) for a regional users group from local government
- Greater Institutionalization of GIS
- Developed an on-line needs assessment survey in linking with local industry and government agencies
- Increasing networking opportunities for GIS education
  - The true power of MentorLinks
KCTCS Goals

- Create a system wide GIS program
- Integrate GIS into KCTCS
- Work with Government and Business
- Integrate GIS into KCTCS distance learning
- Integrate GIS with the KITCenter
Welcome to the GIS Education Center

Geospatial technologies is one of the fastest growing & most exciting industries in the United States. Its demand for skilled technicians and analysts is constantly increasing. More and more governments, businesses, and non-profits are integrating Geographic Information Systems (GIS) into their Information Technology Systems (ITS).

We teach public and private sector administrators, urban planners, transit managers, technical professionals, decision makers and others involved in building and implementing ITS the skills to launch a career in the GIS field.

Participants will:
- Obtain the skills necessary to effectively manage GIS programs.
- Learn the basics of GIS technologies and obtain hands-on experience in using GIS software.
- Explore the interdisciplinary elements of GIS including cartography, topology, database design and spatial analysis.
- Understand how demographic information and techniques are used within health care, transportation, law enforcement, natural resources, education, and other disciplines.

Patrick DeTemple to speak on why we Map the Vote!

The GIS Education Center and CCSF Political Science Program welcome Patrick DeTemple, President of Map the Vote. This Concert and Lecture Series event will focus on the role of GIS in world of politics.

Dr. Linette Scott Discusses GIS in Public Health

The GIS Education Center, in partnership with the CCSF Concert and Lecture Series, would like to welcome Dr. Linette Scott, California Department of Public Health, Center for Health Statistics and her presentation, GIS in Public Health: Understanding Populations and Improving Environments.
GIS Education Center
Providing GIS solutions for industry and the community at City College of San Francisco

Partnerships
GIS Education Center has formed strong partnerships with City and County organizations that deliver geospatial solutions to the San Francisco Bay Area. We have also partnered with community colleges around the country, such as Lakeland Community College in Illinois, that provide technical assistance and include the Center in national grant proposals.

Our list of partners also includes City College of San Francisco departments listed below, with whom we’ve partnered on a variety of projects:

- Computer Science Department
- Department of Earth Sciences
- Department of Engineering and Technology

Corporate and Non-Profit Partners

- Advanced Transportation Technology Initiative
- Bay Area Automated Mapping Association (BAAMA)
- Bay Area Regional GIS Council (BAR-GC)
Geo-cache Event: High School Students Visit City College

Students visiting the Ocean Campus of City College of San Francisco from Galileo High School get some hands-on experience using Global Positioning System devices to find the locations of several important student services.

Photo by Monica Davey
Galileo High School students visit CCSF, learn about college life through Global Positioning System devices

City College of San Francisco offers several options for learning more about Global Positioning Systems and Geographic Information Systems, one of the fastest growing industries in the U.S. The GIS Education Center (www.ccsfgis.org) offers short-term workshops and presentations about how GIS is being used in public health, nonprofit organizations, politics and more. The Earth Science Department offers a certificate program in GIS (www.ccsf.edu/Departments). Students interested in GIS and Geospatial Technology should explore all opportunities offered through CCSF.

On February 26, 70 Galileo High School students had an opportunity to use this exciting technology as a component of their campus tour program. A general overview of GPS was provided, including a demonstration of how the device reads satellite signals to determine the user’s precise position. Each student was given an opportunity to hold the GPS unit to get a closer look at the screen and controls. Using GPS to trace their path, a scavenger hunt allowed the students to visit important designations such as the admissions office, the campus library and financial aid office. Throughout the tour, Campus Ambassadors guided the students, shared their personal stories and explained the benefits of attending college. At the end of the scavenger hunt, the students had an opportunity to share their observations and review the path taken during their exploration of the campus.

The day’s events were coordinated by the Admissions and Recruitment office, which offers individual or group campus tours to the public. The Admissions and Recruitment office also oversees the Campus Ambassador program where current City College students serve as keynote speakers, campus tour guides and panelists on behalf of City College.

