# TOWARDS A VALUE-CENTRIC APPROACH TO EDUCATION: IMPLICATIONS OF CHANGING PRACTICES IN CONSTRUCTION PROJECT MANAGEMENT

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## ABSTRACT

This article explores two interdependent subjects underpinning how the built environment is produced: value and integrated teamwork. The concept of value is defined as the relationship between benefits received and costs incurred. Value thereby derives from the values of the judge and in multi-stakeholder construction projects, understanding each member's unique value proposition is complex, forming a catalyst for integrated teamwork and interdisciplinary ways of working. These subjects are reviewed in relation to the changes occurring in practice and how they can help inform new approaches to the education of built environment professionals, giving specific attention to construction project management education. In exploring these themes, the authors first review related project management research, before focusing on construction and current trends in practice. The paper then summarises research aimed at developing better theories of value and advancing integrated teamwork in construction. A framework aimed at facilitating a move to an educational model that encompasses a value-based and multidisciplinary approach is presented, followed by discussion and future work.

Keywords: construction project management, education, value, integrated teams.

## INTRODUCTION

This paper explores ways of putting value and integrated teamwork on the agenda of built environment education programmes; and in such a way as to enable knowledge and understanding of what and how to build to be sustainable economically as well as environmentally and socially. We define the built environment as comprising the Property, Construction and Facility Management (FM) industries, which are linked by design and management activities, and wherein its professionals create, manage and trade this nexus. The authors contend that sustainable developments are those that provide positive value for all stakeholders and that - because designing, delivering and operating assets are based on social and learning processes – positive or 'best' value can more successfully be obtained via integrated teamwork. How to rethink the higher education of built environment professionals from this standpoint is an important question that must be answered if we are to create more sustainable buildings and infrastructure. It is a challenge faced by all within (and those associated with or have an interest in) the industry, not only by educational providers. In responding to such a fundamental problem, this paper explores the two-part question:

> *What are the impacts of changes occurring in practice on higher education and how can recent approaches to value and integrated teamwork help advance teaching and learning?*

Separately the subjects of value and integrated teamwork are not new, however in approaching them as mutually dependent themes in theory, practice and education we hope to provoke debate on how together they form a value-centric approach and can help address critical deficiencies in current educational models. The paper presents a literature based study into these themes. The study is partly motivated by the main findings reported by the UK 'Rethinking Project Management' initiative, which highlighted the importance of increasing complexity, value creation, social processes, conceptualisation of projects and reflective practice (Winter *et al.* 2006). To limit the scope of our study we take higher education (HE) in the field of construction project management (CPM) as our focus; however the principles at the heart of this debate can be widened to encompass all disciplines with a connection to Property, Construction and FM.

In Section 2, the paper briefly reviews the 'Rethinking Project Management' research and describes areas of change specific to CPM practice so as to identify implications for HE. Section 3 summarises recent research on the deficiencies *in* and new approaches *to* the HE of built environment professionals. Section 4 then presents some of the key research on value and integrated teamwork that may help inform education. In Section 5, a model aimed at facilitating the move towards a value-based and integrated team-based approach to HE is presented. Section 6 concludes the paper with a discussion and future work.

## BACKGROUND

Over the past two decades new educational models have been investigated by a variety of research communities with a connection to the built environment. Highly relevant to rethinking CPM education is the 'Rethinking Project Management' initiative, followed closely by the findings of other recent construction-based research programmes which reflect the same, or similar, challenges and concerns.

### Building on the 'Rethinking Project Management' initiative

The UK research network 'Rethinking Project Management' (RPM) proposed new directions for the future of project management research and practice (see Winter *et al*. 2006, Cicmil *et al*. 2006). The original research agenda was aimed at enriching and extending the subject of project management beyond its traditional foundations. The arguments underlying this objective highlight growing critiques of project management theory and calls for new research to develop practice.

Five areas were identified as key to the field's development, namely the rethinking of: (i) project complexity, (ii) social processes, (iii) value creation, (iv) project conceptualisation, and (v) reflective practice. In presenting these directions, a dominant '*from*' position was identified based on current theory and practice, and a '*towards*' position representing new directions for research. This shift in thinking refocuses attention to issues requiring familiarity and understanding of relevant theoretical traditions, and the need to draw on a range of less mainstream concepts, including theories of systems thinking and social organisation.

