Developing a Spatial Minor at the University of Redlands

WESLEY BERNARDINI
Department of Sociology and Anthropology
University of Redlands
Email: wesley_bernardini@redlands.edu

My interest in spatial thinking grew naturally out of my discipline, archaeology, which is inherently spatial—concerned with the distribution of artifacts on the landscape. In 2007 I participated in the Spatial Analysis in the Social Science Curriculum Workshop at UC Santa Barbara, where I first explicitly grappled with the challenges of delivering spatial content—and especially spatial technologies like GIS—in an undergraduate curriculum. Then, my primary concern was whether the class I was trying to develop should use spatial technologies to help teach my discipline, or whether my discipline was a useful platform for teaching students how to learn spatial technologies. Ultimately I developed a lab based class called “Mapping People, Mapping Place” which attempts to achieve both goals, though I think that the tension between teaching spatial tools/concepts and teaching disciplinary content is still at the heart of a college spatial curriculum.

The spatial proximity and formal relationships of the University of Redlands with ESRI, headquartered in Redlands, make spatial thinking an obvious area of emphasis for us. Only recently, however, have we attempted to formalize a spatial thinking curriculum. Since the spring of 2012 I have led an ad hoc group of faculty working to develop an interdisciplinary spatial thinking minor, which will be submitted to the College of Arts and Sciences curriculum committee this fall.

Our effort to develop a spatial minor is affected by a number of opportunities and challenges, some of which are unique to the University of Redlands and some of which are common across many undergraduate institutions. Common challenges include: a small and relatively fixed number of faculty with pre-existing spatial expertise; considerable disciplinary diversity in use of spatial approaches; and a lack of a clear central department or program, like Geography, to house, advertise, or coordinate a spatial curriculum. Unique advantages include a rare “spatial administrator,” our Director of Spatial Curriculum and Research (Diana Sinton) who has coordinated the efforts of faculty and administrators; and a grant from the Keck Foundation, which we used to establish a Spatial Fellowship program for Redlands faculty to help faculty develop spatially-themed courses and research projects.

In the course of constructing the minor we have encountered a number of issues that are surely common to many undergraduate educational contexts, including:

- How closely should the teaching of spatial thinking be tied to spatial technologies, especially GIS?
  - Given that our explicit goal is to make our spatial curriculum as inclusive as possible, our working group fairly quickly concluded that we did not want to link spatial thinking exclusively with technological applications like GIS. Other free, user friendly interfaces like Google Earth provide useful platforms that provide fewer barriers to entry to new
students. We did, however, agree that a student graduating with a spatial minor should demonstrate “graphicacy”—the ability to interpret and communicate spatial concepts, which does imply some competency with software used to produce maps and other spatial representations.

- To what extent should the minor include courses from disciplines like English or History, which may teach courses that are grounded in “place” but may only weakly explore actual spatial relationships?
  - Courses such as “African Diasporic Literature” or “The History of Europe” cannot help but deal with geography at some level, but most do so only implicitly with respect to core spatial thinking concepts. In the construction of our minor we have adopted a “missionary” approach in which we combed the course catalog for potential spatial courses and then approached the faculty who teach them to discuss the course and our hopes for the spatial minor in more detail. Those who expressed an interest in revising their course content to align with the spatial minor were referred to our Spatial Fellowship program and support staff on campus who can assist with spatial course development. This is an intentionally long-term strategy designed to recruit and train faculty to contribute spatial courses, even if the central thrust of their research is not spatial.

- To what extent should the minor include courses from disciplines whose content is inherently spatial, like geometry or physics, but that do not explicitly use the language or concepts of spatial thinking and do not explicitly link their content to an understanding of constructed “places”?
  - Our working group struggled with this issue and found that it greatly tested our common understanding of spatial thinking. Why, the physicist in our working group wondered, shouldn’t a math course on topology be counted as spatial even if no readings from Yi-Fu Tuan are assigned?

- Are spatial concepts best taught through a sequence within a discipline, culminating in a meaningful case study, or by exposing students to the breadth of spatial approaches across disciplines?
  - Our working group felt strongly that a primary benefit of spatial approaches is to reveal the interdisciplinary, multi-scalar, interconnected nature of virtually any topic. But we also confronted the limited contact time for students completing a minor, especially one spread across multiple departments.

Our near-final model for a Spatial Thinking Minor includes the following elements:
24 units of study including the following requirements:

I. Two Core courses, ideally to be completed before the end of the sophomore year but can be taken at any point:
  - SPA 100 Foundations of Spatial Thinking (a course reviewing core concepts of space and place, scale, distance and direction, etc., along with core tools of representation like maps and graphs)
  - SPA 110 Introduction to Spatial Analysis and GIS

II. Four Elective Courses, taken from at least two of the following categories:
  - Methods and Representations (including courses from Art and Math)
• Culture and Communities (including courses from English, Government, History, Religious Studies, and Anthropology)
• Physical World (including courses from Biology, Chemistry, Environmental Science, and Physics)