GIS Day at Cornell
November 9, 2012

Diana S. Sinton, Ph.D.
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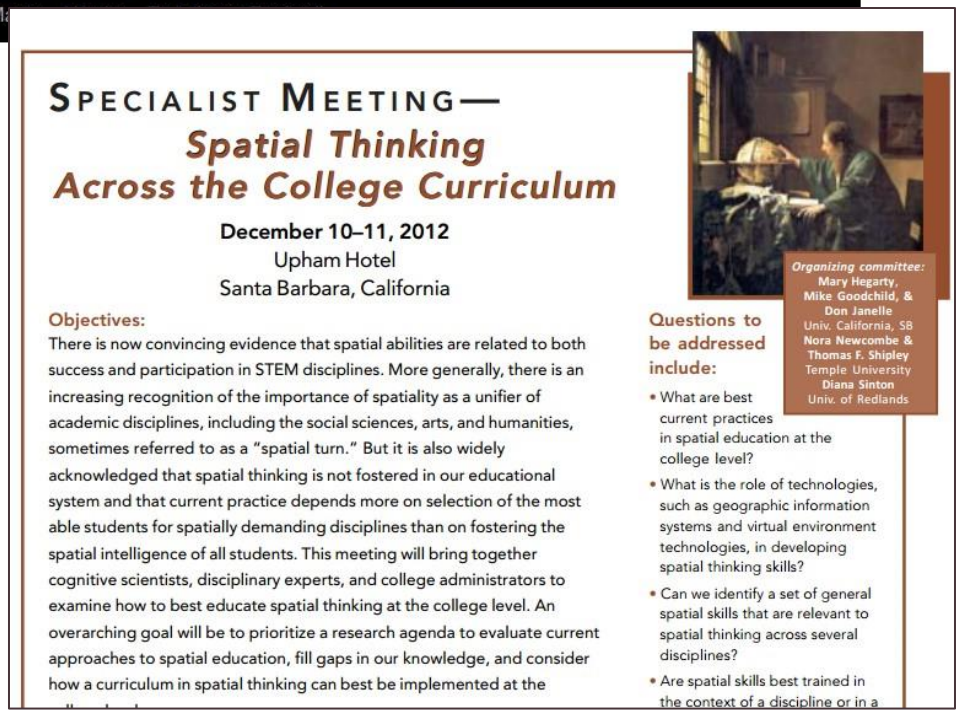
University of Redlands, California

GIS & Geography in Higher Ed Today



SPECIALIST MEETING—

Spatial Thinking Across the College Curriculum

December 10–11, 2012
Upham Hotel
Santa Barbara, California

Objectives:

There is now convincing evidence that spatial abilities are related to both success and participation in STEM disciplines. More generally, there is an increasing recognition of the importance of spatiality as a unifier of academic disciplines, including the social sciences, arts, and humanities, sometimes referred to as a "spatial turn." But it is also widely acknowledged that spatial thinking is not fostered in our educational system and that current practice depends more on selection of the most able students for spatially demanding disciplines than on fostering the spatial intelligence of all students. This meeting will bring together cognitive scientists, disciplinary experts, and college administrators to examine how to best educate spatial thinking at the college level. An overarching goal will be to prioritize a research agenda to evaluate current approaches to spatial education, fill gaps in our knowledge, and consider how a curriculum in spatial thinking can best be implemented at the

Questions to be addressed include:

- What are best current practices in spatial education at the college level?
- What is the role of technologies, such as geographic information systems and virtual environment technologies, in developing spatial thinking skills?
- Can we identify a set of general spatial skills that are relevant to spatial thinking across several disciplines?
- Are spatial skills best trained in the context of a discipline or in a

Organizing committee:
Mary Hegarty, Mike Goodchild, & Don Janelle
Univ. California, SB
Nora Newcombe & Thomas F. Shipley
Temple University
Diana Sinton
Univ. of Redlands

