

EDUCATION EVENT REPORT

Attendee and Report Writer:
Joseph Kerski, Geographer: Education/GIS

Purpose of Event:

North Carolina School of Mathematics and Science, Colloquium, GIS Workshops, and Distance Learning Presentation

Location: Durham, North Carolina.

Dates: 14-17 September 2004

Summary

I was invited to work with the North Carolina School of Mathematics and Science (NCSSM) by Distance Learning Coordinator Carole Stern during Fall semester, to do the following:

1. Conduct the first of the Broyhill Colloquia for the school year. My presentation was entitled "Spatial Thinking—Essential for 21st Century Society."
2. Conduct a presentation in the Distance Learning Program of NCSSM to museums and schools throughout the state, including a Cape Hatteras School, the North Carolina Museum of History, Rural Hall Elementary School, and Columbia High School.
3. Teach two evening workshops for students at NCSSM.
4. Teach a hands-on GIS component in a research in chemistry class, an Africa class, and a Latin America class. In all, I worked with 120 students and 39 adults at the school, and 47 students and 11 adults via the distance learning program.

5. Strategize with school faculty about more fully integrate spatial technologies with the school's curriculum.

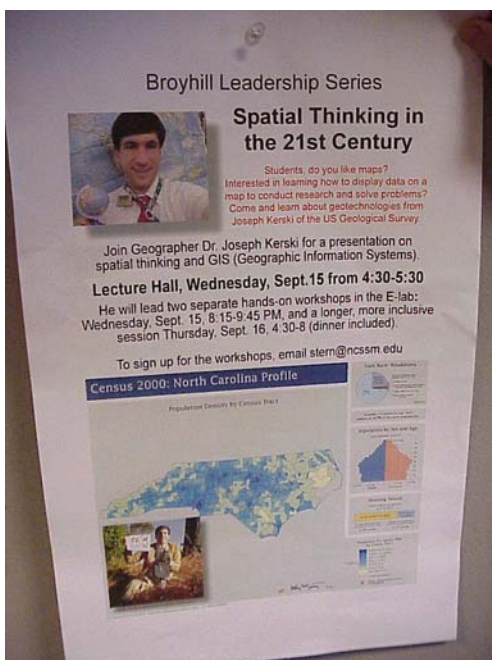


NCSSM is a state-funded school that opened in 1980. It recruits academically talented 11th and 12th grade students statewide who show promise of exceptional development and/or special interest in mathematics and science. Students accepted to NCSSM are required to live on the Durham Campus; and the school is the first in-residence math and science school in the state. Approximately 560 juniors and seniors attend NCSSM, living in five residence halls on campus. In 2003, the North Carolina legislature approved a bill paying for the tuition for any university in the state to all graduates of NCSSM. The school's web site is www.ncssm.edu.



I have spoken in many different places, but I have never had an enormous poster made for me. An enterprising student (with a sense of humor, I'm sure) created this poster, about 20 square feet in size. It hung in the window for several weeks before, and during, my visit. It was a little embarrassing but hopefully sparked some interest in the workshop. I hope I lived up to all the expectations!

Colloquium



Poster that the staff created for my colloquium. The Broyhill Leadership series' goal is to bring in speakers that can address a topic in science, mathematics, and technology to encourage the students to pursue these topics as a career and to help them realize the importance of it in society.

I found out that my former Physics professor, Dr Albert Bartlett, from the University of Colorado, will be on the program this fall. He's one of the smartest people I've ever met.



Students and teachers arriving at the colloquium. One of the physics teachers at the school gave me a really nice introduction that emphasized why maps are important. It illustrated well the universal appeal of maps and aerial images have for people of all types of backgrounds.

My presentation with the students and online via distance learning included slides, live GIS 2D and 3D demonstrations, quizzes based on satellite imagery, and other multimedia to illustrate why spatial thinking is important.



I brought research papers, GIS-based lessons, USGS posters, maps, and data on careers to the colloquium to back up the information presented.

