QUANTITY SURVEYORS' PERCEPTIONS OF THE ROLE AND CAPABILITY OF TERTIARY EDUCATION IN NEW ZEALAND

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ABSTRACT

Although in the past there have been various pathways into the Quantity Surveying profession in New Zealand, the most common route currently is through a Diploma or Degree in Quantity Surveying or Construction Economics. Tertiary courses seek to instil the fundamental skills and knowledge that are needed within the Quantity Surveying profession, which are then developed throughout an individual's career. However, the adequacy of education for the profession is frequently questioned by practitioners, and there is ongoing debate about the role of tertiary courses and their ability to deliver successful graduates.

In order to assess Quantity Surveyors' perceptions of the role and capability of tertiary education in New Zealand, an online survey was carried out with the support of the New Zealand Institute of Quantity Surveyors (NZIQS). Of the 75 practising QSs who participated in the survey, the majority believed that the role of tertiary education is to focus on the basic technical abilities needed within the Quantity Surveying profession, leaving more advanced skills and knowledge to be developed once graduates are employed in the industry. Overall, respondents considered that existing tertiary courses adequately provide the education needed to start in the Quantity Surveying profession, although a common recurring theme was the need for greater collaboration between tertiary providers, industry and professional institutions to determine what is taught. Views offered regarding the importance of various skills and types of knowledge required were often contradictory, indicating that consensus on the role and function of tertiary education for the profession is not so easily obtained.

Keywords: quantity surveying, educational capability, industry role, academic role

INTRODUCTION

Tertiary education is the start of the pathway into the modern Quantity Surveying profession. Quantity Surveying trainees may study while working or qualify first before starting to work as a Quantity Surveyor, but in almost all cases they undertake a degree or diploma course as part of the qualification process. Because of this, it is important that there is a clear relationship between the material taught in the tertiary institutions providing this education, and the industry's expectations of the role and abilities of Quantity Surveyors. The objective of this study was to gauge whether the perceptions of practising QSs in the New Zealand construction industry match the concerns and challenges identified in similar international research.

A traditional view of professional education is that students are taught a preliminary overview and understanding of the tasks they are required to perform, and once they are in industry they expand on what they have learnt. This is consistent with the view of Ashworth and Hogg (2007), who identify that the fundamental objective of tertiary education is to develop an understanding of the principles and concepts relating to QS practice, so that graduates have a basic set of skills and knowledge to undertake tasks expected of them. Even considering the basic principles, however, this can represent a significant range of topics of study. As Williams et al. (2008) identify, "the education of construction and building professionals at Universities is unique as the curricula straddle diverse areas such as building technology, design, law, management and finance" (p1). Hoxley (2012) identifies that a similar variety is specific to QS education, where he suggests the main elements should consist of "construction technology; law and responsibility; economics and finance; building pathology; planning and design; environmental and material science; and management." (p220). Changes to practice, including advances in technology and increased emphasis on environmental sustainability and building life cycle, have also added to the challenge.

Internationally, there has been considerable research to identify how well tertiary courses meet wider industry expectations. A number of studies have argued that tertiary education does not achieve the aim of producing graduates who have the skills demanded by employers. (Manthe & Smallwood, 2007; Williams et al., 2008; Lee & Hogg, 2009; Davis & Savage, 2009; Siriwardena et al., 2011). Perera et al. (2010) distinguish between three different stakeholders in QS education—the academic sector, professional bodies and industry. These stakeholders have different requirements of QS graduates, so even highly successful graduates may not meet expectations of a particular group. Toor and Ofori (2008) similarly argue that there is a gap between universities, industry and professional bodies and suggest that all parties involved with the education of graduates should adopt an integrative and

multidisciplinary professional approach in relation to all education within the construction industry. Toor and Ofori (2008) state that "many universities fail to listen to the views of employers and professional bodies on the adequacy of the graduates' education" (p.281).

Hoxley (2012) surveyed graduates' views of QS training in the UK, and reports comments such as, "very out of touch with industry itself" and, "I left university feeling disheartened and unprepared for my day to day job" (p226). Criticisms such as these support the argument that tertiary providers need to modernise the courses they provide in this area and be more responsive to the skills required within the construction industry (Siriwardena et al., 2011).

