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**Research and knowledge  
development in architecture**

**reflections on academic, professional and wider social approaches**

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### Introduction

This paper reflects on academic, professional and wider social approaches to understanding and undertaking research and knowledge development in architecture, drawing from the experience over the past three years of the Scottish Matrix for Architectural Research and Knowledge (ScotMARK). It initially places knowledge within a wider epistemological frame and discusses the relevance of this to research as a means of knowledge development, differentiating between social contexts within which these forms of knowledge are created and used. These represent different paradigms in the understanding of what is architectural research which need to be understood as the background to understanding how these can change, and are changing – i.e. through reactive and proactive knowledge development and management.

### How do we understanding knowledge?<sup>2</sup>

Epistemological understandings of what is valid knowledge have developed from absolutist conceptions which stressed the universal, permanent and static character of knowledge to more recent perceptions of its relative, contextual and active nature. The concept of knowledge as something ‘out there’ which we can understand through identification of universal principles and reflection and/or empirical data collection using our senses in logical ways – which this earlier epistemological *positivist* position led to – is also challenged in the contemporary period although still of considerable influence. This more recent ‘reflection-correspondence’ approach to knowledge accepts that knowledge has no prior existence until it is observed and identified, however still believes that some form of absolute ‘objective’ knowledge is possible, even if unlikely to be fully attained.

Two influential approaches to epistemology are Kantian and Constructivist. Kantian synthesizing of rationalism (critical reflection) and empiricism (measurable experience) saw knowledge as the organization of perceptual data through deep cognitive structures, e.g. space and time, accepting that such structures inevitably entailed some form of subjectivity and hence knowledge could never be truly objective. This position later developed to one which understands knowledge as consisting of models for information which represents the environment and which permit optimal pragmatic problem-solving (as demonstrated through forms of testing), and accepts that such models are always limited and in fact often contradictory – as the nature of the model is related to the conception of the problem. How this conceptualization comes about is usually through

intuition/reflection and the creation of models is through experimental trial and error. This *post-positivist* approach largely underpins the **natural sciences** approach to knowledge and the development of **technology** in application of such knowledge.

The *constructivist* understanding of knowledge developed this subjective approach further, arguing that knowledge is created by the subject of knowledge and has no universal, objective existence, nor can there be any true objective empirical data or facts or even deep general cognitive structures such as surmised by Kant. There are two basic ways in which this approach avoids any form of resulting 'total' relativism, where no knowledge can be seen as more valid than another: that an *individual* constantly constructs consistent understandings across the knowledge 'options' they become aware of and/or create, rejecting inconsistent alternatives, and building on and within previous constructions; and that human groups also construct *social* value systems which define knowledge as valid which gains a sufficient degree of legitimacy and/or coherence. Knowledge is thus relative to context and constantly adapts and the **social sciences, visual arts** and **humanities** are largely based on this *constructivist* approach.

A variation of the constructivist approach argues that individuals and human groups construct knowledge to adapt to their general environment, and survival favours those whose adaptation is a better environmental fit. An extension of this view then argues that the knowledge produced socially is no longer subject-dependent, arguing that as knowledge develops across individuals and human groups ever more rapidly in relation to environmental change, it becomes separated from ecological objectivity or validity 'testing'. In effect, rather than social systems creating knowledge, knowledge actually creates social systems, which thus become self-reinforcing through their reactive adaptation of knowledge – independent of any environmental benefit to survival or reproduction. A further view on constructivist approaches to knowledge explicitly recognises the embedded social nature of value and power in knowledge definition and construction and aspires to both critically 'de-construct' the value and power nexus through a deeper understanding of context, as well as query the relevance of these for the research subjects through participatory engagement – i.e. stressing the critical/participatory or *transformative* nature of research.

Approaches to epistemology are still being developed, and as such a range of criteria (including correspondence to measurable phenomena, coherence of critical reflection, social legitimacy, environmental survival and contextual pro-activity) need to be considered in assessing the validity of knowledge(s). This places emphasis on firstly clear awareness of the nature of knowledge and its different systems for testing validity, and on the relatively complex management of different forms of knowledge and their validity systems and relevance. Academic endeavour encapsulates such complexity through the wide range of disciplinary and methodological approaches and the epistemological and ontological options on which these tend to be based. These have been summarized as follows (drawing on Groat & Wang, 2002):

