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Highlighting the gap between Critical Outcomes requirements and Built Environment Education in South Africa

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ABSTRACT

Purpose

This paper aims to highlight the discrepancies between current built environment education and Critical Outcomes requirements of the South African National Qualifications Framework (NQF).

Methodology

The South African NQF origins and purpose is reviewed. A situational analysis, based on a desk-top literature review and preliminary case study of built environment registered qualifications compares trends in built environment education and the skills competency requirements of the 21st century work environment.

Findings

Contemporary society is characterised by a demand for a workforce with trans-disciplinary skills. The key impact on built environment education is a change in the scope of competence, requiring radical curriculum change. The fitness-for-purpose of a South African built environment qualification now depends on the identification and incorporation of Critical Outcomes into the curriculum.

Research limitations

The study reviews the skills gap between the education provision and the market demand. The scope of the enquiry was limited to a review of contemporary trends in built environment education, internationally; a situational analysis; and recommendations for future research.

Value

The study suggests that the content of built environment education is not yet geared to deliver the learning outcomes envisaged by the competency

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requirements of the National Qualifications Framework (NQF), and therefore recommends that further inquiry be made to identify Critical Outcomes that will enhance the employability of South African built environment graduates.

Keywords

Competence, Built Environment Education, Construction Sector, Critical Outcomes, Trans-disciplinary skills.

INTRODUCTION

Accumulating evidence suggests that a highly qualified workforce contributes substantially to a nation's economic competitiveness, particularly when a large share of the workforce has acquired knowledge through higher education: the command of knowledge has become the key success factor. These findings apply to both industrialised and developing countries; those countries that improve opportunities for education and training beyond school enhance the employment prospects and the competitiveness of their overall workforce (Tierney: 2006). However, there is a concern that higher education content is not able to keep up with, and meet the needs of present and future society.

"In economies characterised by changes and the emergence of new production paradigms based on knowledge and its application" there is a need for radical change and in-depth reform in higher education, in particular the adoption of "an inter-disciplinary and trans-disciplinary" education approach that equips graduates to analyse and offer solutions to societal problems. (UNESCO: 1998). There is a need to develop "National Qualifications Frameworks (NQFs)" to "help match skill demand with supply" and thereby use "education and training of high quality" as "major instruments to improve overall socio-economic conditions and to prevent and combat social exclusion and discrimination, particularly in employment" (ILO: 2000).

In the South African context, the national policy approach acknowledges that the redress of past inequalities in education cannot be achieved "unless the negative impacts on the education system associated with globalisation, in particular human resource development, high-level skills training and the production, acquisition and application of new knowledge are addressed" (Ministry of Education: 2001). Further to this, higher education needs to produce "knowledge workers" who are capable of contributing to the productivity and global competitiveness of the nation (CHE :2002). The Accelerated and Shared Growth Initiative of South Africa (ASGISA), launched in July 2005 with the objective of accelerating policy implementation, describes the national scarcity of high-level skills as "a threat to implementation of government policies" and "a potentially fatal constraint" to shared growth (Mlambo-Nguca: 2006).

The built environment professions in particular face major challenges in terms of the obligation to contribute to the achievement of

globally competitive economic growth – they provide a vital pool of knowledge and high-level skills that influences the economy and the quality of life of all citizens directly through planning, design, construction supervision, maintenance and eventual disposal of all physical infrastructures that comprise the built environment. The spin-offs from construction activities also influence other economic sectors indirectly through employment creation (CETA: 2005a).

The market demand for a workforce with higher levels of skill is exacerbated by an endemic shortage of skills in the built environment professions. The ASGISA target of halving poverty and achieving a 6% economic growth rate by 2014 and national preparations towards the 2010 Soccer World Cup tournament have triggered an unprecedented allocation of physical infrastructure budgets, resulting in a skills crisis in the professional services sub-sector. In contrast to the education policy approach that is focussed on equipping graduates with the requisite skills to combat the negative impacts of globalisation, the thrust of ASGISA is to replenish the depleted pipeline as quickly as possible to meet delivery priorities.

Given the reality of the fundamental challenges posed by globalisation, ensuring that built environment graduates possess the appropriate portfolio of knowledge and skills is an imperative which, if not addressed, will prevent this strategic resource from adding the value necessary to contribute to sustainable economic growth. The “shortage of skills” debate should be resolved by prioritising the qualitative aspects of the shortages over the quantitative aspects.

