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SHARING NEW KNOWLEDGE: NEW FORMS OF RESEARCH

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1. Introduction

This paper examines how knowledge derived from practice may be viewed as a valid form of research in the architectural profession, and questions how this knowledge is disseminated. Barriers to the promotion of research within the profession will be identified, including a commonly held yet flawed view of the creation of new knowledge as a secretive or individualistic endeavour. The work of the architect Greg Lynn will be presented as an example of a practice that rejects the notion of knowledge as competitive advantage. Lynn's practice, "Form", views new knowledge and technical innovation in all its manifestations, as something to be shared within and beyond the profession, rather than retained within the confines of the practice. The paper concludes with a series of suggestions as to how practice based knowledge as a form of research might come to be utilised by a profession that is generally reluctant to share knowledge.

2. Encouraging the dissemination of new knowledge

Within the field of architecture, the creation and dissemination of new knowledge, that is, the research process, can at times be a contentious activity. There are a number of factors that conspire against the promotion and wide distribution of new knowledge. Architecture can be categorised as an entrepreneurial profession where the loyalties of the individual practitioner lie firstly with the client. This leads to knowledge being treated as a competitive or commercial advantage, and nurtures a secretive, individualistic approach to the development of professional knowledge. The structure of the profession may also be a fundamental issue, in that there tends to be a promotion of the architect as lone artist, further encouraging this sense of the individual as the sole bastion of knowledge and architectural capacity. This conception of knowledge as something that rests with the individual architect, or within a particular practice that has completed a project, denies the profession the chance to enhance the collective store of knowledge within the architectural domain through the broad dissemination of information.

Over recent years, contemporary architectural practice has moved towards the recognition of practice based research as a valid form of knowledge generation. Knowledge manifested in the realm of ideas and information generation through the design activity is now seen as a rich source of design research and architectural production. As a profession shifts from being a service provider to becoming a creative innovator, it can no longer simply utilise a given knowledge, but rather, it needs to operate as an original producer of knowledge. This particular view deems that learning, knowledge and intelligence are attributed to professions rather than individuals. For the architectural profession, the recognition of design as research further expands the notion of organisational intelligence.

With this new view, knowledge becomes the most precious resource within the architectural profession. But this resource can not be bought in from outside like energy or labour. It can not be acquired readymade. Knowledge involves much more than information. It is the right information employed at the right time and place, evaluated and adapted within a complex praxis. Organisational knowledge goes beyond individual knowledge. Organisational knowledge resides within the organisational pattern itself, in the system of communication and collaboration, for example in the distribution and dynamic integration of competencies, in the mechanisms, forms and modes of interaction between the various knowledge holders. The spatial distribution and the nuanced articulation of territories, boundaries and spatial interfaces has an important role to play here. These organisational patterns contribute to the constitution of the collective intelligence that transforms information into vital operative knowledge.

The nurturing of organisational knowledge and collective intelligence is currently being addressed in Australia through the writing of a National Research Policy by the Royal Australian Institute of Architects (RAIA). One of the objectives of the policy is to broaden the definition of what might be considered to be architectural research. This objective is borne of the need for an alternative conception of research that affords some level of legitimacy within the academy to professional practice, one of the recognised sources of new architectural knowledge [Newton & Marshall, 2000]. Professional courses such as architecture are a relatively recent inclusion within the academy, and there tends to be a mismatch between the scientific tradition of research that is well understood within the university, and the research interests and outputs of a professionally oriented course. The writing of the research policy by the RAIA can be seen to be part of a larger impulse identifiable within a range of design professions. The architectural profession is seeking "a new formulation for what it is, what it does, and how it comes to know and act" [Newton & Marshall, 2000, 421]. Kenniger [2003] laments the fact that Australian Commonwealth funding continues to reward the research outputs of more conventional research paradigms, while failing to recognise the contributions made by creative works. He calls for the development of creditable evaluation methods capable of recognising creative works in order to maintain for architectural research some form of credibility within formal academic frameworks.

The objectives of the proposed policy address in a direct manner the question of design and research. Clearly there is a desire to frame research as something that relates closely and specifically to what is done in practice. The draft policy states, amongst other things, that the RAIA is committed to promoting, encouraging and supporting a culture of research amongst practitioners, to linking the profession and academics to undertake collaborative research that addresses the activities and outputs of practice. Research is never described as something outside the domain of practice. It is, in fact, described as something that occurs in many instances within practice, as an activity that underpins practice. The clearest account of this within the draft policy is the statement that "the RAIA maintains that architectural design, as well as other activities carried out within practice, can be considered as forms of architectural research"[RAIA, 2003]. Yet there are "provisos" to this recognition of design as research. For design to be considered as research, it must meet certain criteria. These criteria are set out in the definition of research set by the policy.

