

National Visiting Committee Report – NSF ATE Grant 0401990
Scalable Skills GIS Certificate Program
April 8, 2006

The NVC Committee met with program-related faculty and staff of San Diego Mesa College, San Diego State University, and three San Diego area high schools on the evening of March 29 and all day March 30, 2006. Attending from the NVC were: Ms. Ann Johnson, Chair, Dr. Karen Kemp, Dr. Arthur Getis, and Mr. Warren Roberts. In communication by phone was Dr. Joseph Kerski.

Overview of Achievements

The NVC was encouraged with the progress made by program personnel since our last meeting and the new organizational structure and team approach. It is a testament to the support and excellence of all those involved that the many changes that have occurred since our last meeting did not derail the entire Grant. On the contrary, we feel more confident than ever that the Grant will serve as a model for others across the country.

The expressed support from a high administrative level at Mesa is most heartening including opening statements and attendance by Mesa College President, Rita Cepeda and Vice President of Instruction, Elizabeth Armstrong. Dr. Otto Lee, Dean, Business, Computer Science and Technology, has taken a leading role in ensuring that the Grant reaches a successful conclusion. The team approach, under the leadership of Eileen Goff, appears to have generated much enthusiasm and hard work among Grant personnel. The diligence and leadership of Ming Tsou at SDSU and the efficiency and effectiveness of John Johnson at Mesa College are commendable.

The presentations on aspects of the Grant by program personnel outlined the progress being made including:

- 1) The curriculum development work using the SCID model (based on the results of the DACUM carried out by the College) is advancing effectively. The materials and modules created using this process should be useful for other college programs and will be a significant contribution of the Grant.
- 2) The creation and approval of a lower division GIS course (GIS 104 Introduction to GIS) at SDSU is a significant step toward development of a pathway for articulation of GIS education between high schools, colleges and universities. In addition, the success by SDSU in gaining approval of the course for General Education credit under the category of Mathematics and Quantitative Reasoning is a significant step toward spreading GIS (and spatial thinking) across more disciplines.
- 3) The outreach program involving SDSU and San Diego area high schools has reached a high degree of success. This program has SDSU graduate students mentoring high schools students and helping high school faculty. An example of this mentoring program is the support given to High Tech High's development of a beautifully-produced 226 page field guide on San Diego Bay and its environs.

A second example is the development of web-based GIS tutorials and other materials that can help to resolve the lack of technology resources and support at the high school level.

Opportunities

To aid in working with K-12 educators, the mentoring program mentioned above would serve as a good model for other institutions to follow. One outcome from the current Grant might be to develop methods and infrastructure to sustain this mentoring program beyond the end of the funding. One possibility might be to create an option for graduate (or undergraduate) students to use a mentorship option to satisfy part of their degree program – such as using it as an option for an internship or capstone project.

The development of the new GIS 104 lower division course and the curriculum evolving from the DACUM SCID at Mesa might be aided by using the UCGIS GI Science and Technology Body of Knowledge (see www.ucgis.org). Integration and identification of the curriculum content of the programs using the Body of Knowledge Areas, Units, Topics and Learning Objectives may serve as a good opportunity to demonstrate how the Body of Knowledge might be used to provide a basis for articulation of GIS among the various levels of education.

Concerns

While the new team approach and leadership appears to be moving the Grant forward, there still seems to be somewhat of a disconnect between the work at Mesa College and SDSU. The NVC would like to see some form of organizational chart or road map that indicates the links between the two institutions and the activities in which they are mutually engaged.

The Grant activities have increased the awareness and interest in GIS in high schools in the San Diego region. The NVC would like to see more workshops for K-12 educators to aid in articulation between the institutions. This may be limited in scope through the current Grant, but pilot programs developed as a proof of concept could be continued through future grants or current programs such as with the California Geographic Alliance or the California Geographical Society.

The NVC were also glad to learn that publications on the efforts at both institutions have been made in academic journals. The NVC suggests that each institution consider additional publications be made in other outlets so that educators at different levels learn about the outcomes of work completed under the Grant.

Areas of the original Grant proposal which were not discussed at the meeting include the evaluation plan and the career path program. The NVC would like to have a more formal explanation of the plan for evaluating the educational activities carried out under the Grant. The NVC would also like a clearer understanding of the current progress and future activities related to career paths.

Some Suggested Future Action Items

The approval of the GIS 104 Introduction to GIS and its acceptance as a GE course has given the college and university a unique opportunity for articulation. It is important to ensure that the contents of the GIS 104 course are aligned with the curriculum and courses being developed at Mesa. This will give the high schools an opportunity to develop a course that can be articulated from the high school to the university level program. This activity should be publicized as widely as possible. Also, the SCID process and curriculum development resulting from the DACUM should be publicized to colleges anticipating similar course development.

The NVC would like to have a simple timetable that outlines the goals, activities, responsible parties and institutions with anticipated completion dates so that we can better recognize the accomplishments and planned future activities under the Grant.

The NVC would also like to see that adjunct faculty in the Mesa GIS program are encouraged and/or provided incentives to participate in the curriculum development process. The adjunct faculty can provide domain expertise that could prove valuable for the curriculum development team, but without incentives, they may be reluctant or unable to make the time to do so.

A Few Ideas

The NVC encourages workshops be developed for faculty training for high school and college level. Some of the ideas that came to light during the discussions included: (a) providing professional development credits for course (workshop) training; (b) designing workshops to meet the needs of different styles of learners as well as different background and skill levels of participants; (c) offering a variety of workshop options (days, evening, weekend, short or semester long); and (d) including IT staff from each of the participant institutions sending faculty to help with technical issues and partner with and support the teachers using GIS in their school. It is also suggested that any workshop or course completion certificate developed under this program (whether for students or faculty) include the number of contact hours so that individuals wishing to become Certified as GIS Professionals by the GISCI have that information easily available.

In Conclusion

The NVC is satisfied with the progress and encouraged about the future success of the Grant. We look forward to our next visit to review the continued progress on the Grant and would like to thank and congratulate the Grant team members under the leadership of Dr. Otto Lee.

Ann Johnson, Chair
Arthur Getis
Karen Kemp
Joseph Kerski
Warren Roberts

