

CONSTRUCTION IN CHALLENGING ENVIRONMENTS

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E-LEARNING AND ITS APPLICATION TO QUANTITY SURVEYING AND THE PROFESSIONS IN A NEW LEARNING ENVIRONMENT

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"It is widely known that we are the sum of our experiences, our interpretations, stories and the meanings we give to events in our lives. Some of those interpretations, stories and meanings might have served us when we had no other choices, but that does not mean they are valid now. Yet we mistakenly cling to old patterns and ideas that may not serve us to become the whole individuals we were destined to be."

John Mace, psychologist

INTRODUCTION

Consider this -

When I started work as a quantity surveying cadet in Brisbane, Australia in 1965 my first task was to check and square calculations (dimes), in duo-decimals, using a pencil and paper. Electronic calculators were a brand new device, but the boss did not trust them and he believed the a good quantity surveying education was based in a sound grounding in mental arithmetic.

If you were to ask me to calculate in duodecimals today, I would need to refer to a book, or Wikipedia (though it does not explain how to calculate in duodecimals). It is a piece of information that was invaluable at the time, but which has been non-essential for 42 years.

When I sat the AIQS entry examination in Perth, Western Australia in 1969 I was required to demonstrate ONE competence, measurement.

Cost planning and contract administration (post-contract services) were in their infancy.

In the AIQS Competency Standards published in 2005, there are 31 published quantity surveying competencies, of which 6 are core competencies with 8 basic skills requirements.

In a recent long-range practice survey in Australia, conducted by UTS for the AIQS¹, it found: -

40% of practice income was from non-traditional or non-building sources.

1 AIQS – UTS Quantity Surveying Practice Survey 2007

A contribution to income of over 20% of income was made in up to 33% of firms from: -

- ☐ Feasibility studies
- ☐ Life-cycle analysis
- ☐ Planning and programming (20%)
- ☐ Tax depreciation services (16%)
- ☐ Dispute resolution (20%)
- ☐ Insurance
- ☐ Risk analysis
- ☐ Project / construction management (33%)
- ☐ Value management
- ☐ Quality management
- ☐ Facility management
- ☐ Post-occupancy services
- ☐ Energy audit
- ☐ Due diligence
- ☐ Building certification
- ☐ Information management
- ☐ Transport
- ☐ Infrastructure (23%)
- ☐ Civil construction (32%)
- ☐ Publishing
- ☐ Research

Does anyone doubt that research tells us that, since the Renaissance, technology and human understanding has doubled approximately every 30 years, or each generation?

A new era of growth began in earnest in the year 2000, with the convergence of knowledge enabled by the new communications and technologies. It is predicted that the cumulative effect of the key drivers of growth will be 43 times the previous average rate of acceleration over the next 20 years². That is the "doubling" rate is predicted to decrease from 30 years to 9 months.

KEY ISSUES

If we believe that we have had to respond quickly to change in the past working generation, it is nothing compared with the change that is likely to occur in the first half of the 21st century.

² The Parallel Bang: the explosive growth of human understanding in the 21st century, Jack Bacon, Normandy House, 2006

Key considerations for professional service providers and educators are:

The demand for well-educated employees will continue to increase.

Employability will be more important than employment³. This means that learning will be continuous throughout the working life of people.

Fragmentation – Not only will the work of quantity surveyors be fragmented by increasing speciality, but single tasks will be separated so that they may be produced efficiently and effectively wherever the resource and skill exists.

Collaboration – will be accelerated by the development of rules and standards to enable integrated modelling, international education standards and cross-pollinated education, IT and business systems and communications.

These things may seem novel to some, but there are industries, including banking and finance, accounting, retailing and motor-vehicle design and manufacture, where these concepts are well-proven and in daily use. The major shift required to generate change in the construction industry is cultural change. This is now happening through project information (pim) systems that force structured work-flow processes. In the UK today, clients are adopting pim systems more for work-flow reasons than for document storage and retrieval reasons. This will quickly develop into structured building information modelling with the use of model servers and the development of rules for electronic collaboration and integration of data.