INTERNATIONAL TRENDS IN BUILT ENVIRONMENT EDUCATION

The driver of change

A review of current trends in built environment education internationally confirms that the main driver of change is transformation in the mode of knowledge production. Writing in the mid-1990s, Gibbons et al (1994) noted that sufficient evidence exists to indicate that the rapid advances in information and communication technologies of the present era have caused a new mode of knowledge production, which they named Mode 2 knowledge, to emerge alongside the traditional mode of knowledge production, which they referenced as Mode 1 knowledge.

The knowledge obtained from traditional sources such as academic institutions and professional societies is discipline-bound, hierarchical, institutionalised, subject to peer review and problems are set and solved in an academic context, i.e. knowledge is acquired first and applied later. In contrast to this, Mode 2 knowledge is trans-disciplinary, socially accountable i.e. issues that were previously the preserve of the disciplines have become matters for public debate (Gibbons et al: 1994). Most importantly, Mode 2 knowledge, also referenced frequently in international literature as “tacit knowledge” or “process knowledge”, is embodied in

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people, not an institution. Knowledge, previously synonymous with professionalism, is now everywhere, challenging the professions to adapt their knowledge-base to remain relevant to the needs of society.

The impact of the new mode of knowledge production on the role of the built environment professional in society

The notion of a profession has evolved in response to needs for expert services emanating from the immediate community. The concept of service is profession-centred not client-centred, thus the client is assumed to be incapable of defining needs or challenging the professional interpretation of needs (Eraut: 1994). Traditionally, the professions have escaped State regulation and/or interference and maintained their autonomy on the basis that their unique expertise comes with moral integrity and therefore a capacity to self-regulate.

The concept of professional competence was developed to justify the introduction of qualifying examinations intended to exclude unqualified practitioners and thereby preserve professional status and reputation. The traditional focus on examinations as tests of competence has tended to establish competence as a specialised intellectual capability, having nothing to do with practical skills. This has also encouraged a perception of professional knowledge as a hierarchy whereby “general principles” occupy a high position and “problem solving” belongs to the realm of “trade skills” and is therefore not worthy of conversation (Eraut M: 1994).

There are modern trends, related to the emergence of a knowledge-based society and economy that have changed the established roles of professionals within the society and therefore have implications for the traditionally accepted definition of competence.

Firstly, the ideology of professionalism appears to assume that professionals will be self-employed or partners in small firms that operate within the private sector. However, increased access to higher education has created large pools of graduates within modern society, many of whom choose to work for larger organisations. Legal requirements whereby contractual relationships are established between clients and the organisation see the traditional role of the professional as a trusted adviser relegated to the background. Further to this, conflicts of interest arise where some organisational policies are contrary to the ethics and code of conduct that the professional is required to adhere to.

Secondly, there are rapid changes in the needs and demands of an increasingly consumer-oriented and global society. In response to this, the professions and the professionals themselves are changing within working practices, professional areas and specialisms. The Royal Institute of British Architects (RIBA) has noted intense demand for specialists at the expense of generalists (Leveson: 2003). Traditional boundaries are crumbling as many modern professionals engage in multi-professional practice, for example urban design. Many professionals are members of more than one

professional body. Many acquire skills in completely new fields as their careers progress.

Thirdly, organisational structures have become flatter in response to the social accountability movement. The discipline-bound approach to decision-making in the construction sector has been replaced by “partnering” and teamwork as clients and communities participate in the project delivery process. Consequently, soft (trans-disciplinary) skills have become indispensable across a sector previously segmented by disciplinary boundaries (CABE, RIBA: 2003).

The impact of the new mode of knowledge production on built environment education

From the 1980s, nations that wanted to gain the edge in the race to mobilise knowledge effectively for economic success formulated new approaches to education and training. The non-instrumentalist education approach that emphasises links between the learning outcomes of education and broader socio-economic objectives emerged in the 1990s and underpins the concept of the national qualifications framework (NQF) that has spread to all continents. Nations such as South Africa and international regions such as the European Union that have established NQFs share similar objectives, indicating a response to the same range of impulses. The national impulse reflects and responds to the imperative to enhance access by all citizens to high quality skills and learning and align education and training provision to the competencies needed by the knowledge-based economy. The international impulse reflects and responds to the challenges of globalisation (DoE/DoL: 2002).