Since the RPM initiative several papers have been published by its participants about how to implement findings; however none focus directly on the built environment, or specifically on CPM education. Whilst research literature surrounding the AEC sector (and specifically the CPM sector) reveals comparable issues to those identified above, few studies have developed these five directions explicitly. Each direction is, to a large extent, mutually supporting in developing CPM theory and approaches to practice. Furthermore, each directly refers *to* or is inherently linked *with* the enabling of a more sustainable built environment – economically, environmentally and socially.

Consequently, this paper contends that all five directions are pertinent to rethinking the education of - not only CPM programmes – but other disciplines of the built environment. With this as our backcloth, the remainder of this section looks at the changes impacting on project management in construction and providing impetus for rethinking of education.

**Changes in practice and implications for higher education**

There are a variety of important changes in the way the built environment is produced that are impacting on construction project management, such as advances in supply chain management (e.g., Gosling and Naim 2009), partnering (e.g., Kadefors and Badenfelt 2009), coalitions and alliancing (e.g., Huemer 2004), web-based construction management (e.g., Ahuja *et al.* 2006), stakeholder impact analysis (e.g., Olander 2007), public private partnerships (e.g., Dainty 2007), virtual teams and information management (e.g., Rezgui 2006) and increased media exposure (e.g., Crawford *et al.* 2006) to name a few.

In reporting this literature, we have categorised changes occurring in practice into seven groups: 1) changes in complexity, 2) changes in procurement forms, 3) changes in breadth of role and responsibility, 4) advances in ICT, 5) changes in longevity of information, 6) advances in integrated solutions, and 7) changes in CPM bodies of knowledge and standards. Each of the seven areas of change is presented in Table 1 and discussed in relation to their implications for education.

| CHANGES IN LEVEL OF COMPLEXITY | → IMPLICATIONS FOR EDUCATION |
|---|---|
| CPM has traditionally emphasised planning and control, and arguably developed based on technically complicated buildings. CPM dealing with social change or cultural rejuvenation is also complex – having non-tangible end products and high levels of demand-side participation. Today's practices and tools are aimed at designing interactions between disciplines and modelling component relationships. | Advanced methods and tools must be integrated so as to enhance understanding of interactions and the impacts of increased levels of differentiation and interdependency; enabling students to move beyond traditional success criteria (cost, quality and time). Designing interactions and understanding differentiation and interdependency are new competency areas. |
| **CHANGES IN PROCURMENT** | **→ IMPLICATIONS FOR EDUCATION** |
| As new delivery mechanisms replace traditional contractual arrangements, specification and management of what was considered well defined but complicated has become complex. Facilities procured through Build-Own-Operate and PFI methods have accelerated this change | CPM is becoming more complex as management extends beyond execution phase to encompass a broader spectrum of the facility's life cycle. New procurement forms introduce a broader range of perspectives, expertise, ways of working, and technologies. |

Table 1. Seven areas of CPM change and their implications for higher education

| CHANGES IN BREADTH OF ROLE | → IMPLICATIONS FOR EDUCATION |
|---|---|
| Extension of project responsibility beyond the traditional focus on execution is a recent but growing trend. Responsibility can now start with project formulation (prior to development of brief) and continue into operation. The range of roles that have project responsibility is also broadening. | As conceptualisation of responsibility changes, new propositions concern soft skills development critical to collaboration and communication, shared leadership and social competence; as well as knowledge in pre and post project activities, such as programs and portfolio management, requirements identification, approvals processes, FM strategy implementation, etc. |
| **ADVANCES IN ICT** | **→ IMPLICATIONS FOR EDUCATION** |
| Advances in ICT place more emphasis on stakeholder management in terms of reporting demands, speed and expectations of information flow, and likelihood of media exposure. ICT has facilitated distributed team collaboration and online working environments raising the expectation that CPM practitioners will work in virtual teams. | A range of new management skills and knowledge requirements are identified, ranging from the use of web-based modes of design phase software (such as ArchiCAD and REVIT), to working on projects with fully integrated BIM platforms that require new specifications of legal and contractual responsibilities, to the ability to work with people from different professional and national cultures. |
| **CHANGES IN LONGEIVITY OF INFORMATION** | **→ IMPLICATIONS FOR EDUCATION** |
| At every stage, as specialist expertise is assimilated into the project team, and technical infrastructure is put in place to secure more collaborative ways of working across the supply chain, additional knowledge is required to harness that expertise and to manage and analyse information across the supply chain – including information from procurement, design, delivery, transport and storage. | A need to develop an understanding of project information in relation to the maintenance of the data collected throughout long term relationships is recognised. Understanding the lifecycle of information in terms of its management and maintenance is a growing area of CPM competence. |
| **ADVANCES IN INTEGRATED SOLUTIONS** | **→ IMPLICATIONS FOR EDUCATION** |
| Building and service solutions are becoming more integrated as systems thinking is adopted by design teams. Pre-planning, standardisation, pre-assembly and pre-fabrication all lead to efficiency gains, improved quality and long term value. | Additional skills are required in the early project phases in conjunction with a grounding in resilience, systems and design thinking to enable pre-planning, minimisation of waste, conservation of scarce resources, and protection of habitat and bio-diversity. |
| **CALLS FOR CHANGES IN BOK AND STANDARDS** | **→ IMPLICATIONS FOR EDUCATION** |