ONLINE EDUCATION AND TRAINING (e-learning)

Current e-learning systems and their application.

Electronic learning systems have been quietly creeping up on us since the advent of graphic user interfaces (mac and Windows). They are an outcome of the great convergence of technologies, communications and ideas that has been gathering pace since the turn of the century.

E-learning systems range from pdf manuals and help-screens, through simple click-through guides to sophisticated course management systems with on-line evaluation and award mechanisms.

The development of the technologies moves very quickly. Five years ago, my firm was involved in developing an interactive technology curriculum, on CD, for Queensland Schools. As soon as it was developed (over a period of 12 months), it had been overtaken by web-based systems because of the improved internet access in the intervening time.

Governments and business world-wide are collaborating to develop large libraries of learning objects for online delivery⁴ of school and other curricula.

3 The World is Flat; The Globalized world in the 21st Century; Thomas L Friedman; Penguin 2005

4 The [Le@rning](#) Federation

On-line training manuals. We are all familiar with the Help button associated with every computer program. Clicking “help” typically opens a comprehensive, searchable user manual in html, pdf or internet-based formats. Many businesses maintain corporate intranets for the purpose of communicating with staff, where staff and corporate manuals are available to staff on an as-needs basis. With the ever-increasing demands on staff to learn new technologies, or stay abreast of existing system upgrades, online manuals are an important point of reference.

Interactive learning objects. There are a number of systems, such as Adobe Captivate, becoming available that allow relatively easy production of sophisticated flash programmed learning modules that may include text, graphics, pictures, video and the capability to interact with questions and answers, options and the like. These are excellent tools that can enliven training with complex interactive explanation.

VOD and Podcasting. Recording university lectures for later listening or viewing is very popular amongst universities. Whilst it relieves students of the need to attend lectures, there is no way to assess or control the absorption of information or the participation and attention of students. Professors complain that off-line delivery of lectures is resulting in low lecture attendance and falling grades.

These methods of delivery is likely to be more effective with personal interest topics or amongst higher-motivated, perhaps remotely located, students.

Collaborative communication portals. There is a large number of collaborative communications portals in the market that combine streaming video, text and audio communications, virtual whiteboards and other tools. Some incorporate video conferencing. They may be PC based or be large conference room installations. Whilst all of these systems are promoted as having online learning capability, they are mainly suited to conferencing and product (especially software) demonstration. Video conferencing of this type may be effective in replacing radio schooling for children in remote areas, where face-to-face teacher contact and social contact with other children is an important element of their education. It is also popular amongst universities in countries where students do not have ready access to internet communications, but where students can gather in a class format to receive relatively traditional education.

Examples of these systems are Webex for personal PC use, through to Cisco systems for up to 18 video-conferencing participants and 48 sites. This form of collaboration will become more popular as broadband speeds and technology improves. Most PC and laptop computers now have inbuilt cameras and come with bundled software to allow personal video-phone and video conferencing.

Course Management Systems. There are many proprietary course management systems (CMS), some of which are very sophisticated portals that include student management, complex course assessment, payment gateways and everything else that may be needed to run full-value courses of any kind.

Blackboard is a system popular with universities in Australia. Moodle is a popular open-source system based in Western Australia and used by many schools and business training organisations. As an example of the current popularity of online

courses, Moodle currently has 43,000 sites, 2 million courses, 2 million teachers and 20.3 million student. It holds 14 million learning resources.

Emerging e-learning techniques, including self-paced and on-demand learning systems

Currently e-learning techniques tend to follow traditional methods of delivery that replace face-to-face lectures with courses that are run over fixed terms where students are required to "attend" tutorials and to meet weekly deadlines for study materials, typically delivered in text.

As educators get a clearer understanding of the wealth and variety of interactive resources and complex course assessment methodologies that are built into modern CMS, they are likely to move towards self-paced courses, where students will be entitled to complete courses in time frames that are more flexible to suit the demands of their employment and their lifestyle.