Research studies have shown that the knowledge base of a profession comprises propositional knowledge and process knowledge. (Eraut: 1994). An expert is produced when the two types of knowledge merge in a learning environment where both types of knowledge are accorded parity of esteem. However it is only propositional knowledge that forms the basis for the design of learning programmes. There is an assumption that skills and competencies, for example, business skills, will be acquired during periods of practical training or in the workplace. However, case studies of professionals at work have revealed that assumptions made about knowledge needs during initial education are unfounded, and result in a gap between theory and practice (Eraut: 1994).

Disciplinary education and training is by implication vocational and the professional institutions wish to preserve the integrity of this in order to uphold standards. The disciplinary content enhances the formation of specialised skills and techniques that are needed for effective service provision to clients. However, disciplinary education entrenches certain attitudes and behaviours that leave built environment graduates unprepared to face the complexity of the current work environment (Leveson: 2003). Professionals are unable resolve problems outside their established domain. The learning outcomes of disciplinary education meet professional

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competency requirements, and serve to reinforce professional identity. There is however a failure to address contemporary issues such as employability, productivity and competitiveness.

The nature of the skills which will enable built environment graduates to respond effectively to changing work practices has been the subject of much debate. The *Dearing Report* (UK, 1997) established the four basic or key skills that are essential for success in working life namely communication, numeracy, use of IT and learning how to learn. Two additional skills were added in recent years namely teamwork and problem solving. This paper uses the term “skill” in reference to both a “skill” and a “competence”. A “skill”, that is considered to be the ability to perform a task and is generally transferable across occupations, is however distinguished from a “competence” that is an ability to perform a task related to a specific occupation. The subject of this paper and the concern around new skills for the built environment professions is more about the later than the former.

A construction industry study confirms that the lack of technical and practical skills is the largest area of concern across the United Kingdom (UK) built environment professions (ConstructionSkills: 2004). The study identifies four areas of skill and lists generic competencies that would boost the productivity and effectiveness of the built environment professions in the 21st Century. Due to the dearth of such data in the South African context, the results of the UK study are hereafter employed as a case study or “international model” to identify and categorise generic competencies required by the South African built environment professions.

SITUATIONAL ANALYSIS

The Higher Education qualifications regime in South Africa

The education model of built environment professionals in South Africa mirrors the traditional model adopted internationally whereby, as experts, they are educated separately, but the rendering of professional services predominantly takes place in the context of multi-disciplinary teamwork. The guardianship of professional knowledge is vested in the professional councils and competence is determined through strict self-regulation of relevant aspects such as initial education; internship; professional practice and continuing professional development (CPD).

The attainment of democracy in 1994 was followed by the dismantling of the entire apartheid education policy framework and its replacement in 1998 by the National Qualifications Framework (NQF) which is essentially a competence management framework for all standards and qualifications obtained in South Africa. The implementation of the NQF in the higher education sector started in mid-2000. The NQF is underpinned by a new definition of knowledge that has changed the scope of competence for the entire education system in South Africa. Although the professional councils maintain their autonomy in terms of the professions Acts, there is an

obligation to alter traditional benchmarking processes to become compatible with the NQF.

The NQF philosophy requires credit to be accumulated against two types of learning outcomes, namely Specific Outcomes, i.e. discipline-specific knowledge and skills; and Critical Outcomes, i.e. core (trans-disciplinary) skills (CHE: 2002). The Critical Outcomes, also frequently referenced in policy documents and NQF literature as “core skills”, “critical skills” or “generic skills”, are central to NQF philosophy. The behaviour-shaping attributes of the Critical Outcomes are deemed to:

- Be essential for the development of the capacity for lifelong learning;
- Provide a balance so that education does not become too narrow and focussed on meeting the needs of an occupation at the expense of the individual or the society – graduates are enabled to engage with critical socio-economic issues such as poverty alleviation, sustainable development, etc;
- Encourage employability, i.e. the ability to constantly adapt skills to the changing work environment in order to remain gainfully employed (SAQA: 2000). The first five Critical Outcomes are regarded in many countries that have adopted an NQF as being central to employability (DoE/DoL: 2002).

The *NSB Regulations* require the Critical Outcomes to be embedded in a Unit Standard or Whole Qualification. This results in applied competence, whereby the graduate is equipped to meet the competency requirements of an occupation as well as the broader societal expectations now attached to a qualification holder.

