Addressing the need for common definitions of building performance in respect of the sustainability agenda

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ABSTRACT Buildings are appraised by members of many differently focused professional bodies. Achievement of sustainability targets is one such issue requiring building appraisal. However, differing professional perspectives can lead to a variance in appraisal approach and focus. This paper explores this problematic issue for practicing surveying professionals when addressing the concept of Sustainable Construction. Sustainability is the goal that construction professionals aspire to in respect of the design, performance and impact of any given building. The paper establishes that one of the most difficult aspects for fully engaging the concept is, in fact, the lack of a general consensus among construction professionals, as to what is an acceptable definition. This is cited as being due to them having disparate professional foci when addressing the sustainability agenda. The paper therefore explores how this issue could be overcome via the provision of Continuing Professional Development events, or standard degree awards, for practicing professional surveyors, which could lead to a greater standardisation of approach to the appraisal of the current Built Environment in respect of the sustainability agenda.

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INTRODUCTION

The goal of sustainability in buildings is the linking of an improvement of the present with protection of the future, or 'the increase in techno-economic growth coupled with the preservation of the natural capital that comprises environmental and natural resources' (Khalfan, 2001). In simple terms, the concept of sustainability would require the achievement of enhanced performance targets not only in terms of the physical usage of the building, but also in terms of its impact upon the wider environment. Measures of

such goals might be established by the appraisal of the physical conditions found within the building, but additionally by an appraisal of how usage of the building consumes natural resources such as fuels and generates waste materials. Appraisal of buildings to establish sustainability goals is undertaken by many different design, engineering, construction and surveying professionals. However, there is a variance among the professional bodies in respect of what actually constitutes sustainable construction. This complicates the building appraisal process, which as a result will often vary depending upon the professional affiliation of the appraiser. This paper proposes a sea change in the education and professional training of construction professionals to attempt a more standardised definition of sustainability, and to therefore apply a greater degree of communality to the goals and conclusions of building appraisals in respect of sustainable construction.

METHODOLOGY

Within the paper, a sample study based on a semi-structured interview process has been used and described. It relates to a mix of 50 varied professionals drawn from eight vocations, but all with Built Environment backgrounds. The respondents were engaged in trying to determine and agree on a workable definition of sustainability. The purpose of this undertaking was to establish, if possible, a common understanding of its meaning, and therefore a common appraisal strategy. This would enable the adoption of an integrated and holistic approach to be adopted by surveyors and other Built Environment-related professionals when appraising buildings in respect of their meeting sustainability targets. Building on the responses from the semi-structured interview process, the paper offers a valid means for educating practicing surveying (and other) professionals, along with current students, with regard to embedding common values in establishing, by means of survey, the important sustainability agenda.

SUSTAINABILITY DEFINED

When considering and addressing the topic of sustainability, it would seem self-evident that one requires, as a logical first step, to have a common definition of the term. To this end, Bruntland (1987) advocated that Sustainable Construction is 'Development that meets the needs of the present without compromising the ability of future generations to meet their own needs'.

Clearly, Bruntland forges a link between present and future needs – note that the emphasis is on 'needs' and not 'wants', that is, what people would 'like', rather than satisfying their 'needs'. Parkin (2000) suggested a link between 'Sustainability' and 'Quality of life' by noting that 'Sustainable development is a process which enables all people to realise their potential and improve their quality of life in ways that simultaneously protect and enhance the Earth's life-support Systems'. Parkin also corroborates Bruntland, introducing an element of 'protection'. Further thoughts on this topic are offered by Kilbert (2007), who provided a very succinct definition of 'Sustainable Construction' when he stated that '[sustainable construction is the] creation and responsible management of a healthy Built Environment on resource efficient and ecological principles'. Here we have the introduction of the aspect of conservation.

From the perspective of an engineering designer, Halliday (2008) purports that '... achieving sustainability requires us to live within the earth's capacity to provide the materials for our activities and to absorb the waste and pollution that our activities generate'. The use of the 'first person plural' introduces the notion of collective responsibility. In his *Rough Guide to Sustainability*, Edwards (2005) takes this a step

further by suggesting that for architectural designers, aiming to design sustainably, it is about such things as '... addressing global warming through energy conservation', but adds that it is also about '... creating spaces that are healthy, economically viable and sensitive to social needs'.