These courses (and associated learning resources) are typically much more 'granular' in design and may include a wide variety of rich learning objects that incorporate video, graphics, text, and other resources.

On-demand learning is becoming popular. It is typically used to train or familiarise new employees with corporate systems or to update employees with new systems, technologies or technical upgrades. This can be done with a variety of online manuals, tutorials, interactive resources that combine video, graphics, walk-throughs and the like, up to formal coursework with assessment and achievement awards and certificates.

On-demand learning is efficient and effective. It's effectiveness can be significantly improved by adopting simple techniques like dual-screen displays. Employees can gain new knowledge or upgrade existing knowledge while they are working. It will provide for the fast-paced change that we will continue to experience.

Self-paced learning. Where individuals or their employees are seeking deeper learning to improve their competence in particular areas, for personal development or career development, structured courses that can be undertaken at times and over time to suit individual circumstances will continue to grow.

Portals such as Seeklearning.com.au (associated with a popular job-seeking network) are encouraging access to courses in many categories from short courses to certified Diploma and Certificate courses.

Quantity surveyors will use these facilities to gain accreditation for Qs competencies in the future.

Mentoring – One-to-one mentoring, once the most important basis for passing on practical knowledge and, corporate knowledge and corporate culture. Competitive pressures have forced a decline in mentoring. Mentoring in the future may be

provided on a one to many, on-demand basis via internal intranets and outsourced expertise, or combinations of these.

Blogs and Forums – Blogs and forums have fast become a preferred method for disseminating, discussing and sharing information. They may be standalone or part of comprehensive intranets or structured LMS systems.

Understanding the place for each of the methods of delivery in use or emerging is important for business organisations that want to develop a learning culture.

Online education (including off-line electronic broadcast) and training will become a preferred option for vocational training and professional development over the next few years, for the following reasons.

It is convenient for employers and employees. Travel time, often a significant part of the time of face-to-face study is taken out. Employers can allocate specific time or allow study to be taken in down-time or as-needs as it is required. Employees can study in their own time to fit their work patterns and timetables. Education can be delivered at any hour of the day, seven days a week.

It can be delivered at or near the moment that it is required. An example of this is the practice of undertaking online tutorials of new technical systems (such as CAD measurement and modelling), on a dual screen, at the same time as working with the system.

It can be self-paced. Students can work quickly if needed for employment, or at a pace that suits their circumstances. Competence is the ability to perform a task and this may be judged at any time, at the discretion of the student or their employer. The “timetable” imperative, set by education institutions for their own convenience can be relaxed or dispensed with altogether.

It has rich content. Online electronic education can use a wide variety of teaching “assets” or tools to deliver a rich, interactive learning experience that engages all the senses. Typically it can include video, audio, text and graphics. These tools are adequate now, but will continue to improve in speed and quality. As an example, Youtube used more bandwidth last year than the entire internet in 2000. Vod and podcasting allow students access to resources at all convenient times and places.

It is interactive. Unlike face-to-face lectures or group assignments, participation in interaction can be monitored and gauged. Participation in tutorials and peer-group forums can be monitored for participation time and content. Peer group collaboration encourages team work, whilst demonstrating each students participation and comprehension. Interactive tools, such as Adobe Captivate, allow course designers to combine text, graphics, photographs and video in interesting interactive learning tools.

It is cost-effective. Online learning can be structures to be delivered to any number of students over any period of time. It does not rely on assembling a limited number of students at capital-intensive campuses to deliver oral material on a one-

to-few basis. The cost-effectiveness of online education systems will continue to challenge traditional methods of delivery of education.

It is Global. It is particularly relevant in countries with large geographic and demographic spread, such as Australia, China, USA, Canada and many others that education, and in particular continuing professional development, can be delivered over very wide areas to students and professionals who would not otherwise have access to education resources. This feature alone will enable compulsory continuing professional development in distant and remote locations where it was previously difficult or impossible.

