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COBRA 2010

The Construction, Building and Real Estate Research Conference of the Royal Institution of Chartered Surveyors

Held at Dauphine Université, Paris, 2-3 September 2010

ISBN 978-1-84219-619-9

12 Great George Street
London SW1P 3AD
United Kingdom

www.rics.org/cobra

September 2010

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Peer review process

All papers submitted to COBRA were subjected to a double-blind (peer review) refereeing process. Referees were drawn from an expert panel, representing respected academics from the construction and building research community. The conference organisers wish to extend their appreciation to the following members of the panel for their work, which is invaluable to the success of COBRA.

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Creativity and strategy: perspectives on the quantity surveying profession

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Abstract

Purpose

The purpose of the study was to identify the presence and to some level, the importance of creativity related to the quantity surveying profession, as well as to investigate the elements that support the development of creativity. A comparison with some other professions is also done to establish levels and elements to enable benchmark the profession against the other related professions.

Method

Research done at the University of the Free State confirms that creativity may play a role and that the quantity surveying profession needs to develop into a more dynamic profession.

Five surveys were conducted to test the current perceptions of some construction professionals regarding creativity in the construction industry, specifically in the quantity surveying profession and then draw comparisons with other related professions.

Survey 1 was a questionnaire related to the three Ts of creativity (Talent, Technology and Tolerance) as suggested by Florida (2007). The questionnaire was sent to twenty (20) experienced construction professionals who were requested to give their opinion on the level of the three Ts as elements of creativity in the construction industry in South Africa. The response rate for Survey 1 was 60%.

An additional survey (Survey 2) was conducted to test the three Ts. This questionnaire was completed by a captured group of 31 quantity surveyors with an average experience of 16 years (100% response).

Survey 3 was conducted amongst thirty (30) managers and professionals who work as quantity surveyors, architects and project managers for a government works department They were requested to respond to a similar questionnaire. All responded (100%).

Survey 4 was conducted in the Gauteng and Windhoek areas of South Africa and Namibia, to test previous responses. The survey was completed by a captured group of 26 professionals, mostly active

as real estate managers, consisting of quantity surveyors, architects and property managers. All responded (100%).

A survey amongst 53 post graduate students (Survey 5) was also conducted to examine their opinions of creativity in their future professions; this is referred to as an indicator of perceptions.

For the purpose of this report Survey 1 is only mentioned as the first step whereas the opinions and results shown in Surveys 2 to 4 are discussed.

Findings

The surveys show that, compared to architecture, talent and technology are considered as developmental elements of creativity in the quantity surveying profession. Tolerance in the South African context is perceived to be at an acceptable level, but should still be improved upon.

Value

Creativity is seen as an important element of a society, profession, community and an individual's development and growth. The surveys show that, in order to stimulate growth, the elements of creativity should be addressed by the profession in order to compete with other related professions and with other functionaries in the market. Therefore the value of the surveys is identifying the importance of creativity for the profession as well as identifying the important development areas for the quantity surveying profession in respect of creativity.

Key words: Creativity, quantity surveying, construction industry, talent, technology, tolerance, development, strategy.

INTRODUCTION

Swartz (2006:119-120) defines creative thinking as finding new and improved ways to do things and that success hinges on finding ways to do things better. Creative thinking is also not reserved for certain occupations or restricted to super-intelligent people.

It seems proper to expect that professionals should possess creative thinking and that professionals and the professions should show evidence of creativity.

Florida (2007: 30-38) found that the creative class has an important influence on the aesthetics and the development of cities, and according to him, creativity may also ensure economic development and growth. Cities should therefore be magnets that attract the creative class in order to be competitive with regard to places. Florida (2007:30-38) identifies the creative class as people in occupations requiring social skills and emotional intelligence, such as nurses, lawyers, designers and architects, or

people with an ability to create new ideas, technologies, models and values; one could therefore include quantity surveying.

