

**Table Topic Session: Using Geographic Information Systems
and Making Maps in Institutional Research
Conference of the Association for Institutional Research
Boston, Massachusetts
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Discussion Notes

Discussion participants included: Marisol Arrendon, Chapman University; Laura R. Crane, Harper College; Shauicat Malik, Stony Brooke University; Jane Mathis-Hopson, University of Alabama at Birmingham; Jenni Minner, The Evergreen State College; Mike Rogers, University of Pacific; Bob Sepanski, University of Memphis; Lisa Vega, Harper College; Mina Vora, Georgia Southern University; Tina Wells, University of Arkansas; Terrence Willett, Gavilan College; and a representative from Bates College.

What kinds of geographic information do you analyze at your institution? Are you using GIS or are you considering doing so in the future?

The Evergreen State College

- Institutional Research displays basic descriptive information about where new students come from, such as their country, state, and/or county of origin.
- Work has also been done to geocode higher education institutions where new Evergreen students most recently transferred credits. Institutions can be displayed as two-or four-year, public or private, or displayed using other attribute data. There are also plans to use GIS to analyze the distribution of students who have been admitted to Evergreen, but have chosen to attend another institution. Data for the analysis of the admit/no enroll population will be from a survey and from National Student Clearinghouse data.
- GIS has been used in survey research to identify alumni for whom additional questions are relevant because they are more likely to visit Evergreen and to avoid asking irrelevant questions to alumni who are outside of this geographic range.

Gavilan College

- Terrence Willett first used GIS when he wanted to create a world map showing where international students came from.
- Now analysis is focused on the educational district. The distribution of students has been analyzed through geocoding of student addresses. Some clusters of students who live outside of the district were found. This information has become more important in institutional planning discussions.
- The college also uses GIS maps in discussions with local government about the construction of new facilities.

University of Arkansas

- Tina Wells began using GIS two years ago, after attending a presentation on the use of GIS in Institutional Research at the AIR conference in Toronto. She shared information from the presentation with University of Arkansas Chancellor. The Chancellor was very interested in the use of maps and fully supported and funded the use of GIS in institutional research. He uses GIS in his presentations and is planning for the future direction of the university.
- Ms. Wells presented research at SAIR on the retention of students and where nonretained students transfer. The research involved analyzing National Student Clearinghouse data using GIS.

- She produced a map showing how funding is spread thin in Arkansas. Every public institution given state funds was digitized in GIS, and a 45-mile radius buffer was created around the institution. Population density was analyzed and the average distance that a person would typically travel was determined. The resulting map showed where there was competition for students and funding.

Georgia Southern University

Mina Vora said that Georgia Southern University is currently looking into the use of GIS for a variety of purposes.

Bates College

- Bates College is using GIS in Admissions. The distribution of students who receive financial aid and where students come from has been plotted. GIS is used in understanding recruitment of students of color.
- They are currently plotting where admissions recruits are sent. They found that 75% of students come from within 30 miles of either side of the two interstates and from this information decided that it made more sense to recruit in areas where there is already a denser concentration of potential students.
- Bates College has used GIS with regional association data to see where members are located in order to plan conference locations that are close to the membership.
- The Bates College physical plant plots all the trees that are of interest to them and useful for maintenance.
- The development office has developed an application directly tied to their alumni database. The application does not use GIS, but makes calculations based on spherical geometry, the distance that an alumnus is willing to come to visit, and visitation points within a reasonable driving distance.

University of Memphis

- Bob Sepanski uses web-based GIS to respond to many ad hoc institutional research requests. He uses GIS to look at service areas, how the University of Memphis recruits students, and where students are coming from. He also uses GIS to understand the university's competition and areas where the university could be doing more recruitment. He uses GIS to understand factors in recruitment of out-of-state students.
- He is trying to educate people in terms of what GIS can do. A lot of staff at University of Memphis don't really understand how they can use GIS. He has tried to do more advanced desktop applications, but so far they have not been widely utilized. He is currently working on some pilot projects.

University of Alabama

Jane Mathis-Hopson at the University of Alabama heard about GIS from the University of Arkansas presentation at the SAIR conference. An IR staff person attending the discussion said that she would like to display student demographics for publications such as the university factbook.