It will also add to the drive for seamless global education standards.

There are any number of sophisticated online learning systems available today, with a growing number of readily available courses. Educators are quickly adapting to new techniques, such as “granular” learning objects that enable learning to be flexible and responsive to the needs of students.

Governments and business world-wide are collaborating to develop large libraries of learning objects for online delivery⁵ of school and other curricula.

HISTORICAL CONTEXT OF PROFESSIONAL EDUCATION IN AUSTRALIA

The Australian historical education context is that, up to about 1960, the only real quantity surveying qualification was direct entry into the IQSA, the forerunner of today's Australian Institute of Quantity Surveyors (AIQS) or the RICS, a British institute. Study was undertaken on the job or wherever it was available, sometimes by correspondence from England. Before a student or probationer was admitted the applicant was required to pass a two-day measurement examination.

Around 1960, technical colleges around the country began to offer part-time quantity surveying courses where students undertook all their study after working hours. Students undertook cadetships or indentures with practicing firms during their course of study. At that time the colleges concentrated on vocational training, including construction trade courses. The professional courses quickly became sandwich courses with substantial blocks of “day-release” study during the week. The colleges negotiated with the AIQS to allow graduates of these courses direct entry to the Institute without further examination.

These proposals were readily accepted because it relieved the Institute of the burden of setting and marking exams. A logbook and interview after a period of practical experience (probationary period) became the single test of entry retained by the Institute. We quickly got used to the idea that universities would produce, with minimal help, ready-to-employ quantity surveyors (i.e., measurers with potential in other areas of competence).

5 The [Le@rning](#) Federation

It is easy to forget that students and graduates were not, at that time, expected to be highly profitable. Their work was carefully supervised and edited as part of their on-going training and the firms' long-standing risk management practices.

The colleges started the move away from vocational training in favour of academic education, first becoming Institutes of Technology and ultimately, Universities. This trend was driven by successive federal government education policies. Even then these "practical" universities retained a vocational focus in many of their degree courses but the trend towards more academic bias and away from a vocational bias was set in train.

THE EVOLVING PROFESSION

When vocational courses were first developed the range of quantity surveying services typically offered was very limited. The profession offered some estimating and detailed measurement (bills of quantities). Cost planning was in its infancy and contract administration was rare. Quantity surveying core competencies were limited to a handful.

In the following 40 years, pushed by progressive firms, we developed sophisticated cost planning, documentation and contract administration techniques in response to evolving procurement and contracting environments. More recently quantity surveyors have begun to specialise in a wide range of cost related advisory areas.

It is now difficult to define the "average" quantity surveyor, much less define the core skills that constitute a qualified quantity surveyor.

It leads me to conclude that it is extremely difficult, if not impossible to develop a degree course that will educate a complete modern quantity surveyor.

On top of the added complexity, competition policy has had the effect of reducing prices while demand for trained professionals has driven up graduate salary levels. As a result, graduates are expected to quickly become profitable whilst costly supervision, mentoring and editing techniques have disappeared. They have not necessarily been replaced with new risk management techniques appropriate to current technology and practice. This will, in time be resolved to a large degree with the wholesale adoption of technology driven workflow practices and standards and other innovative methods of knowledge management and communication.

Whilst quantity surveying practices will continue to offer a traditional range of consulting services, perhaps delivered differently, there will be an accelerating trend towards specialisation. We see this, from the above mentioned survey, with firms and individuals specialising in tax depreciation, facilities management, due diligence and compliance, dispute resolution, estimating, contract management, project management, business planning and advice, IT systems development and sales, IT contract management, property investment and analysis, property development and the sale of value-engineered cost data. The AIQS published competencies now number 31. Services offered have grown well beyond this already. It is unreasonable to expect that quantity surveyors are expert in all the recognised QS competencies. Many will have a general knowledge in some areas and will specialise in other areas.

QS general practitioners will not be inhibited to refer clients to specialists, where they may not be experienced in particular specialist areas of practice, as is normal in other professions.