The creativity debate is actively continuing in respect of the role played by creative people in the economic development of cities and regions. Florida (2004: 8-12) states that the creative classes are the new powers of economic development and growth, and cities should embrace the creative class to ensure economic growth. In respect of creativity Florida (2004: xix) distinguishes three elements as characteristics of the creative class. These are: technology, talent and tolerance; the three Ts.

Florida's ideas were severely criticised by various academics and other professionals. With regard to the influence on economic development, many other dynamics are seen as important or even more important (Peck, 2005: 740-770). However, Rausch and Negrey (2006: 473-489) state that the statistically significant positive influence of tolerance on economic growth is shown, and they also hypothesize that certain elements of the creative index were likely related to economic health and growth.

Swartz (2006:125) suggests that the traditional thinker's mind is paralyzed and that they have the attitude that risk should not be considered because it has been this way for 100 years (For the quantity surveyor 344 years).

Florida (2004:xix; 2007:37-38) identifies three elements of economic development, the three Ts of creativity:

- **Technology**: knowledge and products of knowledge,
- **Talent**: creative capital in a society (the use of human ability), and
- **Tolerance**: openness, inclusiveness of people, and mobilization of talents.

(Verster, Kotze & Van Zyl, 2009).

It is also worth mentioning the study and development of the Euro-creativity Index (ECI) by Florida and Tinagli (2004:33). In respect of the ECI the following is important regarding the measurement of the 3T's (related to the QS study):

- **Euro-Talent:** the percentage of the population aged 24-64 with bachelor's degrees or higher,
- **Euro-Technology:** measurement of the Research and Development expenditure of GDP, and
- **Euro-Tolerance:** values and attitude towards minorities and systems are measured.

The Hong Kong study took a broader overall view in respect of assessment of creativity and sees it as a social process, continuously shaped by values, norms, practices and structures and that individual persons could develop their own skills, knowledge and resources and commitment to different forms of creative activities. (Home Affairs Bureau, Hong Kong, 2004:42)

It may therefore be advantageous to the profession as a social system to know its status and to develop the system as a creative environment.

The question that may be asked is: What is the status of creativity (and perhaps also innovation) in respect of the quantity surveying profession? The South African situation is considered.

It is argued that the presence of Talent, Technology and Tolerance in cities (and other entities) may also be indicative of creativity in a profession, and for the purpose of this paper, quantity surveying, relative to other related professions.

CREATIVITY: MEASUREMENT AND ASSUMPTIONS

To assess the correct creativity level of a profession in respect of Talent, Technology and Tolerance (the three Ts), may not be a simple task. It is suggested that the first approach may perhaps be to establish a reasonable measurement instrument to measure the most basic indicators of the three Ts, as status quo for the professions.

- **Talent**. **"**An approach that may therefore be used to measure talent within a specific system is to establish how many PhDs are present in that society, and benchmark this against other similar systems" (Verster *et al*. 2009: paper 03). South Africa produces about 23 doctorates per million people of its population per annum compared to Brazil (43), South Korea (157) and Taiwan (53), (Rapport Argief, 2008:17). This comparison may indicate some level of talent development and approach as well as an area for development. The Quantity Surveying profession in South Africa has 21 doctorates registered as professional quantity surveyors (2009) at the South African Council of Quantity Surveying Profession (SACQSP) (1.3%), while the Chartered Institute of Building (CIOB) (Africa) (mostly construction managers) has 21 members (2009) with doctorates (1.05%). During 2008 only one doctorate in Quantity Surveying was produced by the accredited South African Universities. The above-mentioned statistics indicate a development area for construction professions in respect of the talent level. The architectural profession, relevant to the respondents' profile of the South African Institute of Architects' (SAIA) survey shows that about 20% have additional post-graduate and further qualifications, of which 7% are doctorates (i.e. about 1.4% of the total) (Linning, 2001: Survey). It is however accepted that doctorates are not the only indicator of talent, but is never-the-less seen as a strong indicator (University of the Free State (UFS), 2009: Survey).