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spatialroundtable
discussion about how GIS meets today's challenges

Envisioning the Spatial University

Tom Baker

Fulfilling the potential of geospatial technology

Spatial thinking and geospatial technologies remain unrealized opportunities for much of higher education. For example:

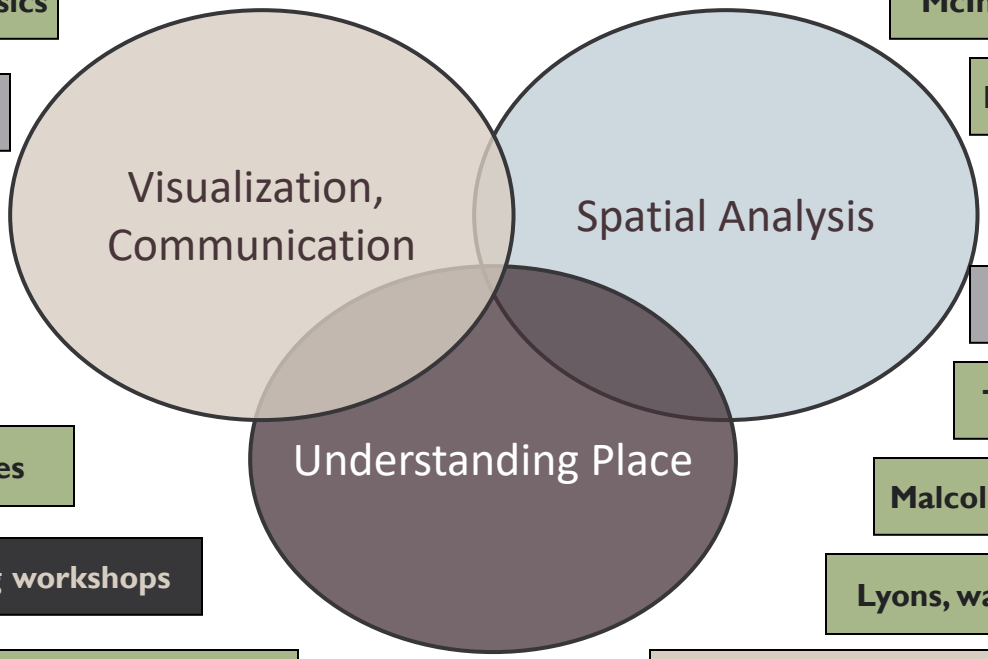
- There's now compelling evidence suggesting that spatial abilities prepare students for success in STEM coursework and early employment. However, no college or university includes such preparation among its overarching general education objectives.
- Despite the synthetic power of the spatial perspective, research discoveries too often remain segregated and hidden in disciplinary silos.
- For nearly a decade, the US Department of Labor has highlighted career opportunities associated with geospatial technologies. Still, relatively few higher education institutions offer advanced, practice-oriented educational programs to prepare students for such opportunities.

ABOUT THE AUTHOR

Tom Baker

Tom Baker is an industry manager on the Esri education team where he leads the STEM