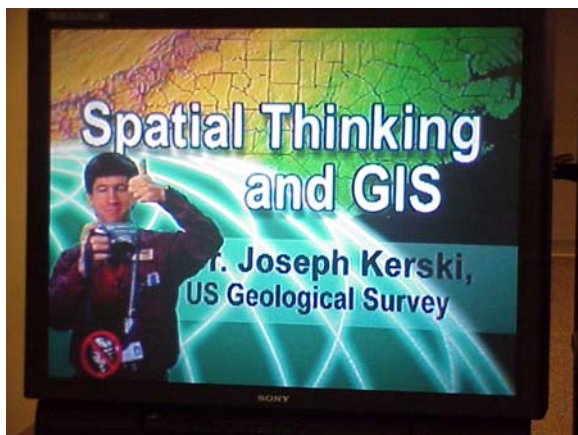
Distance Learning



I conducted a distance learning presentation on GIS and spatial thinking in this building. A video stream of this presentation is online on:

<http://www.dlt.ncssm.edu/streaming/GIS/>

The video stream requires a new version of RealPlayer to view, and is 1 hour and 3 minutes long.



The beginning of the distance learning session, which was broadcast to different middle schools and a museum in the state.

NCSSM has a very active distance education program, involving hundreds of courses each year on a diverse set of subjects.



Teaching in an environment like this, with a variety of tools and technologies, is really going to spoil me for the next presentation. The school has built an amazing series of labs to conduct distance learning courses through, along with a top-notch intelligent staff that can actually run all of the technology!



The technical staff had the capability to place any image behind me, so just for fun, we tested a weather map with a scorching day for the residents of Utah!

Workshops



Above, building where the workshops were conducted for a variety of research and science classes in the school—chemistry, Latin America, and Africa.

I conducted evening workshops, and workshops for the chemistry, Latin America, and African studies classes. I was very impressed by the students at NCSSM. The first student I met was analyzing carbon sequestration by plants, and how greenhouse gases were influencing them. Many of these students were conducting research that many college students are not even doing!



In one workshop with Dr Myra Halpin's Research in Chemistry class, students

mapped the location of a site (at the sun symbol above) they propose to plant native vegetation and a garden. They analyze soil and water characteristics on the site as part of the GLOBE program (www.globe.gov). They hyperlinked ground photographs to the GPS-collected coordinates and analyzed attributes. Below, site's ground location.



Students analyzing regions, population, and natural hazards with GIS, above and below.



The planners of the week built in some time when I could meet with the students outside the computer lab, as above.



Joseph Kerski and student analyzing patterns, linkages, and trends in spatial phenomena.

Future Plans

Carole Stern and I met with the NCSSM President, Jerry Boarman, and with Steve Warshaw, Dean of Academic Programs. We discussed the importance of interdisciplinary education and how spatial thinking fits into it. I was very impressed that they attended the colloquium and also one of the workshops.



As shown above, students dove right into GIS, and showed excellent peer mentoring skills.

We made plans for me to assist with a GIS course for the school's Mini-Break, February 2005. The mini-break allows students to pursue a week-long research project, and it would be a pleasure to work with the school again.

NCSSM Campus



NCSSM is on the site of the former first modern hospital in the state, Watts Hospital, which gives the school quite a bit of its character.



The school showcases some truly innovative uses of former spaces for education; for example, an former surgery ward, above...



... is now the ceramics section of the arts department.

We track participation in our distance learning events, so I have numbers on the participants in the GIS this week and I thought I would pass it along.



I thank the school for their hospitality—I even stayed in the “Official visitors apartment!”



and good-naturedness. I especially thank Carole Stern for inviting me to the school and her personal attention that ensured the success of our goals there.



End of report

Most people are aware of the studies linking music to high achievement in mathematics. I was pleased to see that NCSSM took this seriously, and it was excellent to see and hear the students while I was on campus.



Hangin' out in the NCSSM cafeteria. I was very impressed by the entire facility, but most especially by the commitment, intelligence, and good humor of the students and faculty alike. It gives me confidence that these complex issues facing our society can be effectively addressed by the next generation!

Acknowledgements

I thank the students and faculty for having me on campus and for their commitment to excellence in education. I thank the students for their enthusiasm, intelligence,