In some cases it appears that employers have unrealistic expectations of tertiary education. Scott et al. (1997) identified that graduates entering the workplace can be placed in positions that are of high responsibility with little previous experience in knowing how to handle it or what to do in a particular situation. Love et al. (2001) also comment that "(Managers) typically expect graduates to be able fit into their workplace almost immediately and deal with the problems that are thrust upon them. In fact, it would be reasonable to say that many expect too much of graduates in this instance." (pp. 588-589). More recently, Siriwardena et al. (2011) identifies that a mismatch between the skills of recent graduates and labour market expectations is one of the main contributing factors behind graduate unemployment and employer dissatisfaction in the Built Environment sector.

METHOD

In order to gain an understanding of current views in the industry regarding the role and capability of tertiary education, a survey was carried out which targeted practicing Quantity Surveyors throughout New Zealand. The questionnaire did not differentiate between diploma and degree level qualifications, nor did it focus on any particular tertiary provider.

The questionnaire was divided into four sections. Section 1 collected some basic demographic data to identify the characteristics of participants. Section 2 used Likert-style questions which required participants to indicate their level of agreement with statements regarding the role and function of tertiary providers in QS education. Section 3 used a different rating approach which asked participants to rate the importance of QS skills and knowledge, alongside their opinion of how well they are taught by education providers, under the four categories of pre-contract skills and knowledge, contract works skills and knowledge, general QS skills and knowledge, industry skills and knowledge. Section 4 asked open-

ended questions which allowed participants to provide more in-depth explanations and further elaborate on their responses.

The questionnaire was developed using the online survey program Survey Monkey. The NZIQS distributed the web-link to the survey in the weekly email bulletin to Quantity Surveyors on their database, which covered approximately 1000 registered members. In addition, professional networks were used to contact Quantity Surveyors who distributed the questionnaire amongst their co-workers. This was intended to allow input from Quantity Surveyors who do not belong to the NZIQS.

The first question limited the survey to QSs currently practicing in New Zealand, which excluded 14 of the initial 89 respondents. The remaining 75 respondents contributed data that was useful for the study, with 63 respondents completing the entire questionnaire. The most common reason for partial completion was that respondents felt they had not been sufficiently exposed to recent graduates to make a fair judgement of the education process. This number of responses represents a very small proportion of the QSs who will have received the invitation to participate. As such, this survey provides an indication of the perceptions of current QSs, but cannot be considered representative.

RESULTS

Characteristics of respondents

The respondents reflected a broad cross-section of the sector, across a variety of training, experience levels and professional background. Only three of the respondents were industry trained; 36 had done a diploma course or New Zealand Certificate in Quantity Surveying (NZCQS); 28 had completed a degree and four a postgraduate degree. There were four other miscellaneous QS-recognised qualifications. The majority of the respondents (53) had undertaken their relevant study in New Zealand. Nine had studied in the United Kingdom, three in South Africa, with the remainder from Malaysia, Sri Lanka and Hong Kong.

All participants were asked how long they had been working as a QS, and the type of firm in which they were employed. Their responses are shown in Figure 1. There was an even split between responses from Professional Quantity Surveyors and Contractor Quantity Surveyors. Other responses came from participants working for themselves who sub-contracted to either or both main contractors and consultancy firms, or participants working in project management firms. The majority of the participants (70%) were in senior or managerial positions.
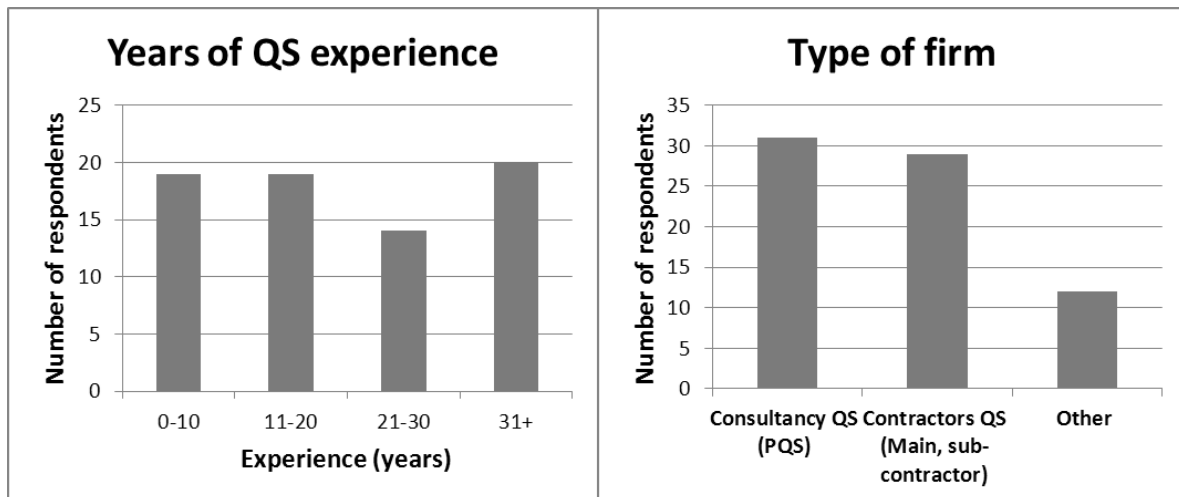
Figure 1 Respondent characteristics: experience and type of firm