Redlands: a Spatially-Infused Learning Community



Bernardini, archaeology

Glover, Lebu migration in Africa

RUSD: Citrus Valley High School

Institute for Spatial Economic Analysis

Thorson, public policy analyses

MA Ed, Curriculum & Instruction: Spatial Literacy

Wuhs, globalization and local politics

Inland Empire Business Atlas

Glendening, forensics

McIntyre, biodiversity

Sarkar, logistics networks

Klooster, migration patterns

GeoDesign

MS GIS

expanded Business GIS curricula

MBA, GIS Emphasis

Tilton, urban patterns

Ogren, jazz and blues

Malcolm, endangered species

Mini-Mapping workshops

Lyons, watershed modeling

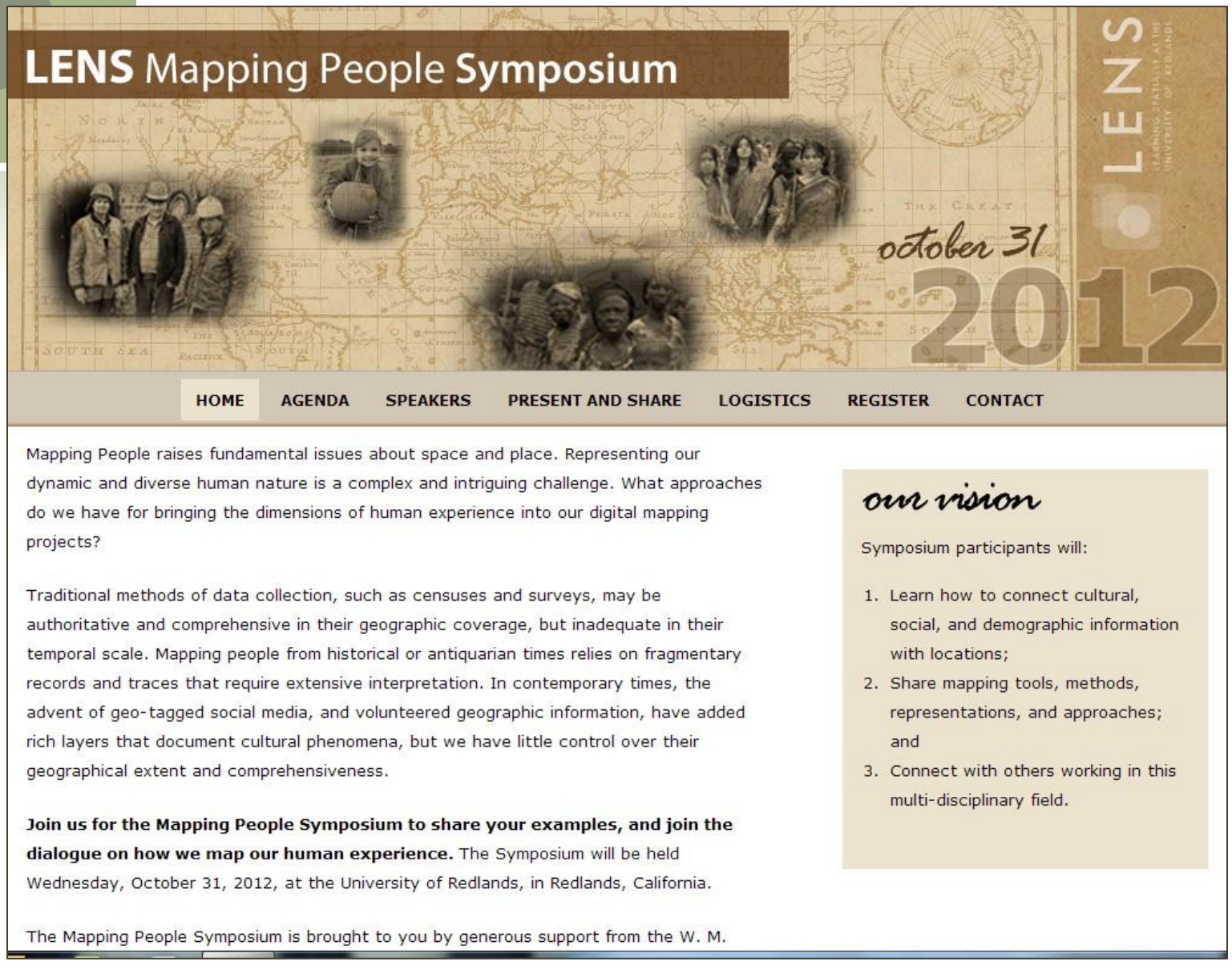
Stelle, marine mammals

Mitchell, school segregation

Moenius, housing analysis

Larsen, early Christian texts and monasticism

the Redlands Institute


LENS Mapping People Symposium
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Mapping People raises fundamental issues about space and place. Representing our dynamic and diverse human nature is a complex and intriguing challenge. What approaches do we have for bringing the dimensions of human experience into our digital mapping projects?