There are some common themes within the five noted definitions, and of course there are many more definitions provided by various other eminent authors. However, the above definitions do not encapsulate the difficulty of obtaining a common acceptability of its true meaning for surveyors and other varied professionals encompassed within the Built Environment. Disparate professional bodies approach the subject of Sustainable Construction from different professional standpoints. Thus, the teaching (or Continuing Professional Development (CPD)) of the sustainability concept can have a varied curriculum, and hence the focus of the practitioner or student learning outcomes may not be compatible. This for students can lead upon graduation to the continuance of diverse views on the topic, especially when they enter their varied professional vocations and interact with older surveying practitioners.

In order to address the above issue, a research empirical study was undertaken, it consisted of a sample of 50 construction professionals drawn from varied backgrounds. The research project had two main aims, the first being to try and come to a common understanding of the meaning of sustainability. The second aim of the project was to establish how the topic could be better taught to Built Environment professionals and students. This would empower a more holistic approach, and hence the development of an integrated and coordinated methodology for dealing with the subject of sustainability, especially for students once they graduate and become practising professionals themselves.

The following section briefly describes the research process and the results obtained.

RESEARCH PROCESS

The concept of sustainability is an important issue, with more professional bodies placing an emphasis on the topic during their degree accreditation events, related to University Awards and the curriculum content for surveyors. Apart from this valid driving force for including sustainability within Built Environment-related courses, there is also a clear moral requirement. We all understand that we live in a world with finite resources. Thus, students who are our future industry leaders should have an understanding of the impact construction has on the environment (and so should our current practicing professionals), and the price that future generations will be required to pay for the decisions we take today. It is important to deploy a holistic strategy when addressing sustainability, and this requires a common approach.

SAMPLE DISTRIBUTION

A sample size of 50 construction professionals were incorporated into the study, the distribution of professional focus was as follows:

- Four architects;
- Six architectural technicians;
- Nine construction managers;
- Six building surveyors;
- Five quantity surveyors;
- Eleven planners;
- Five environmental managers;
- Four civil engineers.

The selected process of data collection from the sample was a series of semi-structured interviews. This process was selected because it provided the opportunity to have a guiding framework and yet allow respondents to elaborate and expand on their responses, thus providing fuller answers. The sought outcomes from the semi-structured interview process were two-fold, first was to try and obtain a common understanding of the term sustainability. The second was to offer practical advice on how the subject could be better incorporated and taught within a Built Environment curriculum on standard awards or at CPD events.

SEMI-STRUCTURED INTERVIEW OUTCOMES

The outcomes of the first phase of interviews, where the respondents were asked to provide an acceptable definition of sustainability, proved to be both varied and interesting. The interview process produced many diverse definitions, and this author has linked the common themes noted by the sample, and blended them into the six key points below.

The comments from the respondents were very informative in relation to the confusion appertaining to the issue of Sustainability in Construction and included the following:

- Sustainability is an aspiration, an ideal, something one aims for, but that can never be attained in practical terms.
- Sustainability is a way of analysing and understanding twenty-first century priorities, encapsulated under a global umbrella of limited resources.
- Sustainability should include all perspectives, that is global, local, social, environmental and economic, taking a truly holistic approach in dealing with the issues.
- Sustainability is subjective, value-laden and a luxury of ‘good times’.
- Is sustainability simple or actually very (impossibly) complex?
- Sustainable development is about enabling building/change to occur – versus conservation of the past/present. Thus, perhaps we have conflicting criteria, and this is why there is no real common consensus on the topic.

Reflecting upon the above comments obtained from the respondents, it is self-evident that there exists a multiplicity of views on the subject. However, without agreement on a definition of sustainability, it is very difficult to decide upon what should be incorporated into CPD or course curricula. For example, if one accepts (from the above) that ‘sustainability is subjective, value-laden and a luxury of “good times”’, this would have a profound impact on both practicing professionals and the teaching of the concept. It would also mean that it would be very difficult to measure or gain any tangible benefit from employing the concept, due to its inherent subjectivity. But even more importantly, it would mean that in today’s turbulent economic marketplace (certainly not ‘good times’) it is likely that the concept would have no value or currency. Following this logic, one could be forgiven for contemplating whether we should be considering the concept at all.

