

Evaluating the Required Quantity Surveying Competencies: A Perception of University of Johannesburg Quantity Surveying Students

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Abstract

The South African quantity surveying profession is faced with new challenges that the 21st century has brought along. Aspects such as technology, social development, merging of tertiary institutions have brought forward new aspects in qualification. New competencies are required as the industry is evolving with time. The curriculum, which has been in place and used for years by the former Technikons', which are now University of Technology or Comprehensive University suggest a review. This research survey focused on the students' perspective as major role players in the construction industry on the current quantity surveying competencies required. A descriptive survey method was adopted, which involved the use of structured questionnaire in an in-depth exploration of the constructs underlying the subject matter of the research. Purposive sampling was used where the researcher selected a sample in this case building students pursuing quantity surveying at a Comprehensive University. The sample consisted of 30, fourth year students undertaking Baccalaureus Technologiae Quantity Surveying and 61, third year National Diploma Building students. The results indicate the most important competencies required are; costing and estimating, knowledge and practice of construction contracts, leadership and management, and financial management as they had a mean score of between 4.20 and 5.00.

Keywords

Competencies, Curriculum, Perception, Quantity Surveying, Students

1. Introduction

Quantity surveying is considered as the major profession which alleviates problems in terms of cost management. Through the years, this profession has attracted many students to follow that specific path of the industry but, the profession is changing and needs have been observed by different researchers in terms of competency, skills and training. All these aspects find the need to be improved when facing new challenges such as new technology, changes of the environment in which the industry evolves and new type of materials put in place. Willis *et al.*, (1994) trace the

developments in the quantity surveying practice from the 1950s to the 1990s and they indicate that the key role and work of the quantity surveyor has evolved from one of single-stage selective tendering, approximate estimating and final accounts to whole-life costing of projects, coordination of project information, and value engineering.

Brandon (1990) suggested that the professions continuing relevance and growth could require enhancing its knowledge domain so that it can move quickly into new areas of service as opportunities arise and at the same time move away from old methods when technology and competition make them redundant. Due to these factors education reform, the programme structure and the curriculum should be frequently reviewed, and suitable adjustment be made. According to Miller *et al.*, (2000), South African government policy indicates that cooperative education should bridge the minds of students at higher education institutions and the industry in which they hope to develop their future careers. To achieve this national objective, institutions of higher education have to pursue strong relationships with, and input from, stakeholders and industry concerning their fields of study. This industry-sensitive objective must be designed to help students in their transition from school to the work place.

Authors have argued that there should be an appropriate teaching approach that bridges the perceived gap between formal academic instruction and on the job training (Kim *et al.*, 2002). It is within this context that several have influenced curriculum design through initiating simulated world of work practices and prompted the development of student centered learning approaches (Drahum *et al.*, 2004). The role of tertiary education is important as demonstrated by Badu *et al.*, (2004) who have shown that in Ghana tertiary education, in terms of quantity surveying education, are key centers for developing and fostering the necessary manpower needed to achieve a better society.

Consequently, developments in the teaching of quantity surveying in tertiary institutions have evolved from sole emphasis on measurement, estimating and tendering, property studies and technology to involve a wider competency base incorporating management, economics, law and science (Nkado, 1999). According to Mbachu *et al.*, (2005) these improvements are aimed at producing graduates who are well equipped to meet the challenges of the professional practice, and to effectively pursue careers in related disciplines such as facilities management, property business, project management, arbitration and dispute resolutions.

2. Factors underpinning the development of quantity surveying teaching

As the needs and expectations of construction clients have changed, particularly since the 1990s, so have the expectations of professional services in the built environment. Whereas professional services have been engaged without hesitation in the past, questions about relevancy in terms of value added are now being asked (Procter, 1997). Various authors have indicated factors underlying the need for development in the teaching of quantity surveying. These factors include:

Globalization pressures have eroded national boundaries, permitting free flow of goods and services across nations. This has introduced stiff competitions in the provision of services. The concept of best practice is gaining popularity. The whole development presents opportunities as well as threats. Thus the cocoons of professional practices within every national enclave have been broken, thereby exposing the practitioners to either adapt to the new ways of exploring the opportunities presented, or stick to the old ways of doing things and be drowned by the tide of globalisation (Nkado *et al.*, 2002). Knowledge of relevant laws is no longer reserved for lawyers, but all professional service providers. This is evident in the increasing need for arbitration and dispute resolutions. Thus the quantity surveying graduate needs to be equipped with the

knowledge of human resources management, and contract and company laws, in order to effectively contribute to the arbitration and dispute resolution processes (Mbachu *et al.*, 2005).