Traditional methods of data collection, such as censuses and surveys, may be authoritative and comprehensive in their geographic coverage, but inadequate in their temporal scale. Mapping people from historical or antiquarian times relies on fragmentary records and traces that require extensive interpretation. In contemporary times, the advent of geo-tagged social media, and volunteered geographic information, have added rich layers that document cultural phenomena, but we have little control over their geographical extent and comprehensiveness.
Join us for the Mapping People Symposium to share your examples, and join the dialogue on how we map our human experience. The Symposium will be held Wednesday, October 31, 2012, at the University of Redlands, in Redlands, California.
The Mapping People Symposium is brought to you by generous support from the W. M.
our vision
Symposium participants will:
1. Learn how to connect cultural, social, and demographic information with locations;
2. Share mapping tools, methods, representations, and approaches; and
3. Connect with others working in this multi-disciplinary field.

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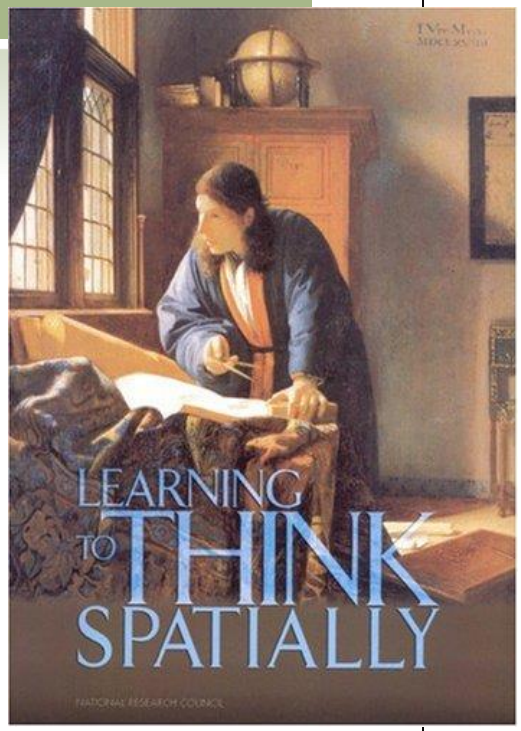
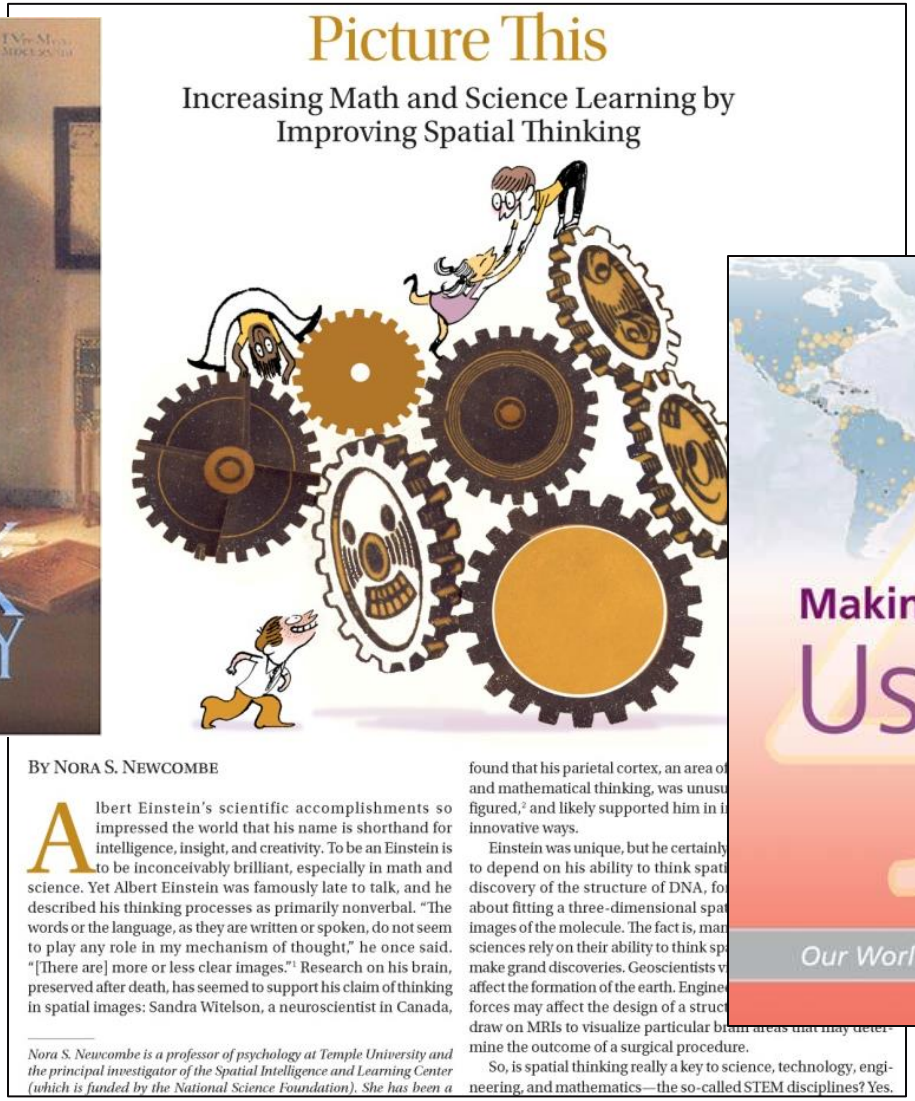