<b>Research approach or paradigm</b>	Ontological basis (nature of reality)	Epistemological basis (nature of knowledge)	Research methods	Evaluative indicators
<b>Positivist/ post-positivist</b> (associated with natural/physical sciences and technology)	One reality, knowable within a certain degree of probability	Objectivity as goal in research process	Often quantitative	Internal validity of results; generalisability of findings; reliability of method; replicability and predictive power
<b>Constructivist</b> (associated with social science, arts and humanities)	Multiple, socially constructed realities	Interaction between researcher with subjectivity specified	Often qualitative	Credibility of results triangulation; transferability context analysis; trackability of unstable data
<b>Transformative</b> (associated with 'action-research' in various disciplines)	Multiple realities shaped by range of forces: political, cultural, economic as well as social, all embedding value and power	Knowledge is deliberately situated in relation to dominant forces with declared objective vis-à-vis participants	Often mixed methods	"Thick" contextual analysis; distribution of knowledge; transformational impact

The above table is based on the premise that knowledge of human affairs - and thus that in the arts, humanities and social sciences – is dependent on context and that no rules can be found which are applicable across different human situations and contexts, such as knowledge in the natural sciences, where much higher degrees of constancy and axiomatic definition - e.g. mathematical models – create the basis for cumulative explanation and prediction and subsequent application in technology. Thus in the social sciences contextual analysis has to be a part of understanding, and as a result prediction is limited in scope. The third paradigm of knowledge promotes the explicit embedding of this form of knowledge in social and cultural values and power structures, but also is more aware of the need to manage knowledge complexities. As social and cultural values differ across space and time this approach to research starts by identifying dominant values in periods and places and thus understanding how these can (or should) be challenged or developed – and hence explicitly the relationship between knowledge and power in a Foucauldian sense.

Space does not permit a fuller treatment of the philosophical basis for this approach here, but this short review is important as a basis to understanding how knowledge in architecture can be defined and thus acquired/created, stored/accumulated and transferred/disseminated through

research, scholarship, teaching and learning. Architecture knowledge entails knowledge derived from natural science, social science, humanities and artistic endeavour, and while it is not unique in this, it certainly is one of the most public forms of human activity which explicitly involves these different forms of knowledge. As such, defining what is appropriate knowledge in architecture has entailed a wide range of disciplinary approaches, all embedding specific research traditions. Definition of what is research in architecture is thus a particularly complex task, requiring an approach which exposes the epistemological bases as well as social and cultural contexts which influence the nature of knowledge and, arguably, a more coherent transformative paradigmatic approach.

### **How do such understandings of knowledge affect research in architecture?**

Drawing on an institutionalist analysis, which explicitly investigates the 'meaning' and understanding of the subject as well as how organisations are formed to promote or challenge these meanings in practice, knowledge in architecture has been institutionalised in an organisational sense since the definition of the boundaries of such knowledge became contested. Thus, while it would be an interesting to investigate the relationship between ancient philosophy and architectural knowledge (and practice) in more depth, this paper focuses on the effects on architectural knowledge in more recent periods: through the latter part of the 19<sup>th</sup> century – characterised by a growing **professionalisation** of knowledge - into that of the later part of the 20<sup>th</sup> century – characterised by the growing **academisation** of knowledge. Both institutional systems have been used to regulate knowledge acquisition and application, and both have relationships with government in this respect, and within these contexts have created powerful value systems for validating knowledge.

As developed in more detail elsewhere (Jenkins, Forsyth & Smith 2005), while knowledge of relevance to architecture became differentiated from knowledge of building in ancient times, the development of the concept of specialisation in, and regulation of the acquisition of, such knowledge through social organisations called 'professions' dates from the latter part of the 19<sup>th</sup> century. Prior to this 'gentlemen-architects' were common, their knowledge acquired (and assured) largely through action within exclusive social classes, although in the 18<sup>th</sup> century the widening demand for building and architecture led to an expansion of architectural and other built environment specialisations. This in turn led to the means to acquire and control the use of specialised architectural knowledge through apprenticeships and associated training courses.

The use of academies for architectural education began in France in the later 17<sup>th</sup> century – reinforcing architecture as a discipline as opposed to an elite social practice. The growth of importance of contractual procedure and scale and range of capital investment in built form in the industrial revolution led to more separation of building and specialised design/management. In parallel a growing knowledge base through publication and academy-based training led to increased competition for different roles related to aspects of producing the knowledge base for the built environment – surveying and engineering in particular. These disciplines were the first

to follow medicine into professional associations and accept a form of government regulation in return for exclusivity of practice, followed soon after by architecture in the late 19<sup>th</sup> century.

