

Current Research

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“Project Management” and “Sustainable Development” for Construction Projects

During the time I have spent both studying and gaining practical experience in the fields of architectural design and construction it has become clear that these extremely resource intensive industries face serious problems. What at first seemed like a problem specific to my native Egypt now emerges as a global problem. Whilst the UK's construction industry differs a great deal from Egypt's the essential problems it faces are exactly the same. The problems facing the construction industry are not simply *functional* but *cultural*. It is true that the system itself is in need of urgent reform but what is even more serious is the unwillingness of many people in the industry even to accept that there is a problem.

To me, the need for change is clear. The outcome of such change has to be an industry capable of delivering better value and better quality and to do so in ways which are radically more effective, more efficient and, above all, more sustainable. A vital starting point for reform is to make the *process* and not just the *product* of construction more sustainable. Seeking to make project management sustainable defines the core objective of my research.

Two primary questions have arisen. Firstly, how can sustainable development be made a key component of project management? Secondly, can project management be an instrument for delivering sustainable development?

There are three basic stages to my research. Stage one involves an extensive review of literature to ascertain the theories and practices of project management in the construction field and to discover where existing links to sustainability already exist.

Stage two involves the identification of case studies drawn from both UK and Egyptian contexts as the means of exploring similarities and differences.

Stages one and two are intended to define the problems facing construction from the perspective of sustainability and to make the case for a reform of the project management process to help solve these problems. These stages anticipate the development of new strategic tools. Stage three involves the development and application of such tools in order that sustainability can become an integral and effective part of the project management process.

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Mohamed E.M. Eid

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The 20th Century Architecture of the University of Edinburgh

Although the University's architecture makes a highly visible contribution to the city's physical form, historical data on the 20th century projects is minimal. In order that the University's buildings can be properly understood a history of its architectural endeavours is required. Essentially the aim is to clarify the historical context.

Following an empiricist agenda, the research involves detailed examination of archival material to ascertain who, why, where, what, how, when and for whom building projects were undertaken. In this respect the University is like a dynasty of patronage — the aims and motives of which must be assessed. Similarly, the artists who have been commissioned are worthy of attention since the works for the University are only part of their oeuvre.

The major projects this century have involved architects and planners such as A.F. Balfour Paul, Robert Lorimer, John Matthew, Charles Holden, Sir Basil Spence, Sir Robert Matthew, Sir William Kininmonth, Alan Reiach and Michael Laird.

After the First World War, a science campus was established in the suburbs. Then, in the 1940s the expansion of the University involved creating an urban campus within the densely built urban fabric. This latter project eventually led to the University's involvement in a scheme for urban redevelopment in the 1960s. In addition, the University initiated several key restoration and conversion schemes of 17th, 18th and 19th century buildings and so can be said to have been an early participant in what was to become a significant national trend in architecture.

Questions which it is hoped can be answered revolve around establishing the manner in which such enterprises were undertaken and the key characters who enabled them to take place.

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Modernity and National Romanticism

This thesis explores the issues of modernity and national romanticism as competing narratives of identity in three recently constructed national museums. The Museum of Scotland in Edinburgh, The Canadian Museum of Civilisation in

Ottawa and The National Museum of New Zealand, Te Papa Tongarewa, in Wellington.

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Monumentality in National Socialist Architecture

In the early 1950s Modernist architects and historians had various debates about the meaning and the necessity of monumentality in architecture. It was a 'critical' and controversial matter because of its connection with Nazism and totalitarian regimes. Modernist architects were placed in the dilemma of either expelling the idea of monumentality from the discussion of democratic architecture or embracing it as part of architectural aesthetics. From the perspective of modernist historiography, however, the explanatory validity of the discussions of the moral issues of architects' or the states' 'original' intentions seem to be questionable and sometimes even misleading. The element of monumentality in Nazi architecture has a significance which has to be contextualised in the contemporary architectural discourse in Germany as well as in other countries in the early twentieth century.

The seductive quality of monumentality, a component of the beauty of the sublime, is well presented in Albert Speer's Reich Chancellery and the Zeppelin Field in Nuremberg. The enormousness of the scale of Speer's buildings and plans, a feature which can also be found in the works of a number of his contemporary Modernists, was such that the absolute authority of a unified nation was underlined and the territories of each individual negated, with a view to presenting the power of the state and eternal architectural beauty. His unexecuted Berlin Master Plan was a triumph of vision in Nazi Germany ever since the model was first produced. The image of the Reich capital was successfully propagandised through this plan which exemplifies how specific architectural features achieved their function as the 'language' of propaganda.

By analysing the features and elements of monumentality in National Socialist architecture this study will investigate the ways in which Nazi ideology and aesthetics were deployed in the interactions between the central leadership and individual citizens.

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A Transformation of Streetscape in Modern Taipei

This research aims to find a way of interpreting urban space to analyse the urban landscape of Taipei. The literature available seems to fall into four categories:

1. Image studies. Kevin Lynch offers a systematic method for analysing visual elements of a city.
2. Studies in spatial cognition, i.e. Christina Norberg-Schulz who suggests that a place becomes meaningful as a result of people's experience and their interaction with the environment.
3. The city as a text. Roland Barthes sees a city as a text which is written by the inhabitants in the course of their daily life. Sense of place is created as an outcome of the conflation of the real and the imaged place, the representation and reality of space.
4. Social space. Edward Soja includes material, mental and social dimensions of spatiality to view the "real and imaged" places in an integrated way.

The spatial theories which I have encountered show that an abstract analysis of visual elements, city planning or geography has not been able to explain contemporary cities. More and more, scholars see urban space as a social product, as an interaction of historicity, sociality and spatiality. A city could be read as a text covering aspects such as: history, policy, economy, theory, art, memory and social relations. Thus, I have constructed a theoretical framework based on Soja's "the trialectical thinking of spatiality." My hypothesis attempts to read the sense of place from the interaction between being and spatiality/sociality/historicity and is divided into four categories: visual landscape, memory, text and social relations.

Taipei has been chosen for observation because of its particularity of urban space due to its unique political and economic history. It is thus seen as an "Instant city" in which the urban landscape changes quickly. The inhabitants are adept at absorbing influences of an altering society as well as retaining their cultural identities. Therefore, this compressed urbanisation of Taipei formulates an ambiguous cityscape in which cosmopolitan and indigenous city forms simultaneously exist.

For me, the key to exploring an emerging metropolis lies in its peoples' experience of urbanity, the sense of local habitation and the change of life style. Therefore, this research attempts to develop a method of reading space through a field study in selected streets. I intend to answer the research questions:

1. How do people read the sense of a city and recognise the character of a place?
2. How do we understand the social meaning of streetscapes in Taipei and possibly other cities?
3. How do social and political factors combine to create a sense of place?

This critical analysis of Taipei's streetscape will provide a structural method to examine the complexities of the modern city.

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Modern but English: Perceptions of Modernism in England in the 1920's and 1930's.

Luciana Flores Martins

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Eco-Tourism as a Tool for Sustainable Development

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Conservation of the 20th Century: Problems of Concrete Used in 1960's Social Housing in Edinburgh

Technology, a vital factor of 20th century history, has caused huge cultural change during the last century and this can be seen in the history of twentieth century architecture as well as elsewhere. Thus, 20th century architecture is now recognised as an important part of both architectural and cultural history. DoCoMoMo (Documentation and Conservation of the Modern Movement) is an international organisation, which attempts to raise awareness of the importance of the architectural heritage of the Modern movement and to do what it can to promote the conservation of its buildings. Obviously, it is not possible to conserve everything but those buildings of high cultural significance should be conserved. Currently, one of the best methods of architectural conservation is to keep buildings in use - the cultural significance of the building is retained and, moreover, the users are responsible for the building maintenance cost.

