

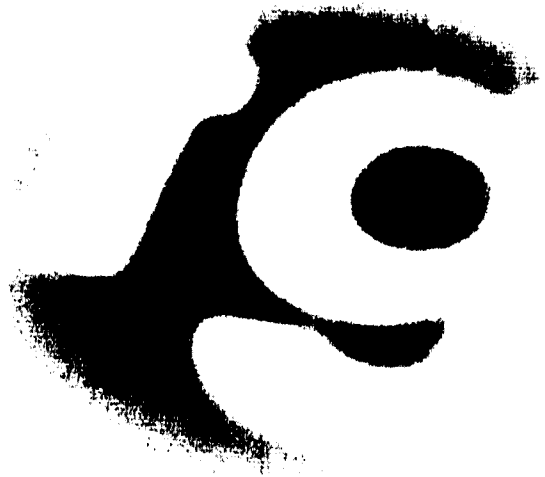
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Transactions in GIS



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Guest Editorial

Why GIS Professional Certification Matters To All of Us

When asked to prepare an editorial on GIS certification, I said yes before considering the ramifications. As I began working on this I realized I had to answer two questions: What's interesting about certification that the readers of *Transactions in GIS* would be willing to read? And, why have I spent so much of my time on this topic in the past few years? While I suspect I cannot fully answer the first question, my response to the second is simply "It's important".

Ten years ago, Michael Goodchild and I published an article (Goodchild and Kemp 1992) to discuss what we at the time called the dreaded A-word – accreditation – though we considered this broadly to include the issue of certification. It was a subject that frequently emerged in forums where we were discussing the recently published *NCGIA Core Curriculum in GIS*. It was the dreaded term because whenever the topic was raised, tempers flared and sides were quickly taken. Little has changed in the tone of this controversy in the subsequent decade, though the discussion has broadened considerably and the line has been drawn in the sand.

To start, let me make my position on this topic clear. While I find it hard to dismiss completely many of the reasons for *not* certifying GIS professionals, I have always supported efforts which kept the discussion about certification active. Beginning with the work that we did on the Core Curriculum, the need to establish exactly what someone doing GIS ought to know has continued to consume many of us. I believe that engaging in the certification discussion forces us to focus on this important topic. Even with the anticipated 2003 pilot test of the new URISA Professional Certification Program (see <http://www.urisa.org/> for more information on this initiative), the discussion over the certification of GIS professionals is by no means resolved. What should we learn from this controversy and how can we all help?

1 Definitions

There has been considerable confusion simply from misunderstanding the relevant terminology. Certification is granted by a certification board, often under the aegis of a professional association, when an individual is judged to meet a specified set of skills and knowledge criteria. Certification is intended to demonstrate that an individual is competent in a certain area. Accreditation, on the other hand, is granted to educational institutions or organizations and is intended to ensure that the education provided meets approved and advertised content and performance standards. Certification is for the individual, accreditation for the education provider.

Two other terms also enter into this discussion. Qualification is obtained through successful completion of a formal university course of study. Licensure is regulated by legislation in that it establishes a set of restricted activities that can only be performed by licensed individuals. Licensure is intended to provide legal protection in the areas of health, safety and welfare as a result of the actions of licensed individuals. By this definition, geographers are qualified and surveyors are licensed. There has been plenty of discussion about whether GIS professionals should be licensed, or indeed whether some are already licensed through the surveying profession.

2 A Brief History of the Certification Issue

In "GIS Accreditation: What are the Options?", Goodchild and I examined the criteria outlined by Pugh (1989) that determine whether a field can be considered a profession. At the time, we concluded that only the criteria of a unique body of knowledge and expertise had been met. Conditions to meet the other criteria (representative organizations, a shared language, a professional culture and lore, a code of ethics) had not yet developed sufficiently. Interestingly, just one year later, Nancy Obermeyer reviewed these criteria again and found most of them in place (Obermeyer 1993) and the profession ready for certification.

Since the early 1990s, certification has been a simmering debate in our community. Much has been written on the subject and many summaries of the pros and cons exist in the literature and on websites (including a recently published special issue of the *URISA Journal* on GIS education). Indeed, ASPRS quietly initiated a certification program in 1991 with the designation "Certified Mapping Scientist-GIS/LIS" conferred on those who pass a peer review of their experience and training and a written examination. A number of conference sessions in the late 1990s explored the topic (including a session at the last GIS/LIS conference). The UCGIS prepared a white paper on the topic in 1997 (Obermeyer and Onsrud 1997) in which the consortium was encouraged not to participate directly in developing certification programs, but rather encouraged individual members to be willing to advise and support such initiatives from professional organizations. In fact, the academic membership of the URISA certification committee is drawn largely from UCGIS institutions.