There is an increasing demand for quantity surveying skills from consultants, contractors, property developers, project managers, property owners and others. This is driven by continued strong growth in the construction and infrastructure sectors. In order to satisfy the demand in a reasonable time, employers prefer to employ graduates who have underpinning "tacit" knowledge of construction industry processes, a small range of core competencies and a highly developed study and research capability. They accept that, given this core knowledge, individual competencies required for employment at any point in time can be learned and applied quickly, either by specialist outsourced training or by in-house or on-the-job training and mentoring.

Many of these people will be qualified quantity surveyors with high levels of specialty knowledge and skill, but they may never acquire the broad range of core skills to entitle them to full membership of the AIQS in its present form. Others will acquire specialist skill sets as their job or employment demands. Still others will develop a wide range of skills to a "working knowledge" or interpretative level, without necessarily being expert in all but a few.

There is no doubt that today's graduates will be doing different things differently by the end of their working life, just as this generation has done. In order to maintain competence in the face of change, the profession must continue to strengthen continuing professional development requirements. This trend will also be driven by legislation designed to encourage people to remain in the professions whilst ensuring that professional standards meet community expectations.

EDUCATION TRENDS

Universities around the world recognise that the existing systems of education will quickly be overwhelmed by the pace of change. There is no way existing frameworks could respond successfully to a doubling of technology and understanding every nine months. As a response, they have developed the trend towards more generic education at undergraduate level, with an emphasis on 'tacit' knowledge⁶ to underpin specific or articulated knowledge, an understanding of workflow and process and a strong research and study habit. They understand that these are the tools that will be required to maintain employability, rather than guaranteed employment, as has been the case in the recent past.

Universities and business also recognise the need for consistent, transportable international qualifications. In 1999, education ministers from 29 European countries, signed the Bologna Declaration that is intended to guide the European higher education sector towards convergence by coordinating their government's policies. It is noted *"European higher education systems are facing common internal and external challenges related to the growth and diversification of higher education,*

⁶ Tacit Knowledge; Karl Eric Sveiby; 1997

the employability of graduates, the shortage of skills in key areas, the expansion of private and transnational education”.

Essentially the declaration proposes three year undergraduate degrees with follow-up masters degrees and PhD's for those wishing to specialise or enter academia.

These are precisely the challenges we all face. Most Australian universities are moving in the direction flagged by the Bologna declaration, some more overtly than others.

In addition, under changing government funding regimes and financial pressures to run profitable courses, there is a trend towards consolidating faculties and offering more generic undergraduate degrees. It is generally agreed that the vocational skills of today will not necessarily be the skills of tomorrow and that it is more important to educate graduates in critical and creative thinking, leaving vocational skills to be acquired in other ways, as they were before 1960.

This is not a new concept for universities. It has always been the practice for graduates of sciences and the arts to undergo further vocational training in their chosen field after graduation. I believe that the move towards generic degrees is not necessarily harmful to the profession and at best has the potential to offer significant advantages, if handled carefully.

There are, of course, costs and pitfalls that must be understood. It is likely that full-time undergraduate degree courses will fall back to educating students in critical and creative thinking, with knowledge of project and construction processes, communication and management skills. It would be a specialised kind of management degree. These courses would not last longer than two to three years. Beyond this, vocational skills would be acquired by combinations of postgraduate and special courses, on-the-job experience, corporate training, personal study and life long learning.

There are practical pitfalls and problems with such an approach. Firstly many young people leaving school, and their parents, still have an expectation that after completing a course of study for a vocationally directed degree that they will be prepared to work in a job or profession. This may not be the case. After qualifying they would be looking at two to three years additional study to fit them for a particular career path and after that a life-long commitment to acquiring knowledge.

This prospect may well deter school-leavers from entering such a course in favour of a more structured career path. At present marketing for undergraduates is shared between the profession and faculties who have a vested interest in maintaining strong single strand undergraduate courses. Both would need to carefully target undergraduate entry post-graduate marketing in different ways to attract good quality students into the professions. Without structured courses to fill, it is suggested the Universities could well be disinclined to market individual professions.