Of course, we cannot accept this as a valid strategy for addressing sustainability. But, the example does emphasise the diverse range of views posited by the varied professional respondents, when considering what sustainability means to them, and thus how this would impact their professional life, in particular as they appraise the Built Environment for sustainability issues.

The second key aspect covered during the semi-structured interview process was to try and develop an appropriate strategy for educating future and existing (via CPD) surveying and other Built Environment professionals. During the interview process, various valid

suggestions were put forward by the respondents, and these are now summarised. Most of the respondents advocated that students should be made aware of (and practicing professionals should know, but this should not be taken for granted) the standard definitions of sustainability; however, it may not be fitting for academics to impose an ultimate interpretation.

Therefore, the aim should be to 'skill students' and 'Practicing Professionals' (via CPD) to use critical and reflective thinking in relation to their own and others' perspectives on the subject. After all, the hope of future generations lies with our current professionals and students, and their ability to take forward the sustainability agenda in a meaningful manner, while truly embracing the ethos of the topic.

The issue of CPD provision is very current, as it could be argued that our industry does not necessarily require traditional academic qualifications at all, and therefore the problem for universities is to re-focus on valid professional competencies.

Construction skills represent the whole of the United Kingdom construction industry, and they have identified four key goals. These established goals are to:

- Reduce skills gaps and skills shortages.
- Improve performance.
- Boost skills and productivity.
- Improve learning provision.

Employers and employees benefit from this approach by improving the quality of training and education on offer to meet both employers and employee needs. Further, it ensures that the future skills needs of employers and employees are addressed, and of course that they have to meet the needs of the sustainability agenda. This has led to a sea change in the provision of CPD and is forcing both institutions of higher education and professional institutions to re-examine their methodologies for developing and delivering CPD programmes of study. If CPD is to be genuinely continuous, then the traditional approaches adopted by universities must change. There is pressure being put on traditional routes of undergraduate programmes to be reduced, and the muting of 2-year degrees, so it is difficult to provide professionals with all the knowledge and skills required to deal with these new challenges, especially on the all-embracing topic of sustainability. Moreover, for educational institutions, key client groups are no longer the traditional 18–25 year-olds wishing to take undergraduate or masters programmes. More frequently, they are mature, experienced people wishing to enhance their existing qualifications and knowledge to meet changing and challenging circumstances; most importantly, they wish to combine their work-based activities, and thus truly attain the status of 'Reflective Practitioners', and this has to be accommodated.

It is a specific requirement of most professional bodies, if not all, for their members to embrace CPD activities, and this would provide an excellent opportunity for addressing the sustainability agenda. CPD needs to be continuous, but it is arguable that CPD in the past has failed to be continuous, has not embraced the concept of Lifelong Learning and has been overly vocational or professional in its focus. Furthermore, it has often been fragmented and less than developmental. Concerns in the United Kingdom for CPD as a 'national need' have been acknowledged by the National Committee of Inquiry into Higher Education in their report (NCIHE, 1997). They clearly placed the emphasis on continuity throughout life, on broader knowledge and intellectual skills, as well as vocational skills, and on ownership by the learner through personal fulfilment. CPD would undoubtedly provide an opportunity to engage with practicing professionals on the

subject of sustainability in a continuous holistic manner, and is possibly the only way of addressing this need for a more common approach to establishing sustainability in existing buildings through physical appraisal among currently practicing construction industry professionals.

Noting the above, respondents of the semi-structured interviews were asked to address the question of 'how varied professional groups could be educated to better work together in addressing the sustainability agenda'. The aim was to try and establish valid strategies for addressing the above question. The discussions resulted in the following proposed strategies:

