Making a Place for Space

ROGER M. DOWNS
Department of Geography
The Pennsylvania State University
Email: rd7@psu.edu

Spatial thinking does not exist across the college curriculum and in fact, it does not explicitly exist in the college curriculum to any significant degree. The challenge, therefore is to make a convincing case that spatial thinking must be taught to all students, not just college students but K-12 students as well.

In the realm of non-profit organizations, case statements are core documents in a fundraising plan and its associated strategies (Ross and Segal, 2009). Case statements play multiple roles. They provide the rationale and justification for fund-raising campaigns, specifying pressing needs and providing supporting evidence for those needs. They identify benefits in terms of positive outcomes and the negative consequences of a failure to act now. Of the many keys to a successful case statement, three are particularly relevant to our concerns. Need statements should be: (1) strongly linked to clearly specified benefits, (2) focused externally, not just internally, and (3) thus targeted to people and places that can make a difference.

The overarching goal of this meeting is to develop a research agenda that will provide the evidential basis for the benefits underpinning the need statement. I want to focus on the second and third keys for a successful case statement. The focus on the external audience is a direct consequence of my experience over three decades as an advocate for another educational need, that of understanding geography. Whereas there the educational target ranged between preschool and grade 12 and here the focus is on college, many of the challenges are going to be the same.

I want to set my comments into two frameworks. The first involves a historical look at past efforts that relate to, if not exactly duplicate the thrust of our basic premise. The second involves an understanding of the structural contexts into which spatial thinking would have to be accommodated. Underpinning both of these frameworks are some current ideas about the production and reproduction of knowledge.

The ideas are based in part on two fascinating books. The first, by Ian McNeely and Lisa Wolverton (2008), is Reinventing Knowledge: From Alexandria to the Internet. The second, by Katy Borner (2010), is the Atlas of Science: Visualizing What We Know. This atlas comes from the Places & Spaces: Mapping Science project. Both books address the structure of the knowledge enterprise, directly in the case of McNeely and Wolverton and indirectly in the case of Borner.

Daniel Burnham, the great 19th century urban planner said: “Make no little plans; they have no magic to stir men’s blood and probably themselves will not be realized. Make big plans; aim high in hope and work.” Make no mistake about it: we are asking for structural and indeed radical changes at all levels of the American education system.

Building the case statement requires following a series of steps: (1) identifying the structural
challenges that we face in getting spatial thinking into the curriculum; (2) looking for models of other attempts to achieve structural change; (3) looking for models of programs that have achieved structural change; (4) evaluating parallel attempts to those we are proposing here so that we can either build on them or learn from their successes and failures; (5) finding a basis for the case statement; and (6) identifying an entry point into the current system that will permit structural change. What follows is a list of some of the ideas relevant to each of these steps.

1. The structural challenges are three-fold. First, space as an intellectual topic is not, and never has been, a focus of the American college system. Teaching and research about space, defined broadly, are fragmented across disciplines ranging from philosophy to physics, mathematics to statistics, and architecture to geography. Second, colleges and universities are epitomized by stove-piping. Disciplines are fiercely resistant to any type of change that might appear to threaten their territory and therefore existence, especially if another discipline might be a beneficiary of that change. Third, there is, as yet, no natural constituency in the world at large that might support an attempt to build spatial thinking into the curriculum. Spatial thinking is inherently cross-disciplinary: where does it fit?

2. There have been two major attempts to change knowledge structures at the collegiate level, one very successful and the other less so, at least as yet. In the period from 1990 to 1999, the Decade of the Brain was an effort “...to enhance public awareness of the benefits to be derived from brain research” through “appropriate programs, ceremonies, and activities.” Part of the current success of the neuroscience community might be attributed to this highly effective campaign. From 2000-2010, the Decade of Behavior attempted to achieve similar goals for behavioral research. What can we learn from such efforts?

3. There are college-based programs that have successfully reshaped fields and had cascading effects on everything from collegiate structures for teaching, to research, to popular understanding. One prominent example is the National Center for Atmospheric Research at the University of Colorado (Boulder). It helped in the shift from the concept of meteorology to the idea of atmospheric sciences and has played a leading role in advancing understanding of global environmental change. Closer to home, the National Center for Geographic Information and Analysis (NCGIA) has also been successful. What can learn from such programs?

4. Over the past fifty years, there have been various attempts to bring the idea of space to the forefront, in some cases deliberately so and in others accidentally so. Included in such a list would be Balchin and Coleman’s advocacy of graphicacy; the development of regional science; the development of science, technology, and science programs; and the idea of multiple intelligences (one of which involves space). What can we learn from the successes and failures of these ideas?

5. In the K-12 educational realm, there are typically three rationales for a place in the curriculum: economic via the development of human capital, intellectual via the idea of equipping someone for life-long learning, and social via preparation for civic participation. Can we use these same three rationales and if so, how and on what basis?

6. There is an entry point into the college curriculum via the idea of general education. Given the roots of general education in the liberal arts (as originally defined under the medieval concepts of the quadrivium and trivium), there may be a way of getting spatial thinking accepted as being
as important to undergraduate education as are English and mathematics. How can we establish that spatial thinking is both central to and rooted in a longstanding educational tradition?

By considering each of these steps, we can build an effective case statement for spatial thinking that focuses on the external audience, recognizes both opportunities and constraints, and which draws on the experience of others as it attempts to create structural changes in higher education.

References