

Higher Education is Subject of Rapid Modification

Surveying the Issues of Geomatics Education (1)

Technology is developing rapidly, and in its trace society itself changes in many, often unpredictable, ways. The expansion sensor and ICT technology, in combination with changing social needs and expectations has resulted in instances of perceived treats but also in new opportunities. As a natural result, higher education too is subject to rapid modification. This is the reason behind our initiating a Series on Education. In the present introductory article the author addresses the education issues, which would of most importance.

By Mathias Lemmens, Editor, GIM International

Education for, and practice of, an associated profession may be seen from many different perspectives, including

- As a means of individual development
- For supporting society (don't ask what can my community do for me, but ask what can I do for my community?)
- To serve a divine instance (the exploration of one's talents in service of the divine)
- Means of earning money so as to live one's individual live in ease and to show others that one is not from the street

Earning money seems now the prevailing paradigm. And the best way to do that is by going in business. Indeed, once high-school students have progressed to the point where they need to get worried about the forthcoming final exams and as a result have to make hard choices with respect to their future occupation, they increasingly opt for the non-technical studies. This is a general observation, at least within Europe, but maybe it is equally valid all over the world. Why do high-school students now tend to choose business-oriented, MBA-like studies, where the demands are lower both intellectually and in terms of effort required and course duration? The easy way to explain this phenomenon is to state that the younger generation has become reluctant to work hard. However, this is an argument belonging all eras and is one, which doesn't cut ice. Should young people be blamed at all for choosing business-oriented studies? I don't think so. Times change, not people. Young people have, throughout all ages and the world, always had a good nose for those priorities considered as important by their parents and society. On that list good education is writ large.

Non-Technical Preference

And written just as large is the word "management". Indeed, young people receive a plethora of signals indicating that becoming professionally involved in management is very attractive and brings prosperity. For example, they see that men and women functioning at management level

can afford a bigger house, a larger car -or even two- and more expensive holidays. Indeed, at least in Europe, the system of rewards works in such a way, both in the public and in the private sector, that the more people you have under your control, the higher is your salary. An engineer good in his skills but not a “people manager”, will stay put at the executive level of the production or R&D department. He will notice that his bank account credit remains modest. His family and neighbourhood will start asking questions, and, although very knowledgeable and skilful, and probably also professionally fulfilled, he will begin to feel as if he has failed to succeed. So when at high school your environment expects from you that you become engaged in management, the sooner the better. Why travel the long and dusty technical road? There are sufficient alternatives. It is much more profitable to start in management right from the beginning. So doing, you choose a course of study where they teach you the necessary management skills. It is thus pretty unrealistic to expect from our younger generation that they opt for a difficult often lonely course of technical study, receiving as they do a plethora of signals from the older generation pointing to the stupidity of such a decision. How can we go about convincing young people, their parents and their educators that following a technological-oriented study is not only a very appropriate, but perhaps in the long run also a very profitable option?

From Land Surveyor to Land Information Manager

For many decades now, mainly as a result of the expanding world population, there has been taken place an ever-intensifying process of exploitation of the earth. An increase of land use and multi-purpose use of land is resulting in increasingly severe problems including, natural disasters and lack of drink water. As a result, land is not only a source of wealth, as it was up until the 18th century, but also a commodity and, more vital still, a scarce community resource, which is becoming under increasing pressure. We are now deeply convinced of need to take care of the environment, for we have the technology to destroy the weak balances created through millions of years of evolution. As a result we need to monitor and manage environmental processes and the effects of human activity at the square metre level, which implies a huge and steadily increasing need for geoinformation. Does this changing requirement on the part of society mean that the surveyor should extend his professional ambit from a geo-data collector to a land information manager?

Education as a Commodity

The alteration in our attitude towards information, which occurred during the last decade of the last century, is noteworthy. Information has become a commodity like any other. Information underpins any knowledge. One may readily state that without information there is no knowledge. If knowledge is the queen of information, why than might it not become a commodity like information? It is evident that this reasoning, so naturally in line with the “information as commodity” paradigm, is increasingly gaining momentum. Governments in all western countries stimulate universities and colleges of technology to pull in foreign students. They do this not because of social or development programmes, but because the export of knowledge brings in profit. The expected benefits are twofold:

- Foreign students reinforce the economy of the exporting country through the payment of lecture-fees, which are usually in the range of US\$ 5,000- to US\$ 10,000
- In the longer term, students successfully completing their studies will join the decision-making community in their home country. It is to be expected that they will in the future advocate the products and companies of that country credited with their present prosperity

In 1999 the US initiated an attempt to put education on the agenda of the World Trade Organisation. However, the move met with reluctance on the part of forces within Europe who argued that education could never be considered as a commodity because it is a public good. But is education really a public good? Education determines one's way of living; certain studies are chosen because a degree in that sector results in high or even phenomenally high earnings, such as those of the medical profession. Should all of this be paid out of taxpayers' money on the grounds that all of society hopes to benefit from the resulting products of such education? Or should the costs lie with the students themselves, because they are the ones who are going to profits at the end of the day?