3. A definition of architectural research

The definition of research being developed for inclusion in the policy draws on a range of references, including some very useful declarations made by the Initiative for Architectural Research (IAR), a joint program of the Association of Collegiate Schools of Architecture (ACSA), the American Institute of Architects (AIA), and the Architectural Research Centers Consortium (ARCC) [IAR, 2002]. The IAR is an authoritative source and an internationally credible organisation that seeks to be an active advocate for architectural research, acting as a clearinghouse for information about architectural research, and facilitating research efforts that address specific needs of the architectural profession [Moloney, 2001]. The IAR define architectural research thus:

- Architectural research is the search for new knowledge and new ideas about the built environment. Research can be conducted in a variety of subdisciplines. In each area of architectural research, certain presuppositions and fundamental beliefs guide and determine the appropriate focus and method of inquiry, as well as the significance and merit of each research project. While the parameters of these research approaches vary, there are some common characteristics among them:
- Architectural research efforts are those that have clearly identifiable goals at the outset of the research, where the project is directed to respond to a question.
- In pursuing that question, one follows a credible, systematic method or mode of inquiry, relevant and acceptable to the research domain in which one is operating.
- This process results in significant results laid out in a thorough, documented manner which reflects a solution or enhances understanding/knowledge within the research domain.

It should be noted that design can be a form of research inquiry if it incorporates the three characteristics listed above. [IAR, 2002]

These three conditions, having *identifiable goals*, a *systematic mode of inquiry* and *clearly stated outcomes*, are the pre-conditions for architectural activity to be considered to be a form of research. To meet these three conditions, architects need to re-conceptualise practice and reject the notion of knowledge as something to be guarded as a competitive advantage. One leading international practitioner who has achieved such a re-framing of the modes of practice is Greg Lynn, through the work of his practice FORM.

3.1 The indentifiable goals of FORM

The work of architect Greg Lynn has developed a unique stance towards the creation of new knowledge and the documentation and public discussion of both his design processes and outcomes in relation to the disseminated of this knowledge within the architectural profession. His particular approach to practice based research, scholarship, and teaching, has a significant impact on his design process and the production techniques employed in the making of his architecture. Lynn's practice, FORM, is well recognised for its innovative approach to design. His design process embraces the techniques and concepts of animation, utilising new digital technologies borrowed from fields external to normal architectural production. His working processes do not remain guarded secrets, but rather, they are disseminated through Lynn's writings, teaching activity within the academy, exhibitions and publications. Lynn sees knowledge in other fields as a resource to be accessed. In the same manner, the practice based knowledge that he creates is made freely available.

Lynn notes that his design practice is based on the philosophy that both the practice and the products of architectural design can participate in the new developments that are redefining culture and our environment. It is his desire to translate the fluidity, flexibility and complexity of contemporary technologies into built form. He aims to creatively relate the functional, cultural, and construction concerns of architecture to a new formal expression. Because of this experimental approach, the aesthetic signature of his projects inevitably changes based on the specific context, budget and function of each project. Often, this flexible design method yields fluid spaces composed of subtly varying smooth surfaces. This formal language of continuity is a recent development in many fields and in architecture Lynn finds these surfaces useful for inventing spaces which are both precise and adaptable. These structures have allowed FORM to remain innovative while realising built projects on the cutting edge of the profession.

A realised example of this design approach is the Presbyterian Church of New York. This project was design by Lynn in collaboration with Garofalo Architects and Michael McInturf Architects. The new Church structure is an addition on top of and around the 1930's Knickerbocker Laundry factory. The adaptive reuse of the existing factory building as a church, community centre and educational facilities for the primarily Korean American congregation called for a composite structure between the existing building and a vast new space for assembly.
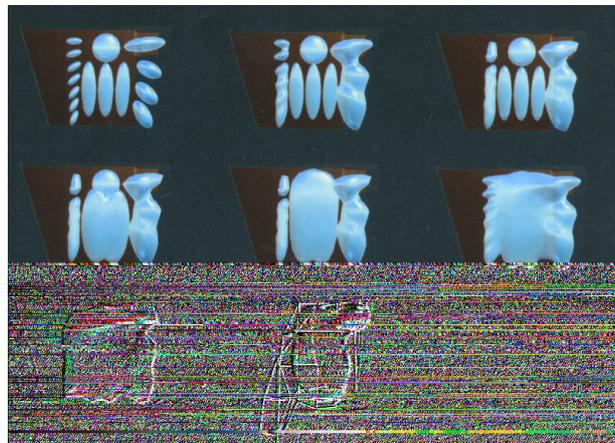
Figure 1. Presbyterian Church of New York