In Scotland, a strong reaction against Modernism emerged around the end of the 1970s. Buildings were condemned as ugly, troublesome and uninhabitable. Many of them were demolished in order to redevelop the site or in an attempt to minimise the social problems they were seen to cause i.e. crime, vandalism and family breakdown. In addition, the housing often had problems related to physical defects such as premature deterioration of materials, high-energy consumption, low-flexibility of space and poor fireproofing. These problems led to major difficulties in the continuing use of the housing.

To conserve Modern social housing it is necessary to protect these buildings and prevent their destruction. The housing needs proper routine maintenance and sometimes adaption in order to accommodate today's requirements. This study will investigate technical problems and suggest recommendations, based on the philosophy of conservation, in order to meet socio-economic needs and achieve a cultural continuity.

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Presenting Building Product Information on the World Wide Web

Building product information, the technical information about building components, materials and finishes used in buildings, has traditionally existed in paper-based media, i.e. hard-copy catalogues, brochures and trade journals. Due to the increasing integration of computers into building practices and various shortcomings of the paper-based media, product information has also been made available in electronic media such as floppy disks, CD-ROMs and lately, the World Wide Web sites.

It appears that the Web, apart from being the latest, is perhaps the most promising platform to disseminate building product information. The Web presents new opportunities in organisation, presentation and distribution of product information.

A number of manufacturers and suppliers, some of which are also the publishers of paper and CD-ROM based catalogues, have chosen to promote their products on the Web due to the efficiency and the growing business value of the medium. The Web, along with other Internet services such as e-mail and File Transfer Protocol (FTP) is gaining a greater acceptance in the architectural community. A considerable number of architectural firms with a web presence take advantage of on-line product information.

In spite of the increasing use of the Web as a product information source, we don't know much about how architects utilise it as a source, what problems they encounter, what changes they would like to see and what opportunities and challenges this emerging media holds. As yet, there has not been much research examining these issues.

My research aims to tackle some of these issues including:

1. Ways of accessing, sorting, browsing, editing, and selecting information.
2. Challenge the emerging and changing medium of the WWW.
3. Coping with information explosion and increasing media options.
4. Virtual offices and distributed systems.

These issues will be addressed by focusing on the specific problem of product information. The research consists of two phases:

- The first phase involves conducting a web-based survey. The primary objectives of the survey are to collect information as to how architects are using the web-based building product information, and to explore the strengths and weaknesses of existing building product Web sites. The unique aspect of the survey is that it is interactive.
- The second phase of my research is to develop a prototype Web-based environment to present product information. The prototype will address some of the shortcomings of the existing product sites and demonstrate ways to improve them.

This research is in conjunction with an EPSRC-funded project in the Department of Architecture.

Sabina Strachan

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The Early Lairds' Houses of Scotland

The Scottish laird's house, as a term, is one which is known to architectural historians but one which has yet to be defined. Without definition it cannot and has not been used in any classificatory system such as Historic Scotland's Listed Buildings or the Royal Commission of Ancient and Historical Monuments of Scotland's National Records.

The compilation of a gazetteer of Scotland's lairds' houses will provide the necessary data to formulate a general definition, within which specific sub-categories will appear. The basic form of the laird's house is now so familiar in

the modern landscape that problems have arisen whereby its defining criteria appear across the spectrum of house types. Therefore, it has proved essential to extrapolate criteria by assessing historical, built forms in context in order to uncover specific differences appropriate to time and place. Local date ranges for the appearance and prevalence of this building type are essential. The resultant framework will help construct guidelines for the format and exclusivity of such a gazetteer.

In a broader context the classification of the laird's house into an architectural category is a complex issue. The discourse will focus upon whether or not the laird's house may be termed 'vernacular.' This term has only been introduced into international discussion in recent years and as such its definition is constantly evolving and its boundaries ever-changing. The laird's house has yet to form part of this discourse, however, does the use of local materials, non-architect builders and place-specificity determine its vernacularism or is it excluded because they are not built by or for 'the common man' but for powerful community leaders and are, thus, 'high architecture'? The discussion will conjure many more aspects which will be explored.