| | |
|---|---|
| CPM practitioner development is supported by PMBOK® and ISO 9000. Yet these systems provide little to address the ambiguity, complexity and uncertainty inherent in today's construction projects. These documents are founded primarily on the management of clearly defined stand-alone projects. As a consequence of changes in PM practices more generally, a need has been recognised for their re-thinking (Crawford *et al*. 2006). | New approaches to education must also offer a response to the systemic and complex nature of building and infrastructure projects from a sustainable perspective on economic, social and environmental dimensions and move beyond the limitations of current BOKs and standards. |

Table 1. Cont. Seven areas of CPM change and their implications for higher education.

Together the changes in practice and their implications for HE signal that the time is ripe to review and develop current educational models. New perspectives are required that incorporate the dynamics and complexities surrounding today's construction projects and a project team's ability to navigate them.

## HOW SHOULD WE BE RE-THINKING CONSTRUCTION PROJECT MANAGEMENT EDUCATION?

Like other project management programmes, CPM education has followed a linear approach in the transfer of "know what" and "know how", aimed at improving competencies on "most projects most of the time" (Siebert 2005). It has been argued that this level of education falls into the realm of training, which teaches people to think, feel and perform as instructed. Thomas and Mengal's (2008) review of the current status of project management programmes reinforces the view that students lack preparation for dealing with increasing levels of complexity. If the linear trajectory of traditional CPM educational models which take an engineering view of projects is maintained, the gaps identified in Section 2 may widen further as the AEC industry continues to evolve. Additionally, whilst the implications of changes in practice for CPM education are wide-ranging, they are also germane to other educational programmes of the built environment. Common factors include, e.g., soft skill functions, ITC adeptness, shared leadership and negotiation of reward for all stakeholders. The implication is that the need for relevant educational programmes goes beyond any single discipline.

From this standpoint, arguably one of the main barriers to advancing built environment education is the silo-based nature of its disciplines, a feature that extends within the university setting, and serves to reinforce interactions that are

fragmented, hierarchical and potentially adversarial. Collaborative approaches to education in which students across disciplines develop and share knowledge of design, installation, management, operation and performance have been proposed in the past and such inter- and trans- disciplinary educational models are not new, see e.g., Chapman (2009), Blackwell (2007) and Spence *et al.* (2001). These authors emphasise that inter- or trans- disciplinary education enables better understanding of disciplinary values, communication between them, and more integrated approaches to problem solving. The importance of critical thinking and reflection-in-action (Schön 1987) are common foundations of these models. Proponents of inter- and trans- disciplinary models share the idea that in education, as in practice, action-based learning in a multi-disciplinary environment pulls together and accounts for the variety of interests so as students (learn how to) identify and develop common ground.

The different scales of stakeholder interest and actions is another important aspect of multi-disciplinary approaches to education. This is because approaches to scale and the aims that each discipline pursues is often subtly different (Moudon 2002). Chapman's (2009) approach to transdisciplinary education in the built environment considers how disciplines develop and communicate their specialism and what 'instruments' they use to do so. Relationships across spatial and time scales relative to areas of activity have been illustrated by Chapman and Larkman (1999), see Figure 1. Placement of these scales in an educational context challenges current educational offerings in relation to prescriptive skills development. Making explicit the relationships between spatial and temporal scales allows a deeper understanding of how disciplines interrelate, and crucially how HE offerings can help develop value-based synergies between disciplines. Enhancing our understanding of the values of others and their translation into realised value underpins many of the emerging requirements for education.