Role of tertiary education

Participants were asked to indicate their degree of agreement to a set of 10 attitudinal statements, on a five point scale from strongly disagree to strongly agree. These statements were drawn from a review of the literature, and were intended both to provide an indication of beliefs about the role of tertiary education, and also to act as prompts for the open ended questions later in the questionnaire.

Overall, participants felt that the role of tertiary education is to train students in the fundamental skills that allow them to enter the workforce as functioning QSs. Three-quarters of respondents agreed or agreed strongly with the statement that "the role of tertiary education is to deliver work ready graduates", with only 12% disagreeing. One respondent who strongly agreed argued that "a graduate should be able to hit the ground running with minimum supervision," a position that was widespread amongst respondents. However, one participant who disagreed with the statement suggested that the difference between "the theory that is taught and what happens in practice is like learning the alphabet and grammar then being expected to write an essay."

The statement that received the strongest response was that "Tertiary programmes should be aimed at providing the basic competencies for the QS role", with 52% of respondents strongly agreeing, and 31% agreeing. The majority disagreed (39%) or strongly disagreed (14%) that "Tertiary education should place more emphasis on the theory behind the skills rather than how to execute the practical tasks", although 30% of respondents did support this statement. Comments from several participants followed similar lines to the respondent who said, "Although the theories behind the various aspects of QS are adequately taught, I believe the practical application of these theories could benefit students even more." Other participants stated their belief that currently there is

too much theory and a need for a change to a greater focus on "practical" and "hands on experience."

Despite this emphasis on practical skills for immediate use, there was also significant support for the idea that tertiary education has a role in developing skills and knowledge for future needs, beyond current practices. 85% agreed or strongly agreed that "Tertiary providers should teach new and innovative approaches not just current practices". Participants particularly noted the importance of teaching students about applications and innovations in information technology, with advances in computer software and increasing pressure for its use within the QS role, particularly in relation to BIM, on-screen takeoff and commercial software packages. In relation to this point, participants also commented on the role of tertiary education in supporting continuing professional development (CPD) for qualified QSs, due to "forever changing construction methods and more advanced computer software."

The statement with the highest level of agreement overall was that "There should be more collaboration between tertiary providers and industry", with 90% of respondents agreeing or strongly agreeing. This result directly corresponds with the low agreement with the statement that "Education providers should have the skills and capability to deliver QS courses without requiring industry involvement", and clearly supports the role of industry contribution to QS education, in partnership with tertiary providers. one participant said "industry needs to become more proactive … in the form of providing feedback to tertiary providers on curriculum taught and industry expectations so there are no false expectations of one another." However, although participants thought there should be more collaboration between tertiary providers and industry they were less certain about having a government/industry alliance involved in specification of the curriculum. While the majority of participants agreed that it was a good idea, 25% remained neutral and 15% disagreed that "a government/industry alliance should be involved in specification of the QS curriculum."