Professionalisation required a definition of the nature of professional knowledge and how this could be acquired and controlled. As a result, during the 19<sup>th</sup> century academies came to play an increasingly important part in the knowledge acquisition process, and in so doing developed differentiations between arts and sciences as well as approaches to design which evolved away from the practice-base into studios – contested between different groups in stylistic, educational and even national approaches. Arts and crafts approaches competed with other classical (and often 'scientific') academic approaches and the French Beaux Arts approach competed with the Germanic technical approach to education. From the late 1890s the experience of university-based architectural training (especially in the USA), led to gradual consolidation of the academisation of architectural training and knowledge in Britain, albeit with professional oversight and veto.

The legacy of the Bauhaus and its preceding German technical approach had a significant effect in the post World War II period and radically challenged the knowledge base of the profession, detaching knowledge acquisition from previous social bases in styles and the arts/science binary. This flourished in the post-War Welfare State in Britain, and its adoption of the Modern Movement, and led to an increasing demand for (social) scientific approaches within the discipline and profession – paralleled by the complete academisation of the training process. Thus in the 1950s the academic approach to architecture knowledge began its climb to dominance – at least in education and training. This in turn subordinated the forms of architectural knowledge e.g. (arts, science) to academic definitions of knowledge, although in practice different historic definitions retained their importance through different forms of teaching institutions. Eventually this exacerbated frictions between the understanding of what is valid knowledge within architecture as these are based on different disciplinary approaches and compete for 'space' in curricula as well as funding.

There are three broad strands of academic disciplinary knowledge of relevance to architecture that have developed through this latter phase of academisation of knowledge: that of arts and humanities, the natural sciences and technology, and the social sciences. How these are distributed across higher education institutions differs across countries and the evolution of their longer term educational structures, but in the UK these have been distributed across:

- Art Colleges (some of long duration but now a minority of architectural education providers, mostly incorporated in some way in larger higher educations), drawing generally on the Arts and Crafts tradition of apprenticeship-oriented teaching, with an emphasis on visual arts and a generally weak manifestation of academic research traditions;
- 'Post-1992' universities, which were previously polytechnic institutions, drawing on the Germanic traditions, often having been created in the industrial revolution and usually em-

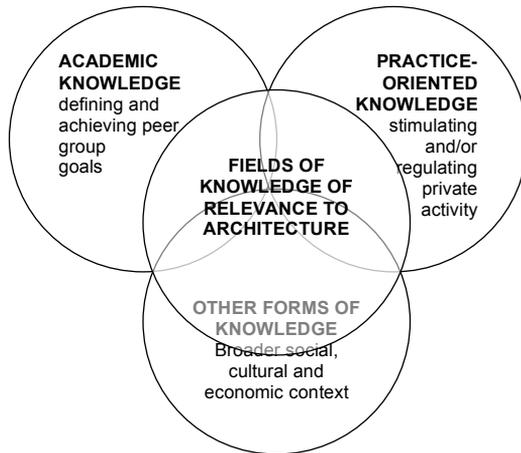
phasing technological and visual arts, with also weak manifestations of academic research traditions;

- ‘Red-brick’ or ‘Post 1960’ universities, some of which also have their origins in earlier technical colleges providing skills for the industrial revolution, but most dominated by either a social science or natural science / technological tradition and stronger but varied academic research traditions; and
- ‘Old’ universities, some of which have started professionally oriented architecture courses fairly recently, and which focus on social science and humanities with varying engagement with the natural sciences and technology as far as architecture is concerned, but all strongly research active in traditional academic approaches.

The mapping suggested above is approximate and is constantly changing – especially as there is a tendency in the UK to use government sponsored research assessment exercises to separate out research active institutions from those which tend to concentrate on education. While such exercises also aspire to promote scholarship, the increasing competition for core government research funding and the complexity of the architectural disciplinary width is tending to reinforce this vicious / virtual cycle (Jenkins, Forsyth & Smith 2004).

**How can we perceive of knowledge and research in architecture today?**

Drawing on Bourdieu’s concept of social fields, it can be postulated from the above that there are three major fields of relevance to the definition and engagement with architectural knowledge: the academic field (architecture as discipline), the professional field (architecture as regulated practice) and the wider social field (architecture as cultural, social, economic and political expression).<sup>3</sup> As shown in the following diagram these fields overlap and it is in these overlaps that different approaches to knowledge and research that clear distinctions need to be drawn and different knowledge(s) clