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Competencies of professional quantity surveyors: a South African perspective

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A competency-based review of professional quantity surveying is important for service excellence and has continuing relevance in the built environment of the 21st century. A survey of quantity surveyors in professional practice in South Africa has provided a new perspective on the relative importance of competencies required for current and future quantity surveying services, and revealed notable gaps between the important competencies and current proficiency levels among practitioners. The survey was based on a structured questionnaire reflecting 23 defined competencies, which were derived from the literature and from in-depth interviews with selected practitioners. The results indicated that technically orientated competencies were rated of highest importance for current services, while management orientated competencies were rated of higher importance for future services. The profession was rated as deploying below average proficiency levels in marketing, advanced financial management, leadership and general management, and project management, although these received high current and future importance ratings. The findings suggest that initial and continuing education and training of professional quantity surveyors should emphasize the development of management-orientated competencies.

Keywords: Competencies, ranking, quantity surveyors, South Africa

Introduction

Quantity surveyors add value primarily to the financial and contractual management of construction projects at the pre-construction, construction and post-construction stages. They contribute to overall construction project performance by acquiring, developing and deploying appropriate competencies. A competency-based assessment of quantity surveyors is therefore vital for promoting the excellence and continuing relevance of their services in a dynamic built environment.

Reviews of competencies have swept through most professions (Stewart and Hamlin, 1992a). Competency-based studies have been conducted on specific professions such as the clergy (Barker, 1992), attorneys (Cresswell, 1995), internal auditors (Hassal *et al.*, 1996) and project managers (Fry, 1997; Birkhead, 2000).

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These studies have a common aim: to enhance each quality of each profession's services through intra-professional reflection. This paper presents the perceived relative importance of pre-defined competencies required of current and future quantity surveying services and evaluates the gaps between the desired proficiency levels in the important competencies and current proficiency levels among quantity surveyors in professional practice in South Africa. On-going research on the perceptions of clients and other built environment professionals on the competencies of quantity surveyors will complement the findings reported here.

Competency framework

Competence and competency, though variously defined, can be considered as synonymous. Competency is defined as an ability that a person who works in a given occupational area should have (Stewart and

Hamlin, 1992b), subject to internal and external factors such as organizational type, size, age and activity levels (Barrett, 1992). It is a description of an action, a mode of behaviour or outcome that a person should be able to demonstrate, or the ability to transfer skills and knowledge to new situations within the occupational area (Holmes and Joyce, 1993). Meyer and Semark (1996) view competence as the demonstration of an integration of knowledge, skill, personal attributes and value orientation. Barrett's (1992) in-depth analysis shows that ability, hence competence, is dependent on task specific and context experience, either in terms of quantity or diversity. The focus of this paper is on individual competencies within the organizational or work-related context.

The importance of identifying and building individual competencies in organizations is emphasized by Prahalad and Hamel (1990) and Grønhaug and Nordhaug (1992), who argue that top executives in the 1990s and beyond will be judged on their ability to identify, cultivate, and exploit the core competencies that make growth possible. Also, Tampoe (1994) insists that the basis of organizational competitive advantage is moving from capital and natural resources to 'human capital'. Prokesch (1997) states that building and leveraging knowledge is the key to success in this age of globalization.

Meyer and Semark (1996) and Meyer (1996) have described a well structured framework for the identification and assessment of competencies, as illustrated in Figure 1. National competencies are developed around strategic industries in a particular country. Organizational core competencies include core technologies as well as the occupational, technical, managerial and generic individual competencies (Grønhaug and Nordhaug, 1992; Tampoe, 1994). Organizational strategic competencies are aspects of the business processes and value chains that are essential to a firm's ability to compete in the market.

Individual competencies can be subdivided into occupational and generic meta-competencies. Meyer and Semark (1996) define occupational competencies as those that are necessary for an individual to perform in a particular occupation or role. Vocational competencies refer to the technical competencies necessary to perform according to standards required by a job or occupation. Generic meta-competencies refer to those competencies which transcend specific jobs but which are essential for effective functioning in a modern economy, and include cognitive complexity, relationships, performance, and learning competencies.