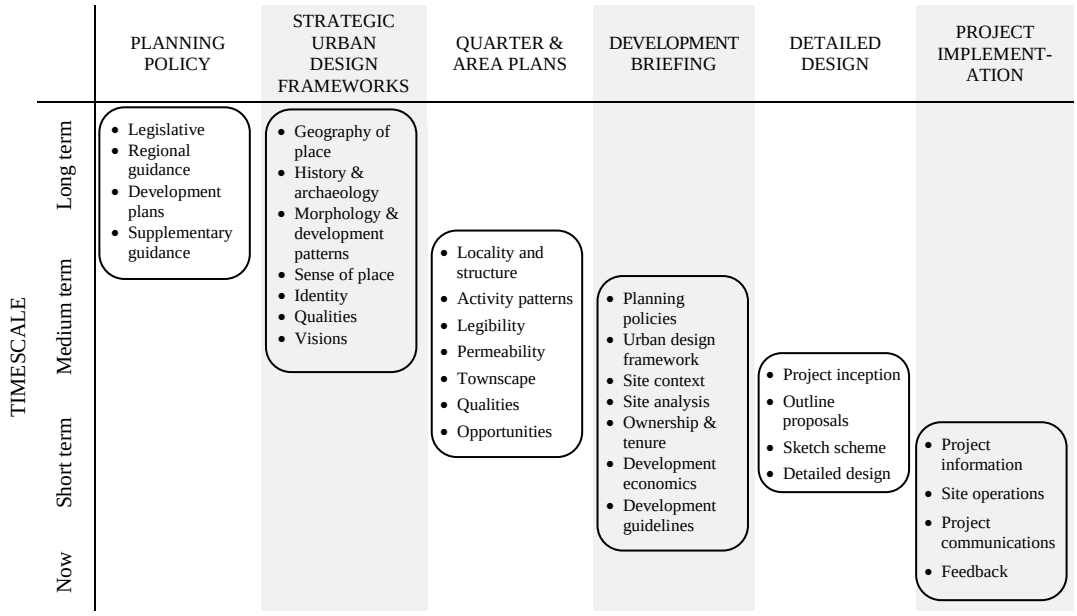

Figure 1. Relationships across the different spatial and time scales of the built environment; source: Chapman and Larkman (1999), p 226.

Implementing such approaches to education whilst being inclusive of the reality of complexities, uncertainties, and multiple variables of projects, is no easy task. But that is the challenge. This paper proposes that educational models must do more to support the embedding and synthesis of values and integrated ways of working. In expanding an understanding of these issues, the following section briefly reviews related literature on the role of value and integrated teamwork.

## ROLE OF VALUE AND INTEGRATED TEAMWORK

The concept of value is a slippery one and consequently it has a rich history in academic literature. Yet as the project management literature reveals – with the exception of recent work, e.g., by Barima (2010), Winter and Szczepanek (2008) – inadequate attention has been given to the direct, empirical or theoretical study of the value construct (Winter *et al.* 2006). Construction-based literature on the other hand tells a different story since over the past decade the concept of value has received growing interest. In construction, the value construct is used in many contexts, implying tangible and intangible qualities (Kelly *et al.* 2002). Whilst it is often used loosely as a synonym for cost, the concept of 'value' is really the relationship between benefits received and costs incurred. Value is what you get over what you give to get it, in monetary and non-monetary terms (Saxon 2005). Good value implies a positive difference between what you get and what you give

up to get it. But the yardstick of value is specific to the stakeholder making the judgement. Thus *value* derives from the *values* of the judge (Holbrook 1994). In construction there are many stakeholders, and therefore many judges, each with a different agenda of benefits sought, resources with which to get them, and variations in their power to get what they need; that is, each with a unique value proposition.

Spurred on in part due to the influential Latham (1994) and Egan (2002) reports, research efforts on value and teamwork have increased, exploring for example the need for early identification of a facility's functionality and performance (Gann *et al.* 2003), how this contributes to the business case (Kelly 2007), and how service-based logic adds value (Dainty 2007), how to provide positive value to clients (CABE 2006), and how to form and lead fully integrated teams to achieve the best value (SEA 2009). The ongoing 'Revaluing Construction' (RVC) programme is a large resource of research on the value construct. The priority areas as reported in a book publication on the initiative (Barratt 2007) include: (1) development of holistic views where industry delivers value to society; (2) building a shared vision among stakeholders for maximising value adding activities; (3) changing procurement routes to balance competition and develop social capital; (4) integrating construction process through ICT and team value management; (5) evolving knowledge and attitudes through education; (6) creating awareness of hard and soft benefits throughout whole life; and (7) promoting value delivery.