Location-based technologies such as Global Positioning Systems (GPS) are rapidly entering the mainstream in the U.S. GPS functionality is being integrated into many consumer products such as mobile phones, automobiles and handheld recreational navigation devices. As the speed, accuracy and affordability of these devices improve over time, it is expected that demand for, and interest in, GPS will only increase.
City College of San Francisco
GIS Education Center
And Concert and Lecture Series present

Maps, Stories and
The Art of Cartographic Design in GIS

Speaker: Larry Orman, GreenInfo Network

Do your maps mumble? Learn how to make them sing brilliantly in this workshop on communication strategy for cartography. GreenInfo has an extraordinary capacity to use GIS and convert the data into useful and beautiful maps. They use Internet mapping applications, Google Earth, Flash and other tools to put maps and messages on the Web quickly, including custom data-driven applications.

Date: Tues. Feb. 26, 2008
Place: Ocean Campus
5896 Fisherman Way
San Francisco, CA 94182
City College of San Francisco
GIS Education Center
Health Education & Community Health Studies Dept.
And Concert and Lecture Series present

GIS in Public Health: Understanding Populations & Improving Environments

Speaker: Linette Scott, M.D., Ph.D.
Public Health Medical Officer II, California Department of Public Health, Center for Health Statistics

A geographic information system (GIS) is a system for capturing, storing, analyzing and managing data and associated attributes which are spatially referenced to the Earth. Researchers, public health professionals, policy makers and others use GIS to better understand geographic relationships that affect health outcomes, public health risks, disease transmission, access to health care, and other public health concerns. This presentation includes a brief history of GIS, a description of current uses of GIS in public health, and plans for GIS in the California Department of Health Services.
City College of San Francisco
GIS Education Center
Political Science Program
And Concert and Lecture Series present

Mapping the Vote

Speaker: Patrick DeTemple,
President, Map the Vote

"Map the Vote" is a group of Geographic Information Systems (GIS) professionals committed to using the tools of our trade to enhance citizen participation in the electoral arena and thereby strengthen our democracy. (http://www.mapthevote.org/)
Maps Are Not Nightmares!
Using a Compass
Networking

- How the MentorLinks Grant helps with networking and linking isolated faculty to national curriculum efforts and resources:
  1. NSF-ATE Conference
  2. Funds for attending national or regional conferences
  3. Put into contact through mentors with established leadership in STEM fields
  4. Assistance with publication opportunities through AACC

Geographic Perspective

MentorLinks Effect 2007

- Phil Davis
  PI National Geospatial Technology Center (Proposal)
  NSF-ATE Center

- 2007 links
- MentorLinks2007
- 2006 links
- MentorLinks2006
- MentorLinks2005
- 2006 Links
- MentorLinks2004
- 2002 links
- MentorLinks2002
- Lake Land College
- States
GIS is an Enabling Technology

- GIS across curriculum
- GIS as a tool for College Demographics
- GIS a community college research tool
Across Curriculum
IT Majors
IT Students

Fall 2007
Student Seats, CIS, COT, IT, NIS, ET 107, 232, 234
(Computer Literacy Classes not included)
N= 7815, Geocoded 83%

Legend
- KCTCS Campuses
- IT Students

If a student is enrolled in more than one section they would be represented more than once, but since the student marker is directly on top of each other they only appear as a single point.

Source: KCTCS Office of Institutional Research
National Center for Geospatial Technologies (NCGT)

- Developing a Vision and a Plan for a National Geospatial Technology Resource Center (Planning Grant) surveyed educators, administrators, and researchers on the needs of community colleges with geospatial education (www.geotechcenter.org/).
- The following services were identified as critical to promoting geospatial education with community colleges
  - GIS Clearinghouse
  - Curriculum, Workforce Studies, DACUMS
  - Professional Development
  - Geospatial Services
  - Data Warehousing, Institutional Research
MentorLinks Program
(2008-2010)

- Request for Proposals for MentorLinks Colleges currently available

- Up to ten colleges selected for two-year grant program (October 1, 2008 – October 31, 2010)

- Grant awards $15,000 in funding plus travel support for project director to attend project meetings and ATE Conferences
MentorLinks Program
(2008-2010)

- Colleges are invited to submit applications in the following program areas:
  - Aquaculture/Aquarium Science
  - Biotechnology
  - Chemical Technology
  - Engineering Technology
  - Environmental and Energy Technology
  - Geographic Information Systems
  - Information Technology
  - Nanotechnology
  - Manufacturing Technology
  - Multimedia Technology
MentorLinks Program
(2008-2010)

- Proposal deadline:
  Friday, June 13, 2008

- For more information:
  www.aacc.nche.edu/mentorlinks