Skills trends in the built environment professions

As skills needs and demands are relative to the nature of an occupation, the eight statements of Critical Outcomes included in the *NSB Regulations* merely provide guidelines and a framework for identification of the trans-disciplinary skills that make an NQF qualification fit-for-purpose.

The Construction Education and Training Authority (CETA) have identified four categories of critical skills or “employability skills” that are demanded by employers in the South African construction sector. These are basic skills, technical skills, organisational skills and company/industry specific skills (CETA: 2005b). The four CETA categories are roughly equivalent to the four skills areas of the international model. The CETA model however does not identify skills associated with each skills category.

The annual training implementation reports captured by the CETA from construction sector employers submitting workplace training reports for 2004/2005 confirm that about 40% of the demand for training is in the area of basic and organisational skills, and about 22% of demand is for HIV/AIDS and health and safety training (CETA: 2005b). Over and above the uptake for health and safety training, no demand is recorded for training in the other two areas of concern raised by employers in the sector.

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A customer satisfaction survey commissioned by the Construction Industry Development Board (CSIR: 2004) however indicates that these are the very areas in which skills need to be intensified to ensure competent performance of the professional services sub-sector. The survey outcomes indicate that practising professionals lack:

- Design management (technical) skills necessary to meet performance expectations of clients.
- General management (basic) skills, in particular financial planning, knowledge management and self-management skills.
- Business development (organisational) skills that are needed to change industry culture and align professional services with contemporary client demands pertaining to social accountability.
- Construction management (industry-specific) skills and competencies to execute projects on the basis of the complex Supply Chain Management (SCM) directives in use by the sector. A need is indicated for professionals to acquire new teamwork/partnering skills and to upgrade existing project management competencies.

In addition to the above, this research study establishes the following trans-disciplinary (generic) skills demands in the professional services sub-sector as a result of the implementation of policy in the construction sector:

- Effective implementation of the provisions of the *Skills Development Amendment Act (SDA) No. 31 of 2003* in the professional services sub-sector requires general management and business development skills, in particular an attitude of responsible citizenship (ethical skills), coaching/mentoring skills, strategic partnering, client understanding, people development, resource planning and business planning skills.
- Effective participation by professionals in the implementation of the provisions of the *Broad Based Black Economic Empowerment (BBBEE) Act No. 53 of 2000* and Construction Charter initiatives will require a new generation of ethical skills to change the culture, attitude and values in the professional services sub-sector. New skills must be acquired in business development (strategic partnering, client understanding, risk appraisal), general management (resource and business planning) and design development (cultural and aesthetic sensitivity, environmental stewardship).

Identification of Critical Outcomes

There are several tertiary institutions in South Africa that offer programmes leading to the award of undergraduate and postgraduate qualifications in each of the six built environment professions. The schools for the built environment at the University of Pretoria and the University of Cape Town both offer a wide range of built environment degree programmes. Details of some qualifications registered by the two institutions were used as a

preliminary case study to establish a trend in the identification and incorporation of Critical Outcomes into built environment education as a result of NQF implementation. The qualifications were selected on the basis of minimum exit level outcomes that enable the graduate to register in the professional category of a built environment profession. The data from the preliminary review give rise to the following perceptions:

- That all of the eight Critical Outcomes described in the *NSB Regulations* are needed by each of the six built environment professions with respect to practitioners who register in the professional category.
- That although the implementation of the NQF in the higher education sector began almost seven years ago, none of the statutory councils for the built environment professions has as yet identified a range of Critical Outcomes to be delivered during the initial education phase of potential members who intend to register in the professional category.
- That there is still a focus on Specific Outcomes that will enable a built environment graduate to meet the traditional competency requirements of the relevant statutory council, but the Critical Outcomes will not be sufficiently developed to meet the market demand for flexible skills.

Further research that includes data from a larger number of tertiary institutions accredited to offer built environment degree courses, and also data from qualifications designed by each of the six statutory councils, would however be required to establish the above statements as facts.

Trends in skills demands in the construction sector suggest that Critical Outcomes are needed to combat the threats to, and respond to the opportunities presented by the 21st Century work environment. However, the preferred learning outcomes of the NQF will not eventuate unless the relevant skills and competencies are identified and incorporated into the design of built environment qualifications.

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