  During the past few years both the Royal Institution of Chartered Surveyors (RICS) and the South African Council for the Quantity Surveying Profession (SACQSP) have raised the entry levels for students to be selected to read quantity surveying and where an honours degree is required as qualification to register. The increase of requirements for higher levels of qualifications (Master's

level) and research output by universities are also indicators of the profession's view to improve talent levels (RICS, 2005; SACQSP, 2006).

- **Technology** It is suggested that technology may partly be measured by identifying the latest products, inventions, models and documents developed by a learned society on behalf of its members or stakeholders. The quantity surveying profession in South Africa has developed the following instruments over the past number of years: Edu Tech Centre, Go-learning, distance learning, Construction Communication Network (CCN) Products, Model Bills of Quantities, Continued Professional Development (CPD) programmes, international congresses and many other model documents. (Some other products like the contract documents were developed in partnership with other professions.). The above-mentioned indicates some developments towards creativity within the professions but does not really, except for the CCN, show many exciting new technological developments to support creativity in the professions for the future (Verster *et al*., 2009). A strategic assessment regarding creative activity may perhaps be necessary.

- **Tolerance** is seen as an important element of creativity in that it allows people of many cultures, backgrounds, religions, races and beliefs to participate and work together in an economy or in an entity (Florida, 2004: xix). The diversity in respect of culture, gender and background of SACQSP councillors is an indication of moving towards tolerance and participation. The multi-cultural face of the council is a very positive development (SACQSP, 2009).

  This is also true in respect of the architectural profession. The South African Council for the Architectural Profession (SACAP) shows substantial diversity in respect of gender and race (SACAP Report, 2009). The CIOB (Africa) also shows some diversity in the board, however, it is identified that more participation by women is needed (CIOB Minutes, 2009).

These statistics show developments towards tolerance of, and between, various groups in South Africa's professional institutions. This may also be an indication of positive developments towards creativity. The quantity surveying profession is moving in a positive direction regarding the elements of creativity, but it is important to emphasise advanced study and research.

RESEARCH AND FINDINGS

As a first survey (Survey 1), twenty experienced construction professionals (quantity surveyors, architects, construction managers and engineers) were requested to respond to a questionnaire related to the three Ts of creativity and give their perceptions on the level of each, as elements of creativity in the construction industry in South Africa. Twelve of these professionals responded (60% response rate).

In Survey 1 the respondents were requested to indicate their opinions on a 5-point scale where 1 = not present at all, and 5 = highest level. The three questions were:

Talent: What is your opinion or perception of the presence of creative people in the industry in creative positions, or the talent level in the industry?

Technology: What is the level of innovation and support for new products and high-technology developments in the industry?

Tolerance: How open is the profession to new people, new ideas and differences in approach?

The opinions of the Survey 1 respondents, in respect of the three elements of creativity and the level of each in respect of the construction industry, show the following:

- Talent was rated the highest (average 3.5 out of 5, 70%)
- Technology second (average 3,4 out of 5, 68%) while
- Tolerance was given the lowest score (2,8 out of 5, 56%)
- Average in respect of creativity (3.2 out of 5, 65%) (University of the Free State, 2009: Survey).

Table 1, Survey 2, shows the opinions of a captured group of 31 quantity surveyors with an average professional experience of 16 years in respect of the three elements of creativity and the level of each in respect of the profession.