Picture This

Increasing Math and Science Learning by Improving Spatial Thinking

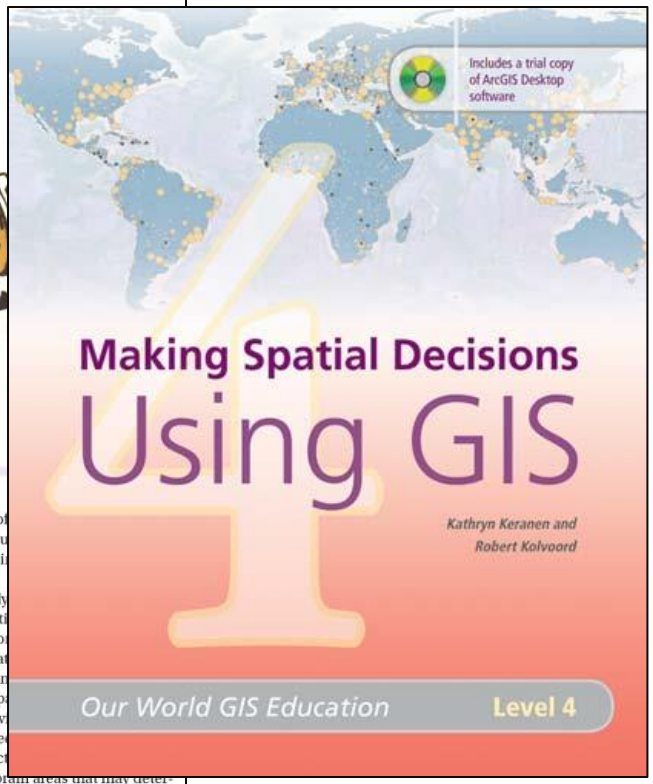
BY NORA S. NEWCOMBE

Albert Einstein's scientific accomplishments so impressed the world that his name is shorthand for intelligence, insight, and creativity. To be an Einstein is to be inconceivably brilliant, especially in math and science. Yet Albert Einstein was famously late to talk, and he described his thinking processes as primarily nonverbal. "The words or the language, as they are written or spoken, do not seem to play any role in my mechanism of thought," he once said. "[There are] more or less clear images."[1] Research on his brain, preserved after death, has seemed to support his claim of thinking in spatial images: Sandra Witelson, a neuroscientist in Canada, found that his parietal cortex, an area of and mathematical thinking, was unusu figured,[2] and likely supported him in i innovative ways.