Managerial competencies can be defined from two perspectives: an attribute approach which infers competencies from individual behaviour such as goal and action management, leadership, human resource

management; and a performance approach which attempts to frame a set of generic measurable management competence standards. The former approach is credited to the American Management Association's (AMA) McBer study, while the latter is credited to the United Kingdom's Management Charter Initiative (MCI). Spangenberg's (1990) complementary application of the two approaches yields a comprehensive coverage of managerial competencies, and suggests that managerial competencies encompass psycho-motor, cognitive, affective and conceptual skills. Although the McBer approach does not lend itself easily to measurement, Spangenberg (1990) has proposed a detailed matrix of assessment instruments covering both competency levels and organizational levels. A holistic view of managerial competencies would include the foregoing, as well as personal management skills, which Smith (1993) terms, 'know thyself' skills, or 'self-knowledge, self-understanding and self-management', and self-learning (Mole *et al.*, 1993).

The critical point of Meyer and Semark's (1996) analysis is that each competency level in Figure 1 is supported by those below it. Therefore an improvement at any level will require prior improvements in the competency levels below it and will positively impact on the higher levels. Improvement in the individual competencies of quantity surveyors in an economy will ultimately enhance the national competitiveness of that economy. Meyer and Semark's (1996, p. 99) quote from D.S. Karpin can be paraphrased to argue that 'competencies can be most useful to the quantity surveying profession when they are: determined by current and emerging business requirements, based on successful performance, designed to be easily identified and applied, associated with key technical competencies, and developmentally orientated'.

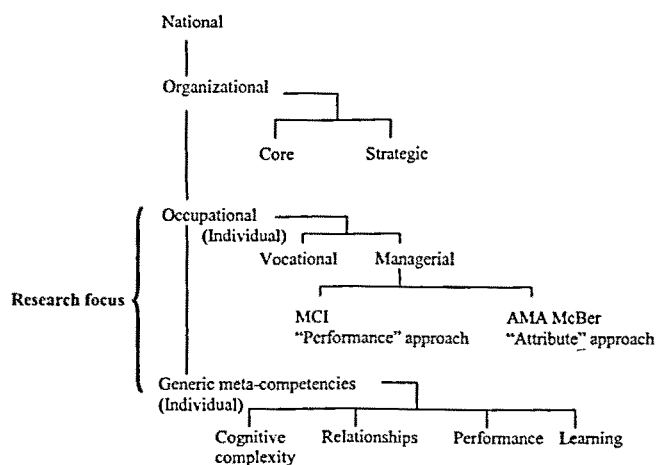


Figure 1 Competency framework (based on Meyer and Semark, 1996)

The quantity surveying profession

Professional quantity surveyors offer a distinct service in the built environment, and would like their professional status and services to be known and upheld in society. Willis *et al.* (1994) define a professional person as one who offers competence and integrity of service using distinctive and skilful techniques. Bennett (1991) suggests that a professional is an individual who has been educated and trained to apply a specific body of established knowledge and techniques to practical problems. Thompson (1968, p. 148) considers that, since society often has no inescapable need to resort to professionals, it is 'up to the men of the professions to maintain the demand for their services by a continuous demonstration that they are more expert and proficient than any private individual or any unqualified practitioner'. Thompson (1968) argues that advancement of professional knowledge and skill would demonstrate to the public that members were continually improving the quality of the services they offered. Further, social elevation of the professions would be achieved by better education and strict discipline. Briffett (1994) and Hassal *et al.* (1996) agree by suggesting that the main aspects of professionalism include: independence of judgement, dedication to the public interest, conformance to a code of ethics and the acquisition of a high standard of expertise.

