DEVELOPMENTS IN GEOMATICS EDUCATION (3)

A Skills Crisis Unfolds

The surveying profession in Australasia is on the cusp of a â€˜skills crisisâ€™, there being far too few skilled personnel to fill the many jobs available. For some professionals this has created an unprecedented opportunity, others see it as an embarrassment as they struggle to meet client expectations and demands. The author considers the reasons for the crisis, marketing issues underlying the problem, and future challenges.

The activities of the surveying profession in New Zealand and in Australia are very similar. Their primary tasks include topoâ€“graphic, engineering and mining surveys, subdivision design (engineering aspects included) and cadastral surveys. Surveyors are typically experts in issues relating to land tenure, land development, measurement science and spatial data. While some surveying organisations will offer services across all these sub-specialities, others may choose a more specific focus. Within the context of Australasia, surveyors are not estate agents and nor are they land valuation people; these are distinctly different industry groups, typically with lesser education and skills requirements. They are not seen as belonging to the surveying profession.

Unprecedented

The demand for surveyors in Australasia is higher than at any time in living memory, resulting both in a skills shortage and an unfolding skills crisis. In the last three years the number of positions advertised by New Zealand employers seeking surveying graduates has outstripped the number of graduates available from the sole provider, the University of Otago, by a ratio of almost two to one. Those few New Zealand students who have sought employment in Australia have found an even greater demand for graduates. They report that eight to ten job offers can easily be obtained within a short time of arrival in Australia. This increase in demand has, in turn, dramatically increased graduate salaries, resulting both in an unprecedented opportunity to raise fees for professional services and in levels of remuneration that are more than competitive with other professions.

Reasons for Crisis

A number of reasons can be advanced for the skills crisis. Firstly, both New Zealand and Australia have seen sustained economic growth (typically 3%-4% of GDP) for the better part of a decade. This growth, recently driven in Australia by the minerals boom, has fuelled a sustained demand for surveying services across the region. Secondly, during this time of growth the number of surveying graduates has fallen as traditional university surveying programmes (particularly in Australia) have struggled to obtain their full quota of students. The surveying profession has shown little ability to market itself as an exciting and viable career option for young people. Some university programmes, out of frustration at the lack of remuneration and career structure traditionally associated with cadastral surveying, have reoriented their offerings to produce graduates better equipped to move into the broader spatial-sciences industry. Career opportunities and financial rewards for graduates have thus increased, drawing graduates away from traditional surveying practice. Thirdly, the demands of new environmental legislation have increased the workload on many professionals, one of whom is the surveyor. Anecdotal evidence from New Zealand surveyors suggests a 30% increase in workload over the last decade due to this source alone. Finally, New Zealand managed in the early 1990s to dismantle a very good national programme for training technician surveyors, replacing it with something considerably inferior both in terms of academic quality and availability. At the same time, government reforms moved the burden of training a cadre of well-skilled technician surveyors from its own departments to the private sector. The demise of earlier distance-learning programmes and delay in building a new qualification within the new, competency-based framework resulted in an almost complete evaporation of technical students. Only now are these numbers showing signs of recovery. In summary, for over a decade there has been an increase in work for the surveyor and an increase in career opportunities, but no increase in the total numbers of graduates being produced from surveying (geomatics) education programmes. Although efficiency and productivity gains have been achieved through new technology, these have not been sufficient to overcome the increase in demand for surveying services.

Misty View

One of the main issues has been the inability of university surveying programmes in Australia to attract young people. Almost without exception, these programmes have had the capâ€“acity to accept far more students than have enrolled. This has not been the case at the University of Otago in New Zealand, where for almost two decades student numbers have shown an ongoing upward trend and where enrolment limits have consistently been met (Figure 1). At the end of 2006, for example, 26 eligible students were declined entry to Otagoâ€™s four-year BSurv degree programme. Why should one programme in the region be successful in attracting students and most of the others far less so? Lack of competition would seem too simplistic an answer: Otago University offers the only professional surveying programme in New Zealand, whereas there are multiple

programmes in Australia. More likely the primary culprit is the lack of professional profile suffered by the surveying community. Market research in New Zealand reveals that, even amongst fellow professionals expected to know better, there is a â€œsurprisingly low level of understanding of the surveyorâ€™s tertiary qualification and career path, and some misunderstandings or â€˜misty viewâ€™ of a surveyorâ€™s skills and knowledgeâ€ (Toner, 2006).

Marketing Issue

Over a period of thirteen years the University of Otago, in combination with the New Zealand Institute of Surveyors, has pursued a vigorous, cohesive marketing programme aimed at attracting high-school students into a career in surveying. The following important lessons have been learnt:

- the marketing message must be simple, consistent and clear; the New Zealand message focuses on the superb employment opportunities for surveyors, the indoor/outdoor nature of the job, variety of work, and excellent financial rewards
- good communication tools must be used; while written material must be attractive, it is essential that those presenting it be enthusiastic, knowâ€“ledgeable and articulate
- target audiences should be identified; in New Zealand, high-school careers advisors and mathematics teachers are vital to marketing as they are an important source of careers information
- a surveying career attracts students from smaller cities and rural towns rather than from large cities; while 60% of New Zealandâ€™s population lives in large cities, only 35% of surveying students come from such areas. This accords with the expectation that an indoor/outdoor career is more likely to appeal to a young person raised in a rural or semi-rural environment
- the importance of maintaining marketing momentum; any campaign promoting a career in surveying amongst young people must be maintained year after year, such that those offering careers advice to young people are constantly reminded of the advantages and benefits of such a career.

In the New Zealand experience, if marketing is to be done well it will be time-consuming and will require commitment. Universities typically reward staff only on the basis of their academic output, most importantly research, and not for attracting undergraduate students. However, should undergraduate students fail to enrol, a programme will quickly be downsized and come under threat of closure. This is a real dilemma that can be resolved only if the wider surveying profession is willing to accept that it has a significant role in marketing.

Future Challenges

A number of challenges lie ahead if the present skills shortage is not to reach crisis proportions. Firstly, population demographics indicate that the present skills shortage comes at a time when the generation born immediately after the second world war is moving towards retirement. While immigration may be a partial solution, its value is substantially reduced by a typical need for retraining of such personnel. Secondly, other, higher profile professions, such as engineering, also face skills shortages, suggesting that the future marketing environment will become much more competitive. Thirdly, universities continue to place great emphasis on research performance, even if this comes at the expense of teaching quality. In many universities comparative research performance is the single greatest measure of prestige. It is a difficult task for a professional school to balance appropriately its academic and professional responsibilities. Indeed, in some jurisdictions the salary gap between academic and professional income is now creating real difficulties in finding academic staff with the requisite teaching, research and professional skills. Finally, and perhaps most importantly, if a shortage of cadastral surveyors leads to severe constraints on land development and the registration of land titles, then the danger exists that governments will accept titles based upon inappropriate spatial definition. And/or will allow those with lesser skills to become part of the definition process

Concluding Remarks

It is hard to foresee the existing skills shortage being easily rectified unless, of course, firstly the surveying profession becomes far more aggressive and effective in its marketing of a surveying career, or alternatively there is an unforeseen economic crisis of global proportions.

Further Reading

â€¢ Hannah, J., 2006, Australasiaâ€™s surveying crisis â€“ is it marketing failure Paper presented at the XXIII FIG Congress, Munich, 8-13 October 2006.
â€¢ Toner, C., 2006, What Our â€˜Primary Target Individualsâ€™ Think About Surveyors. Research report available from the NZIS Inc, PO Box 831, Wellington, NZ.