Einstein was unique, but he certainly to depend on his ability to think spati discovery of the structure of DNA, fo about fitting a three-dimensional spat images of the molecule. The fact is, mar sciences rely on their ability to think sp make grand discoveries. Geoscientists v affect the formation of the earth. Engine forces may affect the design of a struct draw on MRIs to visualize particular brain areas that may deter- mine the outcome of a surgical procedure.

So, is spatial thinking really a key to science, technology, engi- neering, and mathematics—the so-called STEM disciplines? Yes.

Nora S. Newcombe is a professor of psychology at Temple University and the principal investigator of the Spatial Intelligence and Learning Center (which is funded by the National Science Foundation). She has been a



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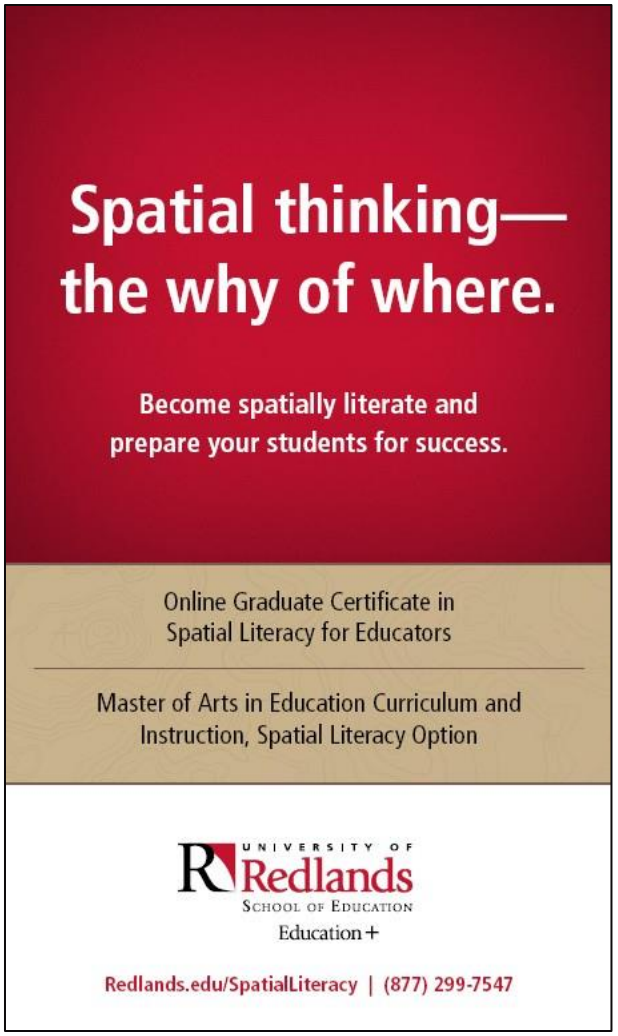
What is Spatial Literacy?

The confident and competent use of maps, mapping, and spatial thinking to address ideas, situations, and problems within daily life, society, and the world around us.



http://www.redlands.edu/spatialliteracy

SPACIT

education for spatial citizenship

<Prezi>

Education and Culture DG
Lifelong Learning Programme

"This project has been funded with support from the European Commission. This communication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein."

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SPACIT
education for spatial citizenship

In order to fully participate in society, a spatial citizen should be able to:

1) access, read, interpret, and critically reflect on spatial information;
2) communicate with the aid of maps and other spatial representations;
3) express location-specific opinions using geo-media.

Gryl and Jekel, 2012, Re-centering Geoinformation in Secondary Education Toward a Spatial Citizenship Approach. *Cartographica* 47(1): 2-12.

Teach GIS

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