The fragmentations in the construction industry have engendered rivalry and distrusts amongst the professions and other links in the value chains. The inability of the construction industry to meet set targets has been blamed on the lack of synergy arising from the inability to forge interdisciplinary teamwork (Mbachu *et al.*, 2005). Gray (1996) for example observed that, in the UK building industry, the opportunities to generate additional value within the production process are deterred by fragmentations. In view of this, Mbachu *et al.*, (2005) indicated that the traditional procurement approaches are being constantly criticized, giving rise to innovative alternatives such as project management and partnering concepts. Successes in these new approaches are built upon interdisciplinary teamwork. To equip graduates with the needed skills and knowledge in these areas, the tertiary education curricula are now being restructured to include group dynamics, teamwork, time management and interpersonal skills.

Clients of the construction industry are constantly introducing changes in the development process, and require professionals to effect these changes with speed and accuracy. To do these, there is increasing need for computerisation of the professional practice. Manual manipulations of data are now being replaced with fast and efficient processing using computer software. Consequently the curricula of the quantity surveying programmes in the tertiary institutions are now incorporating information technology and computer applications (Mbachu *et al.*, 2005).

The South African Council for Quantity Surveying Profession (SACQSP) encourages diversity and innovation amongst individual quantity surveying tertiary educational program. Individual institutions are free to determine how the competence of students is assessed and how students attain prescribed outcomes (Standards Generating Body for Quantity Surveying, 2002). According to Mbachu *et al.*, (2005) the quantity surveying programmes of some tertiary institutions now include courses that were traditionally taught in the domains of management. Their inclusion in the curricula represents a significant development in the teaching of quantity surveying.

However, there are few studies, if any, and even less published research that evaluates the student perspective on quantity surveying required competencies. This paper reports on the findings of a study conducted to assess the student perceptions of the required quantity surveying competencies. This research will further investigate the motivating factors of the students in pursuing quantity surveying career, investigate if there is a language barrier between lecturers and students and determine methods of improving the quantity surveying program at a comprehensive university.

3. Problem Statement

The principle objective of the research was to determine the competencies students perceive are required for quantity surveying profession. The research aims to investigate the cohort of quantity surveying students in the third and fourth year of their studies i.e. national diploma building and baccalaureus technologiae quantity surveying respectively.

The study delved in the following aspects:

- The gender demographic of students pursuing quantity surveying as a career;
- To determine the motivating factors for students registering for this course;

- To determine if there are language barriers between lecturers and students;
- To investigate the most important competencies as perceived by the students; and
- To evaluate methods of improving the quantity surveying program.

4. Research Methodology

The literature review led to the identification of 20 (twenty) antecedents variables related to quantity surveying competencies. A descriptive survey method was adopted, which involved the use of structured questionnaire in an in-depth exploration of the constructs underlying the subject matter of the research.

Purposive sampling was used where the researcher selected sample members to conform to some or other criterion in this case national diploma students and baccalaureus technologiae quantity surveying students. The respondents were attending either, baccalaureus technologiae quantity surveying for (one year full time or two years part-time) and full time national diploma building students. 91 (ninety one) usable completed questionnaires were gathered of which 61 (sixty one) were for national diploma students and 30 (thirty) baccalaureus technologiae quantity surveying students at the University of Johannesburg. This sample size was sufficient to meet the statistical test requirements for group statistical testing. As part of the delimitation of this research, students who are registered for bachelor of technology construction management who had a national diploma in building were not considered for this research. This limits the generalisability of the sample as it excludes students who have obtained a national diploma building. The geographical aspect of the sample further limits the generalisability of the results.