Figure 2. Digital morphing of the primary elements of the sanctuary from discrete primitive blobs into an aggregate volume
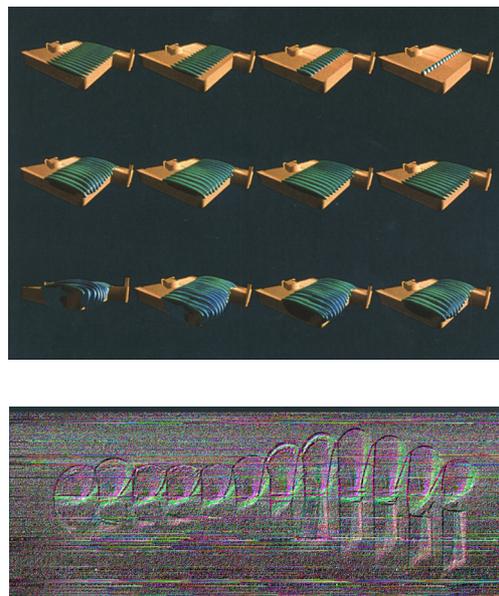

Figure 3. and 4. Digital morphing of the sanctuary as structural blobs over the existing structure

Figure 5. Exterior view of built sanctuary blobs

3.2 The systematic modes of inquiry of FORM

For Lynn, each project is a new challenge for both the design team and the client. Along with the building itself, the design process becomes part of several years of theoretical and technical preparation and ongoing research. With projects in the United States and Europe, Lynn's office has already redefined the conventional design office to include forms of collaboration that cross both geographic and professional boundaries. He states that the practice is not only amenable to, but is reliant on the input of specialists, consultants and users. He notes that the office is experienced in participating within globally dispersed design teams and has worked in combination with both international and local consultants and architects. By exploiting information transfers via electronic networks his practice has been able to integrate geographically and intellectually disparate parties into coherent design teams. In this way Lynn can take advantage of both local experience and international expertise simultaneously. He notes that his office actively borrows technical knowledge in the form of both computer software and hardware developed by a range of disciplines including the aeronautical, naval and automotive and film industries, industrial design, along with the hard sciences such as physics and geology. These methods are adapted to the tasks of architectural design yielding unforeseen and interesting results.

3.3 The clearly stated outcomes of FORM

Lynn presents his outcomes through a number of forums including teaching, exhibitions and publications. Lynn notes that for him, the importance of maintaining associations with the academy is related to the shift of contemporary architectural practice in allocating very little time and resources to the investment in experimentation, while still insisting on an experimental building. From this conundrum Lynn believes that "this has made the academy and its intellectual, technical, and creative resources very important. At a university, with the time, focus, and resources, you can conduct research and innovation and then have it spin off into a commercial practice. Very soon thereafter, you can bring the information about commercial practice back to the students to train them as the next generation of architects. This cycle has recently accelerated and has become a necessary network for architects like me"[Lynn, 2002, 85] .

In addition to the resources for experimentation offered in a university, his association with the academy facilitates the writing of texts, such as Folds, bodies and blobs, Animate Form, and Greg Lynn and Hani Rashid Architectural Laboratories, that articulate the focus of his work and formulate his design practice. He therefore, openly views the university and its structure as a place to test design technique and theory on his terms, to see if his work is transmittable. "This is still what my teaching produces: academic research. I spend roughly one third of my time teaching. At the schools where I regularly teach – Columbia, the ETH Zurich and UCLA – I do not teach undirected studios but always

tie together research in theory, technology and design through linked courses with students who are in my courses over a couple of years"[Lynn, 2002, 87].

4. In conclusion: Avoiding the cul-de-sac of the lone artefact

Design is arguably the core activity of the architect. Architectural research must clearly address itself to this core activity. The nexus between research and design will inevitably take various forms. These forms may include "research for design… research into (or about) design…. and research through (or by) design, in which design practice has a central methodological role to play…" [Findeli, 1999, 1-4]. It is this third type of research- research through design- that is possibly the most contentious, and least understood form of research. It is also a form of research that is ably demonstrated by the activities of FORM. The work of this practice is yielding results of great interest and application within the profession.

In summary, traditional design practice that promotes protection of knowledge, cannot be seen as an act of research. In architectural terms, the figural schemas known as designs, and the buildings themselves, can be considered to be artefacts, and in discussing the role of the artefact in design research, Billet [1995, 42-45] states that the mere existence of the artefact, be it a sculpture, painting, or a design, is not enough to classify the outcome of design activity as research. While the elements of mastery, originality, exemplary professional activity may well be present, the artefact itself is "essentially a cul-de-sac" if it fails to be accompanied by an "explication of the original ideas in a transparent form so that the enlarged body of knowledge may be of benefit to the whole design profession…" [1995, 45]. It is these factors that are met through the work of FORM, and that are highlighted in the definition of research proposed by the RAIA research policy when it calls for clearly identifiable goals, credible modes of inquiry and well documented results, communicated in such a way as to enhance the store of knowledge within the architectural domain. These are the alchemic factors that transform design practice into a form of research.

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