Brandon (1990) describes quantity surveying as an amalgam of several other disciplines (such as economics, law, accountancy, management, mensuration, information technology, construction technology, etc.) within a unique context of the built environment. The quantity surveyor can also be described as the economist and cost accountant of the construction industry, whose services enable construction clients to achieve optimum value for money (Seeley, 1983, 1984). This description stems from the evolution of the quantity surveyor's role from purely costing alternative design options to pro-actively advising on various aspects of the value of construction projects, even beyond issues that can be quantified in monetary terms (Ferry and Brandon, 1984). Value to clients of the construction industry is commonly reflected in at least three distinct but related aspects of a project: cost, time and quality (Stalk, 1988; Nkado, 1992).

As the needs of construction clients change (NEDO, 1988; Matzdorf *et al.*, 1997) and profound advances in technology occur, the quantity surveying profession faces threats to its traditional roles and functions. Brandon (1990) suggests that an appropriate response from the profession would require enhancing its knowledge domain, so that it can move quickly into new areas of service as opportunities arise and move away from old methods when technology and competition

make them redundant. Male (1990) suggests that, to achieve high discretion and 'cruciality', professional quantity surveyors should move away from routine technical functions and offer services sufficiently distinct from other professions. Male suggests that 'front end' services such as feasibility studies and planning can increase professional authority.

Quantity surveying competencies

The Royal Institution of Chartered Surveyors (RICS, 1971) and Male (1990) emphasize that the distinctive competencies or skills of the quantity surveyor were associated with measurement and valuation which provide the basis for the proper cost management of the construction project in the context of forecasting, analysing, planning, controlling and accounting. Leveson (1996) indicates that quantity surveying competencies lie in the financial and contractual control of the building project but, advises quantity surveyors to pay attention to developing 'soft' interpersonal skills. According to Hassal *et al.* (1996), the process of professionalization demands that a profession should take responsibility for a prescribed body of knowledge by defining first the substantive field of knowledge that the professional should command and second the process of applying that knowledge. Willis *et al.* (1994) summarize that body of knowledge of the quantity surveyor as: preliminary cost advice; cost planning including investment appraisal, life-cycle costing and value analysis; procurement and tendering procedures; contract documentation; evaluation of tenders; cash flow forecasting, financial reporting and interim payments; final accounting and the settlement of contractual disputes; cost advice during use by the client; project management; and specialist services such as expert witness, arbitration, loss assessment, etc.

The Royal Institution of Chartered Surveyors (RICS, 1998) authoritatively set out the requirements for the assessment of professional competence by listing the competencies required of quantity surveyors in three categories: basic competencies, core competencies and optional competencies, as shown in Table 1. The basic competencies are common to all construction professions under the RICS structure, the core competencies are uniquely required of quantity surveyors, while the optional competencies reflect areas of specialization or future career diversification.

As no previous international or local studies have examined the current and future importance ratings of competencies required of quantity surveyors in comparison with practitioners' perceived proficiency levels in those competencies, this study attempts to make a useful contribution in this context.

Table 1 Competencies required for the assessment of professional competency^a

Basic competencies	Core competencies	Optional competencies
<ul style="list-style-type: none"> • Personal and interpersonal skills • Business skills • Data, information and information technology • Professional practice • Law • Measurement • Mapping 	<ul style="list-style-type: none"> • Construction contract practice • Construction Technology and environmental services • Economics of construction • Procurement and financial management 	<ul style="list-style-type: none"> • Arbitration and other dispute resolution procedures • Development appraisal • Facilities management • Insolvency • Insurance • Project management • Property investment funding • Research methodologies and techniques • Taxation allowances and grants valuation

^aSource: RICS (1998).

Methodology

A two-stage descriptive survey (Leedy, 1997) was used for data generation and analysis. The qualitative data production stage comprised preliminary interviews of a convenience sample of ten quantity surveyors in professional practice, with equal representation of male and female, and professionally qualified and non-qualified practitioners in 'large' (over 20 employees) and 'small' (20 or less employees) firms. Request for demographic data (gender, experience, qualification, status), and open-ended questions eliciting definitions and listing of competencies of current and future importance were set on a non-standardized schedule (Zikmund, 1997). Thirty-eight competencies were generated and 23 of these, mentioned by three or more interviewees, were used for the second-stage survey. Subsequent analysis of the responses to the open-ended questions on the structured questionnaire supported the three-response cutoff criterion (Nkado, 1999).

The second quantitative data production stage comprised the design, pre-test and administration of a structured questionnaire nationally among randomly selected members of the Association of South African Quantity Surveyors (ASAQS). Proportional stratified random sampling (Leedy, 1997) from a sampling frame of 2450 registered quantity surveyors and quantity surveyors in training yielded a respondent sample size of 600 for effective representation (Krejcie and Morgan, 1970; Nkado, 1999).

The first section of the questionnaire covered the demographic background of respondents: size of practice, gender, professional status, position in practice, experience, highest qualification, age and future career intentions. The second section requested respondents to rate, on a Likert scale (DeVellis, 1991), their self-perceptions of the following aspects of the competency headings, which were listed in alphabetical order: the

level of importance of the competency for a career as a quantity surveyor in South Africa at present, from 'not important' (rated 1) to 'very important' (rated 5); the level of evidence of each competency in the quantity surveying profession in South Africa, from 'poor' (rated 1) to 'excellent' (rated 5); and the level of importance of that competency for a career as a quantity surveyor in the future, from 'not important' (rated 1) to 'very important' (rated 5). An addendum enumerating the related skills, abilities and outcomes covered by each competency heading was provided with the questionnaire, and a summary of the addendum is presented in Table 2.

A pre-test of the draft questionnaire (Churchill, 1995; Babbie, 1998) by scheduled interviews of seven quantity surveyors in professional practice (excluding the previous ten interviewees) yielded useful feedback which was incorporated in the final version, and subsequently administered to the respondent sample. The postal survey included a covering letter of support from the presidents of the ASAQS and the South African Council for Quantity Surveyors (SACQS), a 'freepost' return envelope and, to ensure anonymity, a separate request form for the summary of the research.

Results and discussion

Response

Table 3 presents the response rate achieved after nine weeks of initial and follow-up mailing. The follow-up occurred after four weeks and excluded only those respondents whose feedback request forms had been received at the time. The 25% final response rate is low, but falls within the response range of similar postal surveys of quantity surveyors in professional practice (Atkin *et al.*, 1993; Procter, 1997).

Table 2 Competency headings and summary outcomes

Competency heading	Summary of abilities/outcomes
Advanced financial management	Interpretation of financial statements, business positions, sources and uses of funds; application of accounting principles
Arbitration and dispute resolution skills	Understanding of and ability to advise on arbitration and other dispute resolution procedures including the relevant law
Computer literacy and information technology	Understanding and use of current information and communication systems, basic and specialist software and the Internet
Construction contract practice	Knowledge of, distinctions between, and advise on forms of contract
Construction technology and environmental services	Understanding of the organizations and practices in the construction process, execution of construction technology, principles of health and safety
Development appraisal	Understanding and execution of development appraisal; identification, assembly and use of relevant data
Economics of construction	Assessment and control of construction costs and risks
Facilities management (FM)	Understanding and application of the principles of FM including strategies, processes and systems
Law	Awareness and understanding of, and ability to apply, relevant law
Leadership/general management skills	Understanding and ability to apply leadership, decision-making, teamwork
Macro-economic perspectives	Reflection of global economic data in economic and business analysis
Managing of joint quantity surveying appointment	Understanding the dynamics of joint appointments; negotiating and managing potential or actual conflicts for win-win collaborative outcomes
Mapping	Understanding of reference systems, scale, two-dimensional drawings
Marketing	Understanding of quality service delivery and marketing principles
Measurement	Understanding and accuracy of measurement of construction works
Personal and interpersonal skills	Communicating effectively; self management and people skills
Procurement and financial management	Documentation and administration of project procurement process
Professional practice	Recognition of the significance of property, ethics of professional practice, role of the professional associations, applicable legislation for practice
Project management	Managing the delivery of projects with appropriate tools and people skills
Property investment funding	Understanding the importance and alternative sources of real estate finance
Research methodologies and techniques	Demonstrating familiarity with, and sources of data, and manipulation techniques; application of analysis and interpretation to client requirements
Skills in managing a business unit	Recognition of client needs and cost-effective uses of appropriate resources; quality control and assurance
Skills to work with emerging contractors	Demonstrating an awareness of and ability to deal with special needs of small local contractors with limited managerial skills

The potential for bias in the respondent sample was investigated by an inspection of the respondents' demographic characteristics, but no bias was detected. A chi-squared goodness-of-fit test of Table 3 at the 0.05 significance level, however, suggests that quantity surveyors in training are significantly under-represented in the respondent sample. As the nationwide survey was based on a probability sample and the respondents' characteristics fell within all the classes of the listed demographic variables, the sample was assumed to be representative of the target population. Furthermore, 58% of respondents requested the results of the study, indicating substantial interest in the outcome.

Re-scaling of ordinal data

A common error in the analysis of Likert scale responses is to treat the ordinal ratings as interval data (Bendixen and Sandler, 1995). However, correspondence analysis can be used to re-scale the Likert scale responses from ordinal to interval data. This is achieved by calculating the Euclidean distance between scale points on the first two explanatory axes and apportioning these distances to recalculate the numerical values of the scale points (between 1 and 5). Bendixen and Sandler (1995) have documented this procedure clearly, which is essential for the parametric manipulation and interpretation of the raw data.

The conversion of the Likert scale was performed separately for each of the three sets of ratings of the

Table 3 Analysis of respondent sample

		Registered member	Membership of the ASAQS		Percentage of total	Response rate (%)
			QS in-training	Total		
Target sample	Male	388	176	564	92	
	Female	30	19	49	8	
	Total	418	195	613	100	
	% of total	68	32	100		
Respondent sample	Male	105	31	136	91	22.2
	Female	9	5	14	9	2.3
	Total	114	36	150	100	24.5
	% of total	76	24	100		

important competencies, the evidence of the competencies and the future importance of the competencies. Table 4 illustrates only the conversion of ratings of current importance, based on correspondence analysis of the ratings for the 23 competencies. The re-scaling shows that any assumption that the original ratings were interval in nature would be questionable.

Relative importance of competencies

The importance of competencies for current career success was ranked by computing the means of the re-scaled respondents' ratings and converting these to percentages on the basis of the maximum rating of 5. Table 5 presents the importance ratings, and shows that three of the traditional core competencies of quantity surveyors, namely procurement and financial management, economics of construction, and construction contract practice (RICS, 1992), are among the five most important competencies currently required of quantity surveyors in South Africa. The outcome further supports the contentions of Male (1990) and Leveson (1996) that the principal competencies of measurement and of financial and contractual control of construction projects underpin quantity surveying.

The results show that respondents consider up to 19 competencies as important. Four of the listed competencies are rated at below average importance. Facilities management and research methodologies are the two lowest ranked competencies, probably due to the larger resource capacity required to exercise such competencies, which professional practices in South Africa currently lack. It should be noted that three of the skills that obtained above average ratings are relevant in a developing economy. These are: skills to work with 'emerging' (local) contractors, skills in managing a business unit, and management of joint quantity surveying appointments, generally involving established (traditionally white-owned) and newer (black-owned) practices. These competencies were identified in the pilot study.

The ratings of the competencies were not normally distributed, as revealed by normality tests (Hintze, 1995). Therefore Kruskal-Wallis and Mann-Whitney U non-parametric tests were used to assess whether the respondents' ratings of the competencies in terms of current importance were influenced by demographic variables. At the 0.05 significance level, only 2 out of a possible 184 (or 1%) significant differences were found. The notable difference was that the female respondents ranked management of joint appointments

Table 4 Re-scaling of 5-point Likert scales for rating of important competencies

		Eigenvalue		Cum. % retained	
Axis 1		0.1726		77	
Axis 2		0.0319		91	
Likert scale for 'importance'		Axis 1 coordinate	Axis 2 coordinate	Euclidean distance	Adjusted 5-point scale
1	Not important	0.968	-0.496		1
2		0.803	-0.257	1.39537	1.806
3	Important	0.265	0.186	2.79721	3.421
4		-0.178	0.097	1.17688	4.101
5	Very important	-0.441	-0.157	1.55618	5

Table 5 Competency ratings

Competency heading	Importance		Level of evidence in use (%)	Ranks: current, future, evidence
	Current (%)	Future (%)		
Computer literacy and information technology	90.0	96.2	59.8	1, 1, 6
Procurement and financial management	89.8	93.8	63.8	2, 2, 2
Economics of construction	88.9	93.3	60.3	3, 3, 5
Construction contract practice	88.1	88.4	60.4	4, 9, 4
Measurement	85.6	81.6	68.1	5, 15, 1
Professional practice	85.4	87.0	61.9	6, 11, 3
Marketing	81.8	90.4	53.5	7, 5, 13
Personal and interpersonal skills	81.5	90.1	56.3	8, 6, 8
Development appraisal	79.6	87.0	55.8	9, 10, 9
Advanced financial management	77.9	89.7	49.9	10, 7, 20
Leadership and general management skills	77.9	85.3	54.0	11, 13, 11
Project management	77.3	90.8	52.8	12, 4, 14
Skills to work with emerging contractors	77.2	84.5	49.9	13, 14, 19
Skills in managing a business unit	77.1	86.9	53.8	14, 12, 12
Construction technology and environmental services	74.2	80.5	54.1	15, 18, 10
Arbitration and other dispute resolution procedures	74.0	80.8	51.9	16, 17, 17
Law	73.5	81.4	52.6	17, 16, 15
Property investment funding	72.8	88.9	50.2	18, 8, 18
Management of joint quantity surveying appointment	71.0	78.8	52.1	19, 21, 16
Mapping	68.1	75.8	56.4	20, 22, 7
Macro-economic perspectives	67.7	79.8	48.0	21, 19, 21
Facilities management	62.3	79.7	44.7	22, 20, 22
Research methodologies and techniques	57.5	74.0	44.4	23, 23, 23

significantly higher than their male counterparts, suggesting that a greater sensitivity to this aspect of practice is required among the male practitioners.

The overall outcome does not support the hypothesis that the previously listed demographic variables would influence respondents' views of the current importance ranking of the competencies. Thus it may be deduced that the ranking of the current importance of all 23 competencies is generic to the quantity surveying profession in South Africa, and therefore these 23 competencies define the body of established knowledge and techniques which the quantity surveyor can apply to practical problems, as argued by Bennett, (1991), Willis *et al.* (1994) and Hassal *et al.* (1996).

Future importance of competencies

The competencies ranked in terms of future importance are shown in Table 5. Kruskal-Wallis and Mann-Whitney U tests indicate that demographic variables significantly affected 21 out of a possible total of 184 (or 11%) potential differences. The most influential demographic variables were age, professional status and experience. Only gender and size did not exert a significant influence.

It may be noted that personal and interpersonal skills plus advanced financial management are ranked the sixth and seventh most important competencies for future career success. This result supports the prognosis that management orientated competencies would assume higher priority for the future of the profession, as suggested by Brandon (1990) and Davis Langdon and Everest (1991).

The result is comparable with that achieved in the Royal Institution of Chartered Surveyors (RICS, 1992, p. 57) study of UK practitioners which identified the five competencies 'which will become more important' in the future as: financial management, computing, project management, general management, and professional practice.

Quantity surveyors in South Africa regard all the listed competencies as becoming important in the future, although facilities management and research methodologies still rank among the lowest four competencies. Another notable outcome is that the routine technical function of the quantity surveyor as depicted by measurement and mapping competencies has been relegated much lower in future importance. This might suggest that enhanced computer literacy and information technology skills will minimize the competitive

advantage of competencies based on technical skills, as alluded to by Brandon (1990), Male (1990) and Davis Langdon and Everest (1991).

Proficiency levels

The competencies ranked in terms of levels of evidence in practice are shown in Table 5. Kruskal–Wallis and Mann–Whitney U tests indicate that demographic differences significantly affected 15% of the overall rankings. Professional status was the most influential, followed by experience and age. However, a high level of consensus occurred in the ranking of the nine competencies of 'above average' proficiency levels.

The comparative ranking of the competencies for all three scenarios is shown in Figure 2. An analysis of the evidence ratings in Table 5 shows that above average proficiency was indicated for only 39% of the competencies surveyed. The percentage levels in Table 5 indicate that the ratings of the perceived evidence of these competencies were consistently below those of the comparative ratings for current and future importance. The ramifications of this outcome are sufficiently far reaching to warrant a quadrant analysis, as shown in Tables 7 and 8.

Quadrant analysis

'Importance-evidence' and 'future importance-evidence' quadrant analyses (Zikmund, 1997) helped to integrate the ratings of current importance, future importance and proficiency levels in the competencies surveyed, and to highlight areas of immediate and strategic focus in the education and training of quantity surveyors. Table 6 illustrates the action labels used to interpret the quadrant analyses. Table 7 shows that marketing and advanced financial management, which are among the ten most important competencies of immediate relevance, require urgent attention in current education and training in terms of curricula content and presentation. It appears that quantity surveyors in South Africa have not felt threatened by global competitive pressures, hence the lowest evidence and importance ratings of macro-economic perspectives, facilities management and research methods/techniques. Such pressures appear to be anticipated in the future, as indicated by the ratings in Table 8.

Table 8 shows that strategic emphasis should be placed on imparting the competencies of project management, marketing, advanced financial management and property investment funding, which are among the ten most important competencies for future quantity surveying services but have low proficiency levels.

Table 6 Labels for quadrant analyses

Above average level of evidence	Maintain or de-emphasize	Continuous improvement
Below average Level of evidence	De-emphasize	Immediate attention / strategic emphasis
Below average Above average Current / future importance rating		

Table 7 Competencies on the importance–evidence matrix

Mean: evidence rating	
Above average Mapping (20)	Computer literacy and IT (1) Procurement and financial management (2) Economics of construction (3) Construction contract practice (4) Measurement (5) Professional practice (6) Personal and interpersonal skills (8) Development appraisal (9)
Below average Macro-economic perspectives (21) Facilities management (22) Research methods/techniques (23)	Marketing (7) Advanced financial management (10) Leadership and general management (11) Project management (12) Emerging contractors (13) Managing a business unit (14) Construction tech. and environmental services. (15) Arbitration/dispute resolution (16) Law (17) Property investment funding (18) Joint quantity surveying appointment (19)
Below average	Above average
Mean: Current importance rating	

Conclusions

The five most important competencies required of quantity surveyors today, identified with a high level of consistency among practitioners in South Africa, are: expertise in computer literacy and information technology, procurement and financial management, economics of construction, construction contract practice and measurement. The five most important