The perception of the laird may be one of conjecture but can be informed by a comparison of the roles of the rural seat and town house. The form of the latter evolved over time following distinctly urban patterns. Other elements such as heraldry also contributed to the laird's image-making. In a rural context judgements can be made by evaluating certain key factors such as siting, orientation, ancillary buildings, proximity to settlement, screening and consideration of vistas. Studying the house in context, in the landscape, reveals its reliance upon the perception of power and status in society of the 'laird.' A similar approach to the internal spaces, planning, function and changes therein will also prove illuminating.

The 'laird's house' as a term is problematic as the same built form was also occupied by other members of the upper stratum of society, in particular taxmen, ministers and merchants. In the most part these others were also landowners but the situation is such that the term 'laird's house' implies recognition of a particular architectural type. Therefore, the substitution of the term would be counter-productive.

Issues of classification, definition and terminology are particularly acute in the assessment of the laird's house. Through the above analysis, from national to individual perspectives, the first appraisal of this undervalued type will provide a unique insight into Scotland's complex society from the sixteenth to eighteenth centuries.

Completed Research

Dr. James Chia-Chi Hsiao PhD

Constructing A Suitable Impact Assessment Methodology: an evaluation of Taiwanese EIA of high rise building.

PhD submitted November 1999.

Dr. Nicholas Rossis PhD (nicholas@caad.ed.ac.uk)

Design in a Digital Age: in Search of a Collaborative Paradigm

PhD submitted March 2000.

This thesis examines the theory and practice of architecture in an attempt to suggest a new design paradigm more appropriate to today's unique era. The central argument is threefold: firstly, it is argued that architects should strive to find a balance between being creative and meeting their clients' practical needs. Secondly, that in today's democratic and learned society, this can be achieved more easily by architects and clients working together more closely. And thirdly, that technology can help them overcome many of the practical difficulties presented by such a new collaboration.

To test the validity of these three arguments both the theory and practice of architecture are examined. Architectural theory is examined with a focus on what are probably two of its least examined aspects: the architect-client interaction and the psychoanalytic aspects of design activities (from a Jungian perspective) in an attempt to describe a new paradigm. With the aim of developing an architecture that meets both the aesthetic and practical needs of the client in a balanced way - a balanced architecture - this paradigm is envisioned to be one that will enable practitioners and clients to collaborate and is, therefore, referred to as a new, collaborative design paradigm.

This emphasis on collaboration is the result of the observation that most existing design paradigms seem to deal with design as an isolated event. In reality, however, there is a constant interchange of design ideas between all parties involved. Design is not an isolated, self-centred, activity but a combination of

synchronous and asynchronous communications at a number of different levels. Therefore, a new paradigm is proposed that emphasises communication and collaboration skills as aspects of successful design. Thirty practitioners were interviewed and asked to take the Myers-Briggs Type Indicator Test in order to examine the transpersonal activities that take place in any design collaboration and to test the applicability of the proposed paradigm. This first set of interviews took over six months to complete, included practitioners from two countries, raised interesting points as to the personalities and communication skills of practitioners and helped to define the new, collaborative paradigm.

In the course of further exploring this new, collaborative design paradigm, architectural practice is discussed, particularly in relation to new technologies that have been introduced into the profession during the past few decades and which may have forced changes to the workplace. A second set of interviews, also lasting over six months and including the same practitioner group, indicated that architectural practice has indeed changed due to the introduction of information technology into the workplace. These interviews help answer a number of related questions such as: whether a paradigm shift has occurred, whether the role of the architect changed and what can be surmised about the future.

All these questions bear heavily on the development of the new, collaborative paradigm and both present and possible future directions of design practice are examined in my thesis.