Capability of tertiary providers

Respondents rated almost all of the listed skills as being important or very important to current QS practice. The most highly rated skill was the ability to read and interpret plans, with an overall score of 96%, and the lowest was knowledge of the management and maintenance of buildings, with a score of 59%. The capability of the tertiary institutes was rated much lower, with the scores hovering around the 50% mark, indicating an adequate rating from participants. Construction law was the subject considered to be taught best, at 68%, with negotiation skills considered the poorest taught with a score of 46%. Figure 2 shows all of the skills or

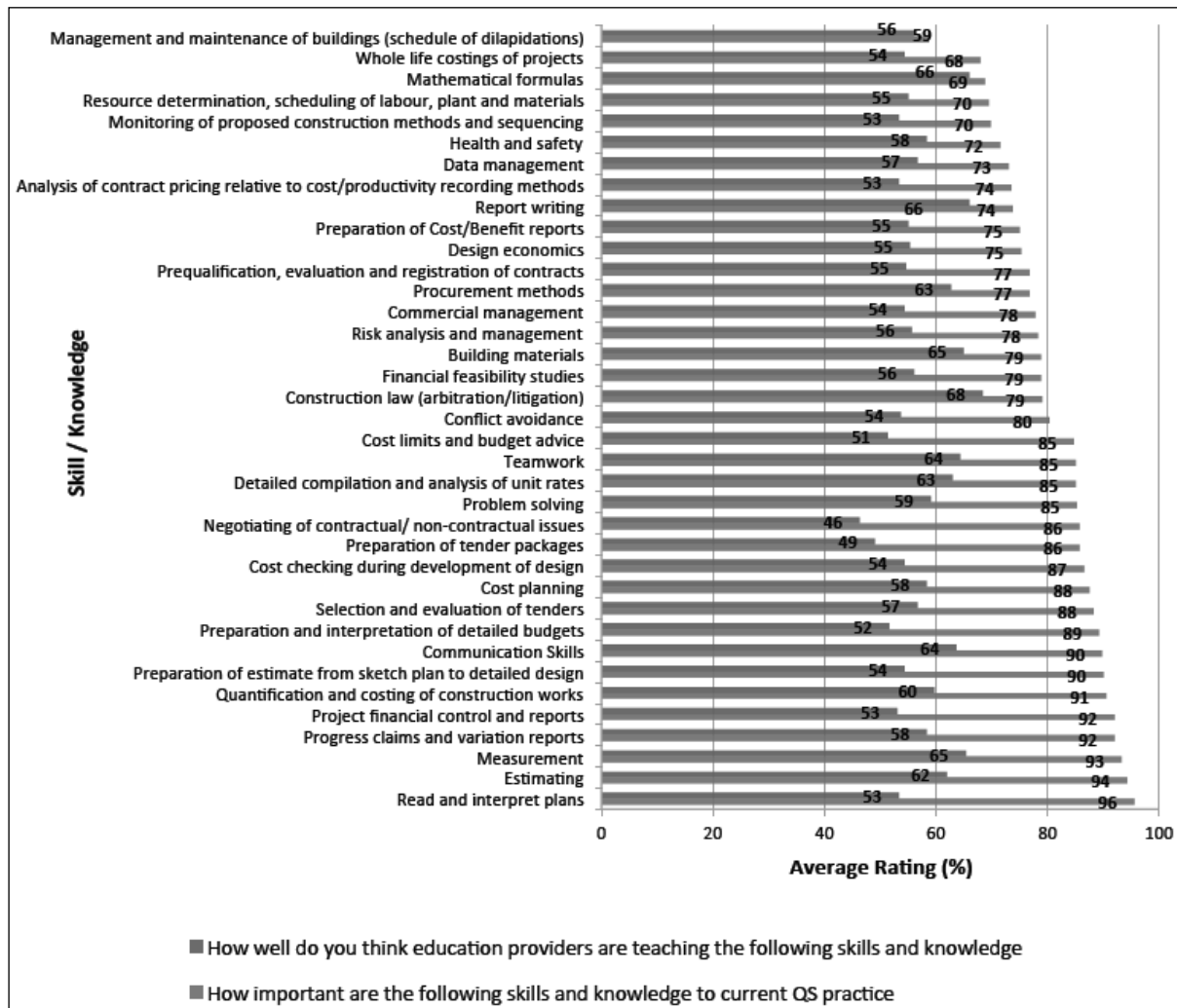knowledge sets along with their importance rating and participants' opinion of how well they are taught.

