Infusing Spatial Thinking Across the Disciplines:  
A Faculty Development Perspective

ERIC J. FOURNIER  
Department of Geography  
Samford University  
Email: ejfourni@samford.edu

Any effort to integrate spatial thinking across the domains of knowledge represented by the varied disciplines in a college or university must begin with a thoughtful faculty development plan. Becher and Trowler (2001) argued that faculty in higher education are actually members of different professions (he used the term tribes), and while they may share a common mailing address, the way they approach their work can differ dramatically from one department to another (or even within a department). These diverse perspectives must be considered as we work to make spatial thinking an essential element of higher education teaching and research. Healey (2005) noted that incorporating discipline-specific perspectives can also help bridge the gap between research and teaching; and as faculty consider the spatial perspectives that inform their own research, they can be more deliberate about making explicit connections in their teaching. An emphasis on active, inquiry-based learning can help transfer spatial perspectives across the void that sometimes exists between the worlds of research and teaching. A discipline-specific approach to professional development (with a particular emphasis on teaching) was adopted at several universities and leaders of faculty development centers found that such an approach led to more effective adoption of new and innovative teaching methods (Lenze, 1996). So as work progresses on this spatial thinking project, the development and diffusion of a wide array of discipline specific examples and case studies will help facilitate more widespread acceptance and adoption.

My personal background includes an interest in infusing spatial thinking in introductory-level college courses, and incorporating elements of active and problem-based learning into the undergraduate curriculum. Beginning in the late 1990s (as a consequence of nearly $2 million in grants from the Pew Charitable trusts), I began to work with colleagues at Samford University to research and implement Problem-based Learning across our school’s curriculum. In 2002, I served as co PI for the NSF-funded AEGIS (Academic Excellence Through Geographic Information Systems) Project. The aim of the AEGIS project was to provide professional development for university faculty in various disciplines who then developed GIS-based learning modules for their particular classes. Disciplines represented in the project included: History, Psychology, Biology, Classics, Sociology, and Geography. As we developed that project, it became clear that skills associated with spatial thinking were underdeveloped among program participants, and we had an unrealistic view that simply training faculty in the technical aspects of GIS would suffice as they developed their learning modules. Our initial faculty development strategy could be summarized as “show them how to use GIS, then stand back and wait for the magic to happen.” But as faculty struggled to develop their modules, we began to realize that
technical skills were secondary to broader issues related to the way project participants conceptualized their problems. We discovered that many faculty found it difficult to conceive of a discipline-specific problem using a spatial perspective. In retrospect, placing a greater emphasis on spatial thinking would have enabled project participants to develop much more robust learning modules, and in turn, help their students develop spatial thinking skills. A progression from generic spatial thinking exercises and examples, to discipline-specific ones, could be followed by giving faculty an opportunity to develop their own modules (preferably peer-reviewed) that integrate spatial thinking into their own research, which can then be transferred through active learning to their own students.

One consequence of the project was a dedicated funding line to support a university-wide ArcGIS site license, and while we have maintained this commitment, we have found that few of the AEGIS project participants have continued to make GIS (and spatial thinking) part of their teaching and research. It is clear that we failed to incorporate a plan for sustained follow-up and support for project veterans. This is particularly important in light of recent advances in the theory and application of spatial thinking, and any effort to revive this project (or to develop new initiatives at any college or university) must include both explicit instruction in spatial thinking and a firm commitment to provide follow-up support.

The laudable efforts to make spatial thinking an essential part of a university education depend on faculty buy-in, and on extensive training and support. Without proper and sustained faculty development, any efforts to infuse spatial thinking across a college curriculum are bound to fail.

References

Web resources
Discipline-Specific list of journals that focus on teaching
POD Network http://www.podnetwork.org/resources/periodicals.htm