Table 1: Survey 2: The quantity surveyor and creativity of the profession

Quantity Surveyor Respondents	**Talent**		**Technology**		**Tolerance**		**Creativity Average**	
0 – 10 years experience	3.40	68%	3.00	60%	3.63	73%	3.34	67%
11-20 years experience	4.20	84%	4.10	82%	3.70	74%	4.0	80%
+ 20 years experience	3.50	70%	2.40	68%	3.50	70%	3.13	63%
Average of all QS respondents	**3.70**	**74%**	**3.17**	**63%**	**3.61**	**72%**	**3.49**	**70%**

Using the results as shown in Survey 2, Table 1, it is clear that quantity surveyors are more positive about their professions with regard to the three Ts than the respondents in Survey 1 (the construction industry). Judging from Survey 1, tolerance, as expected, is considered an important development area in the construction industry, while the quantity surveyors (Survey 2) responded positively about their profession's tolerance level.

The quantity surveyors' responses show that the middle group of respondents are the most positive. The respondents were spread almost equally (12 : 9 : 10), thus, distortion related to numbers can be

ignored. The middle group may also indicate a positive move toward creativity since they are seen as an imminent leadership group.

The presence and enthusiasm of creative people to work in a specific environment is important for future economic development of that environment, and is thus also strongly based on the tolerance of such an environment in respect of differences in people, ideas, life styles and approach (Florida, 2004: xx).

The question that may now be asked is how creativity, specifically tolerance as development area, can be developed in the industry to ensure that creative people enter, stay and develop the industry.

Table 2 shows the opinions related to Survey 3 of a group of professionals present at a project management workshop (five quantity surveyors, six construction managers and 19 professionals functioning as project managers). Their responses are in respect of talent, technology and tolerance, related to the various identified professions.

Table 2, Survey 3: The construction professionals' opinions of creativity of the built environment professions.

Respondents	**Talent**		**Technology**		**Tolerance**		**Creativity average**	
Quantity Surveyors	3.31	66%	3.71	74%	3.21	64%	3.41	68%
Construction Managers	3.31	66%	3.35	67%	3.21	64%	3.29	66%
Architects	3.72	74%	3.74	75%	3.32	66%	3.59	72%
Project Managers	3.56	71%	3.64	73%	3.28	65%	3.49	70%
Average of all respondents	**3.48**	**70%**	**3.61**	**72%**	**3.26**	**65%**	**3.45**	**69%**

The responses show that the quantity surveying profession is seen as less talented and tolerant than the architectural and project management professions. A bias towards the project manager is evident, but may be ignored in respect of the specific purpose of the paper. The construction manager is seen as similar, but less technologically advanced as the quantity surveyor.

Table 3, Survey 4 shows the opinions related to the 3Ts and the levels of each in respect of the professions of architecture, quantity surveying, project management and the industry, of a captured group of 26 professionals, mostly active in real estate management and development, consisting of three quantity surveyors, five architects and 18 property and project managers; all responded (100%).

Table 3, Survey 4. Talent, Technology, and Tolerance of architecture, quantity surveying, project management and the industry on a scale of 1-5 where 1 is not at all, and 5 is the highest level of average value (UFS, 2009)

Profession	**Talent**		**Technology**		**Tolerance**		**Creativity average**	
Architecture	3.43	69%	3.20	64%	2.80	56%	3.14	63%
Quantity Surveying	3.18	64%	2.93	59%	2.90	58%	3.0	60%

The Industry	3.10	62%	2.93	59%	2.90	58%	2.98	60%
Project Management	3.10	62%	2.58	52%	3.65	73%	3.11	62%
Average	**3.20**	**64%**	**2.91**	**58%**	**3.06**	**61%**	**3.06**	**61%**

It is evident from Table 3 that the architectural profession is seen as the most talented, most innovative (technologically enhanced), but the least tolerant. Since only five architects participated, little suspicion of biased opinion exists.

The quantity surveying profession is seen as slightly less talented and innovative than the architects, but more tolerant.

The surprising value is the fact that project managers are seen as most tolerant (73%) in relation to the other professions considered. This result should however be seen in context, and that a biased opinion may exist, since 69% of the respondents represent the project management profession.

For Survey 5, 53 post-graduate students were requested to respond in terms of the perceived level of creativity of their own, and that of the other related professions' surveys. Thirty-three quantity surveying and 21 architectural post-graduate students were requested to respond to the questionnaire. All students responded (100%).