Purposive sampling was used for this research this is a non-probability method, which determines type of respondents. In some respect purposive sampling gives the research qualities of a case study (Creswell, 1994). This problem generalized from the sample to the whole population of quantity surveying students are limitations of the research design and fully acknowledged in this research. The questions were analyzed using the Microsoft excel 2007 to determine the frequency, mean score and standard deviation of the respondents. The questionnaires of the research were administered under controlled lecture room conditions to ensure the standardization of data gathering, to decrease non-response errors and to increase response rates (Cooper *et al.*, 1998). The data was gathered by the intercept method (Cooper *et al.*, 1998) using self-administered questionnaires (Leedy *et al.*, 2010). As the questionnaires were completed anonymously, the collection of the data cannot harm the respondents in any way.

5. Results and Discussions

5.1 To determine the demographic of students

The findings on demographic indicates that majority of the students 64.84% had worked for contractors during their in-service training, followed by those who for consultants i.e. 20.88%. The gender statistics indicates that 68.13% of male students dominate this career opportunity whereas the age group of these respondents was between 20 and 30 years of age.

5.2 To determine what made the students to pursue this career

The result indicates that 37.36% of students wanted to be professional quantity surveyors because they were driven by job opportunities in the construction industry. 10.99% were motivated by other issues which were not stated. This result indicates that majority students pursuing the career

of quantity surveying are not pursuing it for the passion of it, but because of other factors such as job opportunity, being motivated by a relative and a number of students had no reason why they are pursuing quantity surveying as a career.

5.3 To determine if there are language barriers between lecturers and students

It can be indicated from the results that there is very minimal language barrier between the lectures and students as 91 students who completed the questionnaire only 16 i.e. 17.58% of the students indicated that there was a language barrier, but despite this result those students who indicated their was a language barrier need to be helped as this factor is detrimental to their education process.

5.4 To evaluate the important competencies as perceived by students

Table 4a: Quantity surveying required competencies rated by 3rd year students

Competency	Mean	Std.de v	Ranking
Costing and estimating	4.61	0.74	1
Knowledge & practice of construction contracts	4.51	0.77	2
Financial management	4.43	0.85	3
Ability to analyze project risks	4.36	0.82	4
Competitive tendering	4.34	0.77	5
Budgetary control	4.34	0.87	5
Procurement of work	4.33	0.79	7
Executing projects successfully	4.28	0.82	8
Negotiation of contract with client	4.25	0.89	9
Communication skills	4.23	0.74	10
Planning, design & supervision	4.21	0.88	11
Solving problems in projects	4.21	0.88	11
Coordination of project with clients	4.13	0.87	13
Leadership / Management	4.02	0.94	14
Information and Communication Technology (ICT) Skills introducing quantity surveying packages	4.02	0.92	14
Sourcing for funds	3.93	0.998	16
Social skills	3.84	1.14	17
Service oriented (Advising the client on money administration)	3.82	1.36	18
Creativity / innovation	3.79	0.86	19
Entrepreneurship	3.62	1.13	20

The results in Table 4a and 4b indicate the important competencies perceived by the respondents, the respondents were asked to rate the importance of the competencies on a five point Likert scale, 1=not at all important and 5=very important. The very important competencies were between the band of 5.00 to 4.20, the important competencies were in the band of 4.19 to 3.40, neither important or important competencies were in the band of 3.39 to 2.60, slightly important competencies were in the band of 2.59 to 1.80 and competencies that were not at all important were in the band of 1.79 to 1.00. The respondents indicated that costing and estimating is the most important competency as it was ranked 1st with a mean of 4.61 and 4.67 for national

diploma building students and baccalaureus technologiae quantity surveying students respectively. The national diploma building respondents indicated that twelve competencies were very important as they were in the band of 5.00 - 4.20, these were; costing and estimating, knowledge and practice of construction contracts, financial management, ability to analyze project risks, competitive tendering, budgetary control, executing projects successfully, negotiation of contract with client, communication skills, planning, design and supervision and solving problems in projects. The other eight (8) competencies were rated as important as they were in the band of 4.19 to 3.40. On the other hand the baccalaureus technologiae quantity surveying respondents indicated that eight (8) of the competencies to very important as they were in the band of 5.00 to 4.20, these were costing and estimating, knowledge and practice of construction contracts, financial management, competitive tendering, budgetary control, communication, solving problems in projects and information and communication technology (ICT). The other twelve competencies were rated as important as they were in the band of 4.19 to 3.40. As per the results of 3rd year students who are to attain there national diplomas and the 4th year students who are specializing in quantity surveying, the results indicate slight differences in rating due to the year of qualification of the respondents.