Figure 2 Rankings of importance and teaching quality across QS skills and knowledge

Overall there was very little variation in the ratings of either importance or teaching quality. However, the answers to open ended questions reveal some differences in the underlying reasons for the ratings. For example, Soft skills like teamwork, communication skills and negotiation skills were ranked in the top half of skills and knowledge that participants perceived to be important to a current QS. As expressed by one participant, "You can be top of the class at the numbers stuff, but still hopeless in the industry if you don't have the communication, negotiation, networking skills and the ability to build relationships." The education providers were rated as poor or barely adequate in many of them; however, the comments showed a division on whether such subjects were appropriate for a classroom environment. One participant said, "Every firm has their 'way of doing things'…it is less critical that QS tertiary students are taught these kinds of "soft' subjects, and more important that they learn the hard, technical skills needed by employers." Another perspective was that

juniors do not need to know about the 'big-wig management areas" so these should be left to develop with experience rather than as part of the tertiary education.

Estimating and measurement were both among the top ranked skills and knowledge, with scores of 94% and 93% respectively. These relate directly to a number of other highly ranked skills, such as quantification and costing of construction works (91%), and preparation of estimate from sketch plan to detailed design (90%). These four skills also relate to the number one skill, read and interpret plans, as all these skills involve the QS being able to read and process information from the technical drawings produced for either tender or building works. Participants thought education providers were teaching these skills and knowledge adequately, with ratings between 55% and 65%. However, these were the skills most frequently mentioned by respondents in the open ended questions, with statements such as, "There is far too little emphasis on basic measuring by longhand or computer based measuring", "Quantities measurement is the foundation of QS skills," and, "I believe that more emphasis should be placed in preparing students in estimating and cost planning as they are fundamental to preparing tenders." Given the level of importance placed on these subjects by the QS industry, tertiary providers may find it necessary to review their teaching in this area.

Tertiary providers are considered capable to teach the skills and knowledge needed within the Quantity Surveying profession, as most of the skills and knowledge scores were between 54% and 58%. This demonstrates that participants think that tertiary institutions are doing an adequate job in teaching the skills and knowledge needed within the profession. A third of the skills and knowledge within this study were perceived as being taught above 60%, so tertiary providers are seen as teaching some aspects of Quantity Surveying to a satisfactory standard. However there were two skills that were perceived to be taught poorly which were "negotiation of contractual/ non contractual issues" and "preparation of tender packages." This may indicate that these skills are best learnt on the job in a real-life working situation, as both of these skills are quite complex in nature and could be difficult to teach in an education environment. However, it has to be conveyed that tertiary education is just the foundation to what Quantity Surveyors learn as each firm has their own way in carrying out tasks. This was supported by one comment, "I believe the education I got was good but I learned a helluvalot on the job."

The lack of standardisation across the various tertiary providers and between the degree and diploma qualifications was an issue raised by a number of respondents in the open-ended questions. They suggested that it is difficult to differentiate between the different programmes (degree/diploma) and that there is a huge difference in how the programmes are taught between individual institutions. Two different

viewpoints were represented, one that there should be more collaboration between providers to make programmes more standardised, perhaps through the use of external monitors such as through the RICS curriculum; the opposite view was also expressed, that providers could specialise to meet different industry needs, with specialisations such as the PQS or contractor QS role, or for specific project types such as mechanical or civil engineering.

CONCLUSIONS

Quantity Surveyors perceive that the role of tertiary education is to provide graduates with the basic competencies of the Quantity Surveyor skill and knowledge base. The role of tertiary providers is also thought to be to teach students new and innovative ideas, for example computer-based measuring software and the use of BIM.

The skills considered most important within current Quantity Surveying practice were estimation, measurement, and the ability to understand technical drawings. Participants emphasised that tertiary providers should focus more on these areas, although ratings indicated that the overall perception was that these skills are being taught adequately. Participants thought that tertiary institutions do an excellent job in teaching construction law, report writing and mathematical formulas, although these areas were rated as not being of high importance to current Quantity Surveying skills and knowledge.

Although these findings represent the viewpoints of a limited sample of practising Quantity Surveyors in New Zealand, they are nonetheless consistent with the findings from other studies (e.g., Hoxley (2012), Perera et al. (2010), Williams et al. (2009)). Across the various surveys there are minor differences in the perceived relative importance of different skills, or the capability of education institutes to teach them, but the industry's overall perception of QS education in New Zealand appears aligned with that in Australia, the UK or South Africa.

There is a strong view, in this study and others internationally, that tertiary education requires support from industry and professional institutions, and that collaborative alliances need to be established involving tertiary providers with industry and professional institutions, to determine what and how tertiary education should be teaching QS students.

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