However before the Latham and Egan reports, value-based decision making and collaborative teamwork were prominent themes in construction-based research; for example, in value management (VM) methods developed by Lawrence Miles (1966) and applied to construction (see Macedo *et al*. 1978). Since its inception, VM has broadened from economic management, with customer satisfaction now the primary determinant of product quality (Kelly and Male 1993, Connaughton and Green 1996). Advances in soft methodologies of VM practice were made (e.g., Green 1999), as well as in its core areas, namely in relation to: 1) *Function* - expressing need in terms of purpose, independent of solution; 2) *Cross-functional teams* - to achieve a broad view and increase knowledge; (3) *Structured processes* - enabling creative thinking to explore best alternatives. Innovations have since surrounded 'visualisation of value' and tools for measurement; e.g., Thomson *et al.* (2006), Austin *et al.* (2006), Bourne (2008), Jupp *et al.* (2011).

The capacity of stakeholders to negotiate positive value for all is largely dependent on their ability to establish an integrated approach to, not only design and delivery, but also to early project initiation phases, operation and disposal. Integrated teams bring together design and technical consultants, as well as main contractors, specialist sub-contractors, and others such as materials and component manufacturers. Assimilated team structure is aimed at developing synergistic interactions across the project (Baiden *et al* 2005, Green *et al* 2005). Yet Winch's earlier criticisms of the lack of integration across construction supply chains still holds since whilst there is much talk it remains "more rhetoric than reality" (Winch 2002). However *integrated teamwork* confined to design team members is more apparent (Austin *et al.* 2001). One of the key drivers being the increasing technical complexity of building systems and services, where their number and complex of interactions necessitates an integrated design team, which increasingly necessitates interoperable technologies (Krygiel and Nies 2008).

Integrated teamwork implies interdisciplinary working and therefore the recognition of each discipline's values and ability to improve performance. Much of the research reviewed here is predicated on the need for explicit, shared values that can be held as an industry and *in addition to* or *in alignment with* those held as a member of an organisation and community.

## TOWARDS A VALUE-CENTRIC APPROACH TO EDUCATION

As is evident from the literature, there is a growing conceptual shift away from the traditional engineering view of building and infrastructure projects, towards a more value-centric view, in which the primary concern is the challenge for all project stakeholders to create positive value or to contribute to its creation (Winter and Szczepanek 2008). One of the implications is that new educational models seeking to address new competency requirements should incorporate the value construct. Education of CPM students (and other disciplines of the built environment) therefore requires more than the transfer of 'know what' or 'know how'. In addition, it must not only account for previously recognised requirements of educational models, namely:

1. *Individual autonomy and questioning* – based on critical thinking, reflective practice and strategic foresight in decision making (refer to §3), and
2. *Consideration of all stakeholders when taking action* – widening the focus of study and praxis to inter or trans- disciplinary, and fighting trends toward discipline-based silos (refer to §3).

But HE must also be developed in conjunction with value-based integrated teamwork, namely the development of:

3. *New values for sustainable futures* – developing and fostering a 'whole of system' view in education to allow appreciation and embracing of new complexity (refer to §4), and
4. *Value-centric ways of thinking* – offering opportunities to conceptualise linkages between each stakeholder's value propositions (refer to §4).

The introduction of a value construct in education is aimed at developing students who are capable of liberating and realising positive value for all and contributing to more sustainable built environments.

**Defining a 'values-to-value' approach**

In rethinking the education of CPM students, a framework based on a 'values-to-value' approach to education is proposed. *Values-to-value* refers to the conversion of *stakeholder values* (i.e., the values of the judge), into *realised value* (i.e., value of project outcomes and outputs). The conceptual framework, illustrated in Figure 2, first of all takes into account spatial and temporal scales of different disciplines operating across the built environment; secondly, that the different values of stakeholders can be rationalised across these scales; thirdly, that stakeholder values can be imputed as six different classes of realised value and rendered in relation to different spatial and temporal scales. The framework thereby brings together two sides of the value construct – values of the judge and realised value of project outcomes and outputs – in the context of the multiple interests operating across different spatial and temporal scales of the built environment.