Rank	Current Importance	Future Importance	Evidence/Proficiency Levels
1	Computer literacy and information technology	Computer literacy and information technology	Measurement
2	Procurement and financial management	Procurement and financial management	Procurement and financial management
3	Economics of construction	Economics of construction	Professional practice
4	Construction contract practice	Project management	Construction contract practice
5	Measurement	Marketing	Economics of construction
6	Professional practice	Personal and interpersonal skills	Computer literacy and information technology
7	Marketing	Advanced financial management	Mapping
8	Personal and interpersonal skills	Property investment funding	Personal and interpersonal skills
9	Development appraisal	Construction contract practice	Development appraisal
10	Advanced financial management	Development appraisal	Construction technology and environmental services
11	Leadership and general management skills	Professional practice	Leadership and general management skills
12	Project management	Skills in managing a business unit	Skills in managing a business unit
13	Skills to work with emerging contractors	Leadership and general management skills	Marketing
14	Skills in managing a business unit	Skills to work with emerging contractors	Project management
15	Construction technology and environmental services	Measurement	Law
16	Arbitration and other dispute resolution procedures	Law	Management of joint quantity surveying appointment
17	Law	Arbitration and other dispute resolution procedures	Arbitration and other dispute resolution procedures
18	Property investment funding	Construction technology and environmental services	Property investment funding
19	Management of joint quantity surveying appointment	Macro-economic perspectives	Skills to work with emerging contractors
20	Mapping	Facilities management	Advanced financial management
21	Macro-economic perspectives	Management of joint quantity surveying appointment	Macro-economic perspectives
22	Facilities management	Mapping	Facilities management
23	Research methodologies and techniques	Research methodologies and techniques	Research methodologies and techniques

Figure 2 Comparative ranking of competencies from 1 (highest) to 23 (lowest)

competencies for future successful services include expertise in computer literacy and information technology, procurement and financial management, economics of construction, project management and marketing.

The five competencies deployed with greatest proficiency among quantity surveyors in practice are: measurement, procurement and financial management,

professional practice, construction contract practice, and economics of construction. Generally these exclude the management-orientated competencies which were rated of higher relative importance for the future success of the profession.

Six competencies emerged as uniquely important for quantity surveyors in South Africa, though not similarly recognized in the international literature.

Table 8 Competencies on the future importance–evidence matrix

Mean: evidence rating	
Above average	Computer literacy and IT (1)
	Procurement and financial management (2)
	Economics of construction (3)
	Personal/interpersonal skills (6)
	Construction contract practice (9)
	Development appraisal (10)
	Professional practice (11)
	Measurement (15)
	Mapping (22)
Below average	Project management (4)
	Marketing (5)
	Advanced financial management (7)
	Property investment funding (8)
	Managing a business unit (12)
	Leadership and general management (13)
	Emerging contractors (14)
	Law (16)
	Arbitration and dispute resolution (17)
	Construction tech. and environmental services (18)
	Macro-economic perspectives (19)
	Facilities management (20)
	Joint quantity surveying appointment (21)
	Research methods and techniques (23)
Below average	Above average
Mean: Future importance rating	

These are, in order of importance: marketing, advanced financial management, leadership and general management, effective working relationships with emerging contractors, macro-economic perspectives, and managing joint quantity surveying appointments.

This research has shown that the present education and training of quantity surveyors lags behind the current and future anticipated needs of practising quantity surveyors for them to be at the frontier of the knowledge required to improve business opportunities and services offered to clients of the built environment. The clear indication is that, in future, management orientated competencies will grow in relative importance at the expense of the traditional technically orientated core competencies of the quantity surveyor. Accredited academic institutions and training providers must therefore include the management-orientated competencies in their curricula as a matter of priority.

The research has shown that there is much room for improvement in the proficiencies of quantity surveyors in the listed competencies. The indicated low proficiency levels may suggest a general dissatisfaction, among quantity surveyors, of the quality of professional services offered to clients in the built environment. A profession-wide effort to boost actual and perceived competency levels among professionals is imperative. The recently introduced compulsory, point-scoring Continuing Professional Development (CPD) system authorized by the South African Council for Quantity Surveyors could be a timely intervention. The initiative must, however, be marketed positively to practitioners.

The perspectives of clients of quantity surveying services will complement the findings of this research.

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