Bachelors/Master Structure

The governments of many European countries have, in what has become known as the Bologna Declaration, adopted the Bachelors/Masters structure for higher education. Their main reason for doing so, is so as to arrive at a better harmonisation of the higher education systems within Europe, in order to improve comparison amongst the many different diplomas and to enrich exchangeability of both students and professionals between universities of different nationalities as well as. As a result of the new structure the Bachelors diploma will provide students an entrance ticket for subsequent education at master level at any other university in Europe. Some universities have already introduced brand-new Bachelors programmes within the framework of the Bologna Declaration. So what has been the effect of the Bologna Declaration on definition and contents of the Bachelors programme and how is education at Master level to be provided to a wide variety of students, coming from all over Europe? Will some universities become more glossy and attractive than others? Will students begin to exhibit a shopping behaviour, travelling from university to university to attend the lectures with the most impact as once they did in Medieval times?

What's in a Name

Another factor, which may inhibit the inflow of novice students, is a relatively lack of awareness on the part of the general public as to the meaning and content of the geomatics profession. Much discussion has taken place over recent decades concerning an appropriate professional designation in terms of marketing strategy. For example, at the University of Delft, the name Technical Geography as an alternative for Geodesy finds support among many lecturers. The advantage of this title is that it readily forms a descriptive basis for the subject. Since physical geography and social geography are existing courses, although often located in the soft sector of education, it becomes much more easy to explain how technical aspects of geography may also be studied and how information about the earth can be collected, and ICT employed in storing, using and disseminating it. However, it is questionable whether a new name, unless accompanied by a rigorously new product, may be effective in the short and the long run. A change of name may even prove to be an unwise strategy, as past Dutch experience has demonstrated. There, the somewhat inadequate term "land surveyor" was replaced by the more stately geodesist. This change in name did nothing to improve the profile of the profession with the general public. The only result was confusion and a sharp decrease in number of students at all educational levels is probably the price paid for this arrogance.

Distance Learning

Distance education may be about to enjoy a revival of interest as a result of the popularity of Internet.

There is much confusion as to what is actually meant by distance learning. Distance learning is definitely not about the issuing of a book or lecture notes on the Internet. There is also nothing new about distance learning, the making use in the past of books and other printed material, mail, audio-devices and television. A new technology has simply now been added to this cluster. Some people express high expectations concerning the possibilities of Internet-based education. Faith can run so high that some even suggest that distance learning will largely replace regular education. This is not astonishing, because from a technical point of view a teacher simply presents a story. He relates things and illustrates his explanation with schemes and lists of words. This technical aspect of education can be easily transferred to electronic devices. It is so visible an aspect that for many it seems to be the only educational element of importance.

*Education is not filling a barrel,
but to enlighten a fire (Herakleitos)*

This is expressed by those who shake their heads compassionately and commiserate: being a teacher seems to me so boring... telling same, old story, year after year. In fact, of course, education is a process of perpetual dynamic interaction. The essence of education was perfectly expressed by the Greece Philosopher Herakleitos, who stated, more than two millennia ago: education is not to fill a barrel but to light a fire. Technology can never replace, but only support such a complex process and thus any discussion should be focused around the question: how can the facilities offered by the Internet support distance learning?

Final Remarks and Invitation

Here are addressed some of the issues to which we would like to find answers in the course of the present Series, to extend over the coming issues of GIM International. A number of leading professionals involved in geomatics education has agreed to contribute to the Series. Our previous Series on Cadastres, resulted in some readers becoming so enthusiastic, that they offered spontaneously to provide a contribution to the Series, whilst it was underway. We had to disappoint them. In order to prevent repeat of the same experience, I would like to invite anybody who feels that he or she might contribute fruitfully to the Series, to discuss the possibilities for sharing their experiences.

Biography of the Author

Dr. Mathias Lemmens is editor of GIM International and assistant professor GIS Technology at the Delft University of Technology. He has over 17 years of higher education teaching experience in a broad variety of geomatics courses.