- As a first step, it was felt that addressing existing misconceptions relating to false notions was important. This has to be carried out via CPD or within the undergraduate and post-graduate curriculum. This also requires establishing what sustainability is not, such as specific single-topic issues around global warming and the depletion of the ozone layer. All practicing professionals and students should be clear on such basics, and this had to be incorporated into relevant curriculum content.
- Embedding the notion – not just about the wider environment, but also relating to how the individual is geared-up to promote the notion, 'what can they contribute?'
- It is not just about having an ultimate definitive answer; it is rather about setting aims and achieving an acceptable balance, having realistic achievable expectations. The respondents were also fully consulted as to how, be it by CPD or a more formal educational qualification, the curriculum/topic could best be delivered. The resulting delivery strategies have been formulated based on a general consensus of respondent's opinions.
- First, establish from the current curriculum exactly which aspects of sustainability are presently addressed. Then to try and ensure that specialists are delivering the content in specific subject areas, complementing the input of generalists. This should assist in ensuring that this important and topical subject gets the correct and required emphasis it deserves. This is applicable to CPD and standard degree provision.
- Develop the existing curriculum to ensure that all aspects of sustainability are covered, and consider appointing a sustainability 'Champion' to advocate the issue across the course or CPD provision. The Champion's task would also encompass forging 'Cross Professional Linkages'.
- Ensure that industry sustainability models are incorporated into the curriculum and taught to professionals and students, while allowing and providing opportunities for them to be critically evaluated.
- Set up a 'Sustainability Forum', which could be web-based and/or in the form of a 'Society' that encourages professionals, students, employers and academics to discuss and address the subject, the results can then be fed into the curriculum. Establishing, for example, a 'Breakfast Club', where CPD sessions could be provided for all of the above participants, it can also act as a discussion/networking forum.

Linking with the above bullet points is the application of 'Embedding and Integration'.

- Embedding – this relates to having linked Learning, Teaching and Assessment strategies.

It appertains to having a coherent and holistic approach to what is to be taught and how it should be assessed.

- Integration – this is concerned with providing a theme upon which to teach the curriculum. For example, the use of real-world case studies is an excellent method.

Integration is related to enabling practicing professionals and students to forge linkages between taught materials and methods that would make it easier for them to learn and apply concepts. It is obvious then that one requires a common definition and understanding of sustainability, because it will have an impact on:

- what is to be taught?
- how it should be taught? and
- how the learning outcomes will be assessed?

Thus, it was felt by the semi-structured interview respondents that a specialist module/CPD package addressing the sustainability issue should be developed. This would also address the aspect of the topic being taught in a disparate manner. It would not necessarily replace what is already in the curriculum, rather it would provide an opportunity to deliver the curriculum in a coherent manner. In order to achieve this, a form of 'Integrated Project' was suggested. This would involve mixed disciplines/professionals working together, and could be based on a practical case study (this could easily be incorporated into a CPD package). This would result in professionals from different disciplines working together towards a common appraisal strategy. The opportunity for these interdisciplinary participants to establish a common approach but also to gain exposure to different outlooks was seen as a key benefit of this industrial simulation approach. After all, decisions taken during the planning stage are important and it is here where the concepts of sustainability require addressing for the first time, and thus interdisciplinary professionals should engage with each other. Furthermore, by relating the teaching of sustainability to a project, practicing professionals and students are better empowered to make linkages among the curriculums, hence employing the 'Integration' concept.

CONCLUSIONS

The semi-structured interviews have clearly demonstrated how different groups of construction practicing professionals have a variety of interpretations when considering the concept of sustainability. These differing interpretations could result in a variance in the outcomes of building appraisal depending upon the professional background of the appraiser, consequential to each professional body having its own perspective on what is meant by 'Sustainability'.

However, having an agreed understanding of the concept is a vital first step in determining how to work together in addressing the issue, and the establishment of a valid curriculum, which is to be delivered, be it by CPD or a more formal degree award. This in turn should lead to an appropriate methodology for teaching and assessment, and the described embedding concept can assist the learning process for all concerned, hence, the survey respondents positing an approach based on an 'Integrated Project' (or integrated CPD case study approach). It would seem that a valid way forward would be for the various relevant professional bodies to work together in the design and delivery of appropriate joint CPD events, possibly incorporating and using colleges and universities.

Finally, the most useful point established with the respondents was the notion that it may not be fitting for academics to impose an ultimate interpretation of sustainability.

Therefore, the aim should be to skill professionals and students to use critical and reflective thinking about their own and others perspectives on the subject. As potential ‘champions’ themselves, they can take this developed awareness of the subject into the wider arena of determining sustainability through appraisal of the Built Environment with the ability to discriminate appropriately.

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