Table 4b: Quantity surveying required competencies rated by baccalaureus technologiae quantity surveying students

Competency	Mean	Std.de v	Ranking
Costing and estimating	4.67	0.55	1
Financial management	4.63	0.72	2
Budgetary control	4.60	0.72	3
Knowledge & practice of construction contracts	4.47	0.73	4
Communication skills	4.47	0.86	4
Competitive tendering	4.40	0.77	6
Information and Communication Technology (ICT) Skills	4.40	0.77	6
Solving problems	4.33	0.76	8
Coordination of project with clients	4.13	0.90	9
Service oriented (Advising the client on money administration)	4.13	0.94	9
Planning, design & supervision	4.10	0.90	11
Negotiation of contract with client	4.07	1.14	12
Leadership / Management	4.03	1.07	13
Executing projects successfully	4.00	1.11	14
Ability to analyze project risks	3.93	1.14	15
Sourcing for funds	3.90	0.84	16
Procurement of work	3.89	0.86	17
Entrepreneurship	3.67	1.18	18
Creativity / innovation	3.47	1.33	19
Social skills	3.40	1.43	20

5.5 To determine ways of improving quantity surveying program

In terms of improving the quantity surveying program the results in Table 5 indicate that 13.11% and 10.00% of the national diploma building and baccalaureus technologiae quantity surveying students respectively did not respond. Majority of the national diploma respondents i.e. 24.59% indicated that having lecturers with more updated knowledge was key whereas baccalaureus

technologiae quantity surveying respondents indicated that implementation of quantity surveying software was important in improving the quantity surveying program as indicated by 33.33% respondents.

Table 5: To determine ways of improving quantity surveying program

How to improve the quantity surveying qualification?	National diploma building students (3rd years)	Percentage response	Rank	Baccalaureus technologiae quantity surveying students	Percentage response	Rank
Increase site visits	5	8.2%	5	5	16.67%	3
Implementation of quantity surveying software	8	13.11%	3	10	33.33%	1
Help students find in-service training	10	16.39%	2	5	16.67%	3
Reduce the year program to semester program	7	11.47%	4	1	3.33%	6
Introduce more practical activities than theory	3	4.92%	7	6	20.00%	2
Giving more drawing activities	5	8.2%	5	1	3.33%	6
Having lecturers' with more updated knowledge	15	24.59%	1	4	13.33%	5
No comments	8	13.11%		3	10.00%	

6. Conclusions

In conclusion the results indicate that majority of students are male, which is a trend that is dominant in the construction industry worldwide. The construction industry is always seen to be more masculine than feminine. The findings also indicate that majority students pursuing the career of quantity surveying are not pursuing it for the passion of it, but because of other factors such as job opportunity, being motivated by a relative and a number of students had no reason why they are pursuing quantity surveying as a career. The respondents indicated that costing and estimating is the most important competency as it was ranked 1st with a mean value of 4.61 and 4.67 for national diploma building students and baccalaureus technologiae quantity surveying respectively. The national diploma building respondents indicated twelve competencies to be very important as they were in the band of 5.00 - 4.20 these were, costing and estimating, knowledge and practice of construction contracts, financial management, ability to analyze project risks, competitive tendering, budgetary control, executing projects successfully, negotiation of contract with client, communication, planning, design and supervision and solving problems in projects. On the other hand the baccalaureus technologiae quantity surveying respondents indicated that eight (8) of the competencies were very important as they were in the band of 5.00 to 4.20, these were costing and estimating, knowledge and practice of construction contracts, financial management, competitive tendering, budgetary control, communication, solving problems in

projects and information and communication technology (ICT). The latter competency of ICT is reflective of one way of improving the quantity surveying program at the University of Johannesburg as it was ranked 1st by the baccalaureus technologiae quantity surveying respondents, whereas the national diploma respondents indicated that having lecturers with updated knowledge in quantity surveying was key in the improvement of the program. This result might have been driven by the difference in the year of study of the students.

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