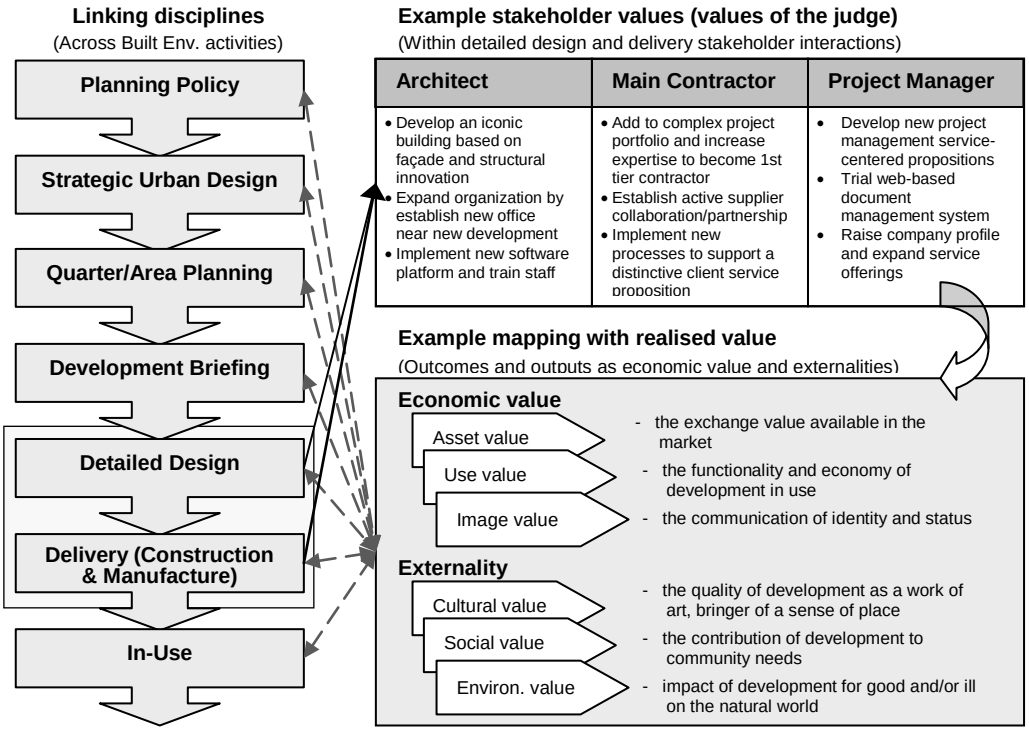


Figure 2. Conceptual framework for rethinking higher education using a values-to-value approach.

The framework employs Holbrook's conceptualisation of values as "a *relativistic* (comparative, personal, situational) *preference* characterising a subject's *experience of interacting* with some object". Preferences are thereby based on value judgments which are verified against standards or rules. Standards and rules are in turn validated against the value systems (attitudes, beliefs, desires, interests, goals, ideals, etc.), of stakeholders. Holbrook's hierarchy helps resolve 'realised value' which relates to a preferential judgement of a project outcome or output while 'stakeholder values' relate to the underlying criteria influencing those judgements. Moving from Holbrook's definition of values, *realised value* is then expressed as either a dimension of *economic value* or alternatively as an *externality* of economic value. Externalities are the impacts on all stakeholders, even those not directly involved in project transactions. In this way, the project team may neither bear all of the costs nor reap all of the benefits. Six types of *realised value* are characterised using classes defined by CABE (2006), and defined as either economic or externalities.

<u>Economic value:</u>

- *Asset value* - the exchange value available in the market,

- *Use value* - the functionality and economy of the development in use, and
- *Image or perceptual value* - the communication of identity and status.

Externalities:

- *Cultural value* - the quality of development as a work of art, bringer of sense of place,
- *Social value* - the contribution of development to community needs, and
- *Environmental value* - impact on natural world of the development for good/ ill.

It is intended that the rationalisation of values-to-value can inform new models of education for CPM programmes and beyond; ultimately informing our understanding – from the perspectives of all stakeholders including local government, designers, contractors, building owners, tenants, the community at large and so on – about why our built environment turns out the way it has/does.

## DISCUSSION AND FUTURE WORK

This paper has explored changes in construction impacting on project management practitioners and raised assertions about the required new competencies that must be addressed by education. Shared leadership, social competence, communication, skills in organisational politics and advanced knowledge surrounding building information modelling, and information systems, sharing and maintenance, are just some of the competencies needed to address the seven areas of change in construction practice. In light of these challenges, the benefits of inter- and trans- disciplinary models that account for different spatial and temporal scales, coupled with a value-centric approach to integrated teamwork were explored as a means to provide a structured approach to built environment education.