Harper College

- Harper College staff are currently use GIS to map where students are coming from before attending Harper College and where they are living. They have used census data to understand demographic changes in their district.
- GIS was used in planning for an evening bus route and in studying the campus parking situation.
- GIS is used to study how students, faculty, and staff on campus use buildings and where there is over- or under-utilization of space.
- GIS is used in the creation of maps for publications such as the factbook.

Chapman College

Chapman College is not currently using GIS, but there is interest in using GIS for their factbook and in Admissions.

A participant from another institution said that they are going through a campus-wide master planning process and that their consultants have used GIS to map out the uses of every room in campus. They are then able to explore what happens on certain floors, the utilizations of labs and other rooms, and other space planning analyses.

The facilitator noted all of the various uses of GIS and how it is tied to institutional context.

If you use GIS in institutional research: What made that possible? How was GIS introduced to the practice of institutional research at your institution? Is GIS work done in-house, by a consultant, or both?

The Evergreen State College

Jenni Minner learned about GIS in a masters program and used GIS as an urban planner. She brought this knowledge of GIS to Evergreen's Office of Institutional Research. The office had already purchased SPSS Maps, but she found that SPSS Maps did not have the same graphic or querying capabilities as ArcView. She is currently using ArcView 3.3 and transitioning to Arc 8.

Gavilan College

GIS peaked Terrence Willett's interest while in a Masters of Environmental Science program. The program was located next to the Geography Department and the urban planners were upstairs. When he got into institutional research, he realized maps could be useful on the job. He had to convince his supervisor that it was cost effective. He considered SPSS maps, but when he looked at where all of the data comes from, most of the data was in shapefile format, which SPSS maps cannot read. ArcView was much cheaper and gives one access to a lot of free data, because shapefiles are free on many websites and are the most commonly used format for GIS. \$250 was all that he needed. He was able to learn ArcView 3 on his own, but found that he needed to take a class to learn Arc 8.

University of Arkansas

After attending the Toronto conference, Ms. Wells found that the University of Arkansas has a site license. The initial cost was \$250 with an annual fee of \$150. The University of Arkansas also has a Center for Advanced Special Technologies (CAST) located nearby. CAST includes heavy GIS users who can offer support. The staff has also attended ESRI training classes, which has helped significantly, but she found the training to be overwhelming as a lot of material is covered in a short amount of time. ArcView 8 training is also provided on campus, which saves a lot of money.

University of Memphis

Bob Sepanski has a background in the sciences and had used SAS and GIS at Oak Ridge National Laboratory and for the State of Montana. The University of Memphis has a site license for ArcView; therefore, he has access to all of the ESRI software and map servers that would have been too expensive to afford otherwise. He also has access to online courses such as a basic course and a course in modifying and customizing Arc 8.

Harper College

A former research analyst in the office knew how to use GIS and began using it for institutional research. Harper College's institutional researchers have taken classes, but have not found a

class that deals just with creating maps and geocoding. [There was a discussion about the possibility of taking a cartography class through the university and of using different types of software.]

Another participant said that he has used MapPoint and that there is a professor at their institution who teaches in the Masters of Information Systems program and offers some support in MapPoint. He also mentioned Streets and Maps, which he said was a “dummied down” version of MapPoint. He said that he had been able to put some of admissions data into it.

What are some of the pitfalls or concerns that you have in using GIS? Are there limitations or barriers to the use of GIS for institutional research (i.e. needed expertise, limited time/resources)? How could they be overcome?

There was a discussion about Arc 8 and disappointment was expressed about the fact that Arc 8 does not use the programming script, Avenue. There were many scripts that people have invested time in and have posted to the web, but now Arc 8 does not support these programs.

Jenni Minner said that she worried about confidentiality when addresses of students are plotted, since many students at The Evergreen State College indicate that their information is confidential. She was concerned with FERPA compliance. Bob Sepanski said that he controls what level of information is released, and confidential data are not released publicly. It was also mentioned that geocoding results in a generalized location, and not the exact location, and that you can choose to show only major roads or general map features.

The facilitator also hoped that geodemographic data, such as PRIZM clusters, are used to enhance access to higher education, but not in situations that lead to exclusionary practices.

The group ran out of time before getting to the rest of the discussion questions. Many of the participants signed up to be included in a new listserv for GIS users in institutional research. For more information, contact Jenni Minner, minnerj@evergreen.edu.