Professional certification for GIS has even been considered at the international level by the ISO through its Technical Committee 211 – Geomatics/Geographic Information, though the working group has concluded its deliberations with a draft report speaking out against certification at the global level (ISO/TC211 2002). A summary of current certification and related activities around the world can be found on the web (<http://www.institute.redlands.edu/kemp/certification>).

3 Why Certify?

There are a number of very good reasons to certify GIS professionals but I will not itemize them all here as many others have already written on this topic and most of us already have a number of opinions on this matter. My favorite reason is to help those who have caught the passion of doing GIS understand how they can achieve the necessary professional preparation or professional development. The profession suffers from

a lack of properly prepared individuals. The apparition of an ambitious young college graduate with a single training course in one GIS software product being hired to run the GIS department of a small municipality haunts us all. We cannot blame this young graduate or the Human Resources Department who have no way of knowing that he or she is not qualified for this job. We have ourselves to blame since we have not yet articulated what a GIS professional needs to know and be able to do.

Getting this figured out means that employers will know what kinds of people they should be seeking to fill GIS positions. Certification can help employers determine:

- Is this person qualified to do the job?
- How to compare one person's qualifications with another?
- How to compare qualifications across international boundaries?

There are many other reasons upheld in support of professional certification including raising salaries of professionals, allowing those without related educational qualifications to demonstrate their competence in this field, and, unfortunately, ensuring that certain narrowly educated sectors of the domain do not make a land grab for the whole field. This latter problem is the red herring that gives the certification discussion some of the fireworks.

4 Why Not Certify?

The reasons put forward not to certify are many and include:

- No clear definition of the profession
- No clear understanding of the necessary skills and knowledge
- Control of the profession may be assigned to a single organization
- Potential to limit growth of the field, exclude qualified people
- Impacts on academic freedom

These are all potentially true, but I would argue that they are not good reasons for not certifying. They do not preclude the possibility of doing certification; they are instead important principles that must be addressed not only in the design of certification programs but by all of us in the educational part of this enterprise.

5 How to Resolve the Certification Issue?

We can resolve this controversy by addressing its foundations. The good news is that a number of efforts underway now are likely soon to change the nature of this discussion. Work being done for the URISA Certification Program and the UCGIS Model Curricula Project, whose current status are reported in the 2002 *URISA Journal* special issue on GIS Education, and the ISO/TC 211 Project 19122 (ISO/TC211 2002) show important progress in this regard.

6 The Good

The process of building certification programs gives us motivation to examine the GIS enterprise beyond the academic world that many who write for and read this journal

are absorbed in. Although many of us teach those who will become GIS professionals, what do we really know about their professional needs in the way of skills and knowledge? How can new faculty who have been immersed in the academic world learn this so that they can teach appropriately? Academics are often reluctant to admit that they really know little about the world in which their students will work on a daily basis. We may build their tools or ferret out the foundations of the science on which they are built, but how many of us really understand what it is that a GIS professional does at work?

In 1990 when I began to sketch out what I would write my PhD dissertation on, I was strongly discouraged by several colleagues from doing my research on a topic related to GIS education, even though I had by this time spent two years building and promoting the NCGIA Core Curriculum. GIS education apparently was not worthy of research. The good news is, fortunately, there are now many good dissertations and theses on the topic of GIS education and many more graduate students now focusing their research on GIS education topics. The motivation of understanding what a GIS professional needs to know and how they might learn it makes for extremely valid and useful research.

On a side note, another important outcome of the work of the URISA committee is the proposed Code of Ethics developed under the direction (and authorship) of Will Craig. Every academic who is teaching GIS should promote this Code amongst their students. It is posted on the URISA website.

7 The Bad and the Ugly

A large part of the opposition to the proposal of certification in GIS seems to arise from the idea that it is either a response to a land grab by the surveyors or it is itself a land grab by some other group. It is neither of these. Certainly, the efforts of a few years back to revise the Surveyor's Model Law to expand their licensed activities to include GIS broadly provided an early wake up call about the need for many of us to think more carefully about the profession. But all of the people working so hard on developing a certification program through URISA are acting on the behalf of the profession, not against the surveyors. The suggestion that this group of URISA colleagues are trying to build an empire at the exclusion of others can be quickly dispelled by looking at the evolution of the certification program as the committee worked to respond to all of the concerns of the community recorded in the certification "guest-book" on the URISA website.

8 Building the GIS Profession

In conclusion, all of this discussion, pro and con, about the emergence of a profession and its associated trappings must be seen in a constructive sense as our community's very healthy contribution to the development of a profession emerging out of the academic foundation many of us have built. We teach students who will have professional lives in this field. All of us repeat the mantra "it takes more than software skills to do GIS". How can we really teach our students what they need to know if we do not all fully engage in the effort needed to determine it? We must strongly support others who

have taken the time, perhaps to the detriment of their academic credentials, to become involved in the debate and who now choose to focus their academic research on this important issue.

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