It is also known that students develop core professional attitudes from early exposure and study in their particular discipline. We know that these attitudes (part of their tacit knowledge) are important and valuable to employers. Just as young

architects develop an early appreciation of spatial and environmental concepts, young quantity surveyors develop a particular style of critical thinking, based on an understanding and appreciation of the components and processes of construction that comes from measuring work. We do not know how we will replace this early skill development and subsequent attitudes if graduates are required to learn these core motivational skills on-the-job after graduation, when their attitudes have already been formed.

It is likely that universities and the professions will respond to today's education and qualification challenges in a variety of ways. The approaches are unlikely to be as homogenous as they have been in recent history. Some universities may retain strongly focussed degree courses with a high vocational content. These courses will attract students who are seeking a degree with a limited streamed outcome. They will also attract international students who have neither the time nor the capability to seek out education options over time. It would be expected that graduates would acquire all the necessary core competencies for base professional entry through study in such a course.

By an large however, it is expected that universities will offer more generic undergraduate degree courses, with vocational skills acquired by graduates on an as-needs basis in a variety of ways.

CONTINUING PROFESSIONAL DEVELOPMENT

Although some professionals resist more compulsory continuing professional development, it is very obvious that rapid change in services offered and in the way they are offered will continue to put pressure on professions to maintain more and better professional development in order to ensure that their members remain employable and relevant, even in the very short term.

As if that motivation were not enough, Governments in Australia are continuing to demand properly regulated CPD for compulsory and voluntary registration, quality assessment and other certifications that are required for Government work.

It, in turn, puts pressure on regulating bodies, professional institutes and other gatekeepers of professional standards to provide more and better, readily available professional development programs.

Professional development will become indistinguishable from competency training.

COMPETENCE BASED TRAINING

What is knowledge, and how do we acquire it? - Knowledge is the assimilation of information and the ability to apply it in various and intelligent ways to particular situations.

What is competence, and how do we acquire it? - Competence, in a professional context is the ability to perform technical tasks.

How do these apply to professional services? - The added value of a professional service is the application of knowledge of a range of variables related to, but outside, the technical task.

It is no longer practically possible for a Qs to be competent in all areas of practice at all times, especially those we do not even know about yet (for example, building information integration). In the future it will be more reasonable to expect members will be conversant with all core competencies and thoroughly competent to undertake the work they are doing at any particular time in their career. A consulting quantity surveyors should have a general knowledge of the entire range of competence and a knowledge of what, when and how to engage specialist advice when it is needed.

Core and specialist competencies will be acquired on an on-demand basis for a number of reasons. These are: -

Competencies will be acquired (and discarded), even quicker than before in response to quickly changing technologies and techniques.

Employers want staff to quickly acquire competencies that they require to complete their work at any point in time. As staff move through an organisation, or through their career, they will continue to acquire new, relevant skills that they require at the time. In this way they will not risk acquiring redundant skills.

Most students, other than those academically inclined, want to enter the workforce as soon as possible. It is not practically possible to hold students in vocational study for extended periods of time to allow them to acquire competencies that they may or may not use before they expire through time and advancing technology.

Competence can be acquired in a number of ways. These are -

- ☐ post-graduate study,
- ☐ external study,
- ☐ self-study, and
- ☐ on the- job training.

Universities, professional bodies, technical colleges and private educators are likely to offer courses of further study, sometimes in collaboration.

Life-long learning, including regulated continuing professional development is likely to be delivered in the same way and will be seamlessly integrated with the acquisition of further and specialist competencies.

The Australian vocational education and training (VET) system is recognised as among the most sophisticated in the world because it is:

Industry led - employers and industry representatives define what outcome is required from training.

National – the system is jointly managed by state, territory and Australian governments.

Client focused – it is flexible and relevant and responsive to client needs.