Figure 1 shows the post-graduate quantity surveying (QS) and architectural (Arch) students' opinions on the creativity of their own profession.

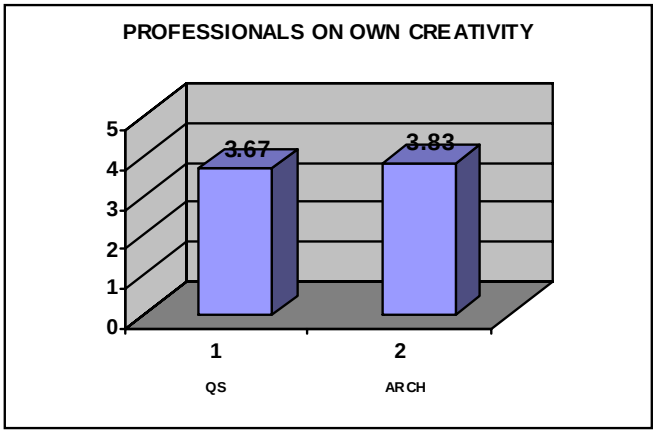

Figure 1: Post-graduate students' opinions on the creativity of their own professions.

(Source: UFS, 2009)

Figure 2 further shows the opinions of the post-graduate students on the creativity of the other related professions.

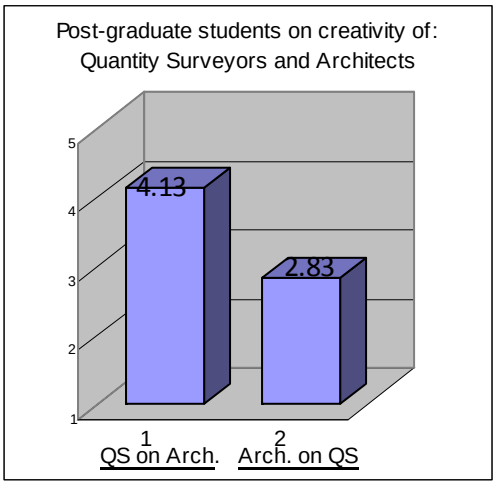

Figure 2: Post-graduate students' opinions on the creativity of the other related professions and the industry.
(Source: UFS, 2009)

Survey 5 indicated that the architecture profession is seen as the most creative (as expected), but it may stem from the idea that creativity is limited to design, art and related activities. However, it is clear that for a profession to develop towards a creative society, creativity should be seen as part of a profession's characteristics.

COMPARISONS OF STATUS QUO AND RESPONDENTS' OPINIONS

- **Talent:** The status quo in respect of the South African situation clearly shows a significant backlog in respect of doctorates as an indicator of talent. This is also true in respect of the construction industry. The respondents are less critical or may not be aware of this and are therefore more optimistic. It is suggested that the professions and the industry focus on talent development as a dynamic strategy for the future.
- **Technology:** The current situation shows that the construction industry is not as technologically advanced as it should be, although the respondents are not negative.
- **Tolerance:** The current situation shows encouraging developments in this area, and taking history into account, respondents are positive. In the South African situation this may be seen as one of the most important development areas.

CONCLUSION

Judging from the surveys and results it may be deduced that creativity is an important element for future development of communities, including professional societies. The proposed elements of creativity i.e. talent, technique and tolerance, therefore need to be part of the development foci of the professions and industry in South Africa, especially regarding the following:

Talent: Attracting talented young people to the learned society; supports and promotes learning and research, specifically during post-graduate study.

Technique: Support, fund and develop innovative products and new ways for service and production.

Tolerance: Invite new ideas and people of different cultures to participate in development, and create and accommodate diversity. Develop an understanding of other people, cultures and methods, etc.

The creative characteristics and index are elements of strategy and development for societies ("industries"), professions and individuals in respect of the economic growth related to each.