The literature based study has investigated the value construct in relation to advancing more integrated ways of working by virtue of rationalising 'values-to-value' in a multidisciplinary conceptual framework for education. The need to explore the push and pull of economic, social and environmental forces in an educational context is sought by the approach. The framework illustrates how the conversion of values-to-value can inform decision making and presents a structure for exploring economic, social and environmental dimensions of built environments. The development of the proposed framework in future research is

aimed at providing a platform for problem-based learning whilst enabling the rationalisation of contemporary issues of CPM such as carbon trading, supply chain management, partnering, coalitions, alliancing, stakeholder impact analysis, new forms of procurement, and integrated project delivery.

Moving beyond this conceptual framework to the development of a theory for built environment HE is not something that can be accomplished in the scope of this paper or a three day conference. It requires a much longer term commitment and a more multi-facetted and systemic approach. The conceptual framework presented here is aimed at provoking the discussion and debate necessary to not only understanding the role of value in progressing educational models but also if we are to enable 'best' value for all in practice.

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# AUSTRALASIAN UNIVERSITIES BUILDING EDUCATION ASSOCIATION

AUSTRALASIAN UNIVERSITIES BUILDING EDUCATION ASSOCIATION (AUBEA),
35TH ANNUAL MEETING

## CONSTRUCTION MANAGEMENT(S)

Melbourne School of Design
The University of Melbourne
Parkville, Victoria

14-16 July, 2010

**Call for Papers**

The Australasian Universities Building Education Association (AUBEA) is now calling for contributions to its 35th annual conference, which will be held at the University of Melbourne on 14-16 July, 2010.

This year's conference will focus on the management of construction, understood in a very broad sense to incorporate any discipline that improves our ability to manage the industrial structure, the planning and production process, the distribution process, or the output of building.

This website has been organized to provide information that can help prospective participants submit a paper, register for the conference, and plan their trip to Meboume. The website will be regularly updated as conference details are developed.

Masters Programs

Architecture
Construction Management
Landscape Architecture
Property
Urban Design
Urban Planning
Master of Design (Heritage)
Master of Design (Urban Design)
Planning + Design

Graduate Research Programs

Doctor of Philosophy
Master of Philosophy

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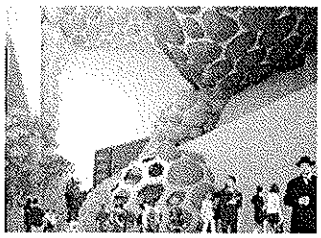

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# AUSTRALASIAN UNIVERSITIES BUILDING EDUCATION ASSOCIATION

AUSTRALASIAN UNIVERSITIES BUILDING EDUCATION ASSOCIATION (AUBEA),
35TH ANNUAL MEETING

## ABOUT AUBEA

The Australasian Universities Building Education Association (AUBEA) is a membership-based, non-profit organization created in 1975 to promote and improve teaching and research in building through communication and collaboration. It comprises academics representing all universities throughout Australia, New Zealand, and the wider Asia-Pacific region which provide education in building-related fields.

AUBEA has a Council made of representatives from member institutions that meets twice a year, and maintains a strong connection to industry and professional associations.

Since its inception, AUBEA has been running an annual conference, intended as a forum for pedagogical and disciplinary reflections, institutional exchange, and collective growth.

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AUSTRALASIAN UNIVERSITIES BUILDING EDUCATION ASSOCIATION (AUBEA),
35TH ANNUAL MEETING

## ABOUT THE CONFERENCE

The focus of this year's conference is the management of construction. Rather than automatically associating the meaning of these two words to the area of expertise labelled as 'construction management', we intentionally set out to interpret their connection in the broadest possible way, to incorporate any discipline that improves our ability to manage the industrial structure, the planning and production process, the distribution process, or the output of building.

What should the sophisticated pairing of 'construction' and 'management' designate or include today — particularly from an intellectual perspective? Predetermined or new academic disciplines, specific training or work issues, micro or macro problems, cultural dispositions towards problem definition and problem solving?

Irrespective of the possible answers, can we presuppose curricular bases? If so, to what extent? Similarly, can we identify — normatively or historically — the kinds of research we should engage with, or the kinds of teachers/scholars who should be involved?