The fundamental elements of the system are:

the Australian Qualifications Framework (AQF)

the Australian Quality Training Framework (AQTF)

registered training organisations (RTOs)

state and territory registering authorities

The Australian Qualifications Framework

The AQF defines all nationally recognised qualifications. It provides a single framework for all qualifications from Senior Secondary Certification to PhD. Within the VET sector the following qualifications can be issued:

Certificate I

Certificate II

Certificate III

Certificate IV

Diploma

Advanced Diploma

Under the AQF, the achievement of a group of competencies leads to the attainment of a VET qualification.

The VET system is an ideal vehicle for certifying competency in Australia.

CERTIFICATION AND ACCREDITATION

One of the things that distinguishes a profession is that its members collaborate to define a body of knowledge and undertake to train, certify and accredit members so that clients and the public may be confident in the services they deliver.

The same rapid change puts more pressure on professional service “gatekeepers” as to how they admit members and how they train, certify and accredit members to undertake particular competencies as they pass through their careers.

Clients have already advised us⁷ that they want the quantity surveying profession to be accountable for itself. By inference, the professional institute must also be accountable by taking responsibility for certifying and accrediting the competence of its members and for monitoring and managing the standards of services delivered under its name.

This responsibility is far from an easy one to shoulder, particularly in rapidly changing environment. The professions must reconsider their entry and accreditation standards to ensure that they and their members remain accountable for their qualifications during the entire span of their careers, in the face of rapid change.

In my view, the single entry model that has been the long-standing basis of entry into professional bodies is not sustainable, even in the short to medium term. It is not sufficient to manage and control the standards of competence for the many and varied services that quantity surveyors will continue to deliver.

A new model is urgently needed to monitor and maintain professional standards of competence in the immediate future.

COMPETENCE-BASED ASSESSMENT

Competency-based learning and assessment, under the Australian Qualifications Framework, has been willingly adopted by the construction trades.

The professions have, however, held themselves above skills training, preferring to cling to universities for vocational training as well as higher education. They have been slow to adopt competence based assessment for entry into their institutions, preferring to rely on input based agreements negotiated from time to time with universities. The input based models are no longer appropriate for a number of reasons, including the move towards multiple specialisations and the reluctance of universities to offer long vocational degree courses.

Competence based assessment is a better way to admit new members because it is objective, fairer, more flexible to cope with changing specialities and it has the potential to recognise many more entry paths into the profession.

There is a strong move in the world towards personal education and development. We should give recognition to this trend and make a place for it within our entry paths. With a move towards competence based membership criteria and assessment, the way in which members are admitted and accredited will change.

We will do away with the single point of entry “high jump” approach to professional membership in favour of an as-needs “hurdles” method.

⁷ AIQS “Andrews” marketing survey and plan 2005 – 2007.

At present applicants must acquire all the core assessment criteria and experience for a single entry test. Because of the complexity of services offered, the test has become ad-hoc and inconsistent from one region to another.

In future, members will, after graduation, acquire competencies in particular areas of practice over time as they need or want them, until they are able to apply for and be granted elevation to general practice or to any of a number of specialist areas.

Such a system will require more commitment on the part of the Institutes to their admission and accreditation processes, but it will enable significantly better control and management of the quality of membership. This will be important in Australia as voluntary professional registration schemes take effect. Membership of our professional organisation at any level above ordinary membership will once again mean much more than holding an undergraduate degree. It would be the basis of a true partnership between the educators and the profession.

As the nature of employment, specialisation and quantity surveying itself changes, the current "GP" model of membership is likely to become less relevant and it is the professions responsibility to ensure that it has a structure that is relevant to the needs of members now and in the future. Under more generic regimes, the profession itself will once again be the gatekeeper of the profession. Using self-controlled schemes to establish standards that accord with community and industry expectations, guided by professional Services legislation, the AIQS will again become the sole agency recognising and accrediting quantity surveyors in general practice and in specialist areas of expertise. Partnership between universities and professional associations will remain, although a university degree will not necessarily be synonymous with qualification.