The construction professions are seen as creative services and they should work in new, innovative and creative ways to serve the demand on their contribution as members of the creative class.

Table 4 shows the average creativity of the quantity surveying profession.

Table 4: Average creativity of the quantity surveying profession

Creativity element	Out of 5	%
Talent	3.38	68%
Technology	3.36	67%
Tolerance	3.24	65%

With regard to the quantity surveyor, talent is rated the highest element and tolerance is rated the lowest.

RECOMMENDATIONS

It is recommended that a strategy and model be developed to assist the industry in measuring the creativity levels of its professions and itself, and in understanding the importance of creativity and focussing on the retention of creative people. The elements and dimensions of such a model should be developed and refined and a method established on how to utilise it. It is suggested that education, training and research are the strongest supportive determinants for the development of creativity within the industry, and therefore, should be the main drivers of this development.

Research is seen as a very important determinant for creative development of entities, industries and nations and must therefore be included as a major dimension of a creativity development model for an improved industry maturity.

Further, research related to creativity, the development of creativity, and the dimensions of creativity development is proposed to increase the awareness of the role of creativity in the industry and how to develop the creative class in the construction industry of South Africa.

REFERENCES

Chartered Institute of Building (CIOB) Minutes. 2009. CIOB Africa Regional Council Minutes.

South Africa: CIOB Africa.

Florida, R and Tinagli, I. 2004. In Hong Kong Home Affairs Bureau, Hong Kong . P. 33.

Florida, R. 2004. *The Rise of The Creative Class*. New York: Basic Books. P. xix, xx, 8-12.

Florida, R. 2007. *The Flight of the Creative Class*. New York: Harper Collins Publishers. P. 30-38.

Home Affairs Bureau, Hong Kong. 2004-2005. A study on the Creativity Index. The Hong Kong Special Administrative Regional Government. Research Consultants: Centre for Cultural Policy Research, The University of Hong Kong: Report, Hong Kong. P. 1-102

Linning, S. 2001. State of the Profession: The Survey. Incorporating a report on current trends in Architectural Practice. Pretoria: [s.n.].

Peck, J. 2005. Struggling with the Creative Class. *International Journal of Urban and Regional Research.* 29(4), p. 740-770.

Rapport Argief. 2008. PhD-projek keer breinkwyn. [online]. Media 24. Available from: http://argief.rapport.co.za/cgi-bin/rapport.cgi?cs [Accessed 16 March 2009].

Rausch, S. & Negrey, C. 2006. Does the Creative Engine Run? A Consideration of effect of Creative Class on Economic Strength and Growth. *Journal of Urban Affairs.* 28(5), p. 473-489.

Royal Institution of Chartered Surveyors (RICS). 2005. Policy and guidance on university partnerships. August. RICS Education and Training Department, London, U.K.

South African Council for the Architectural Profession (SACAP) Report. [s.l.]: [s.n.].

South African Council for the Quantity Surveying Profession (SACQSP). 2006. Accreditation Policy. Midrand. SACQSP.

South African Council for the Quantity Surveying Profession (SACQSP). 2009. About the Association of South African Quantity Surveyors (ASAQS). [online]. Available from: http://www.sacqsp.org.za/html/the_council.html [Acsessed 20 July 2009].

Swartz, D.J. 2006. The Magic of Thinking Big. London: Pocket Books. P. 119-120, 125.

University of the Free State. 2009. Survey conducted during March-July 2009. Bloemfontein: University of the Free State.

Verster, J.J.P., Kotze, B.G. & Van Zyl, C.H. 2009. Creativity and strategy: The development of construction professions. Paper 03. South African Council for the Quantity Surveying Profession (SACQSP) Conference . October, Durban. SACQSP, Midrand.

South African Council for the Quantity Surveying Profession (SACQSP). 2006. Accreditation Policy , SACQSP, Midrand.