These questions are critical for tertiary educators in building programs across the entire Australasian region, but particularly in Australia, where the dynamics of the industry, combined with the ongoing restructuring of building courses and the faltering support for research in construction, raise issues with regard to the nature and use of the education on offer in the various areas, the market for it, and the role that educational providers should play in advancing or maintaining the state of knowledge.

In light of the changes recently undergone in its overall structure, the Faculty of Architecture Building and Planning at the University of Melbourne is keen to provide a platform for AUBEA to reflect on such issues, by implicitly subjecting its own choices to criticism and debate vis-à-vis alternative strategies and/or agendas.

Contributions are therefore sought from individuals as well as institutions that, on the basis of the questions suggested above, can help map an inclusive territory for managing construction, define or reinforce its environmental connections and boundaries, or steer the travel in specific directions — essentially by clarifying their own intellectual and operative position against issues that are specifically deemed or relevance.

This can be done by describing epistemological stances, work carried out by the presenters, curricular choices, teaching strategies, problems to address, gaps to fill, areas to bridge, tools to develop, knowledge streams to pursue, research undertaken or to undertake, issues to consider, or constituencies to respond to, in every area covered by the programs of building schools.

As in the best tradition of AUBEA conferences, the range of possible topics is wide, with the small proviso that each paper should contribute to stimulate a 'reflective' and possibly organic discussion on the overarching theme.

**Student stream**

Since higher research degree students are the linchpin connecting academic present and future, a section of the AUBEA meeting will be devoted to the presentation of their work on related matters.

**Research funding discussion**

In light of the Federal Government's current Excellence in Research for Australia (ERA) initiative, another section of the meeting will be used to discuss the funded research environment in Australia, and the space this leaves to building-related studies.

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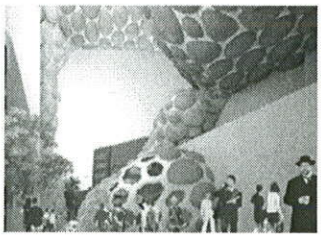

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35TH ANNUAL MEETING

## SUBMISSION DETAILS

**Abstracts**

Abstracts will be used as expressions of interest and for conference structuring purposes. We would like to receive short, clear abstracts, not exceeding 300 words. They should include the name(s) and affiliation(s) of the author(s), title, and summary of content of the intended paper. Abstracts should be e-mailed to aubea-2010 (@unimelb.edu.au).

Referees will review papers only.

**Initial paper submissions**

Submitted papers should not be longer than 3,000 words and be formatted in PDF, with a file size not to exceed 5mb. Name(s) and affiliation(s) of the author(s) should only appear in the first page, as shown in the paper template below. Papers should be sent to aubea-2010 (@unimelb.edu.au) with 'AUTHOR(S)SURNAME_aubea2010_initialpaper' in the Subject field. If the author is a student, the Subject field should read: 'Student_AUTHOR(S)SURNAME_aubea2010_initialpaper'.

- Paper template (Word, 55 kb)

Format guidelines for the paper are as follows:

Length: 2000 - 3000 words.
Paper size: A4, 1.5 lines spacing.
Margin: 2.5cm top/bottom and 3.5cm left/right.
Title: Times New Roman, upper case bold, 14 point, 24 pt before and 18 pt after.
Text: Times New Roman, 12 point, 6 pt before and 12 pt after.
Main Headings: Bold and all in capitals, 24 pt before and 12 pt after.
Sub-Headings: Bold and lower case, 12 pt before and 6 pt after.
No underlining.
Images, charts and tables should be titled, numbered, and embedded in the text.
Captions: Times New Roman, lower case, 10 point, 0 pt before 24 pt after.
Harvard referencing.

In principle, the structure of the paper should contain an abstract outlining purpose, scope, methods and conclusions, plus selected keywords. The text should be organized in separate sections consisting of introduction, main body, conclusions, and references.

All submissions will be double blind peer-reviewed.

**Final paper submissions**

All accepted papers must be submitted electronically in their final form as a Word document, to the same address and by 26 June. The Subject should be 'AUTHOR(S)SURNAME_aubea2010_finalpaper', or 'Student_AUTHOR(S)SURNAME_aubea2010_finalpaper'.

All final manuscripts will be included in the electronic conference proceedings subject to peer review acceptance.

## CONFERENCE PROCEEDINGS

Conference proceedings will be available as part of the conference package. The technical committee will select the best papers and invite its authors to extend them into chapters for a book on education and research on the management of construction or articles for the *Australasian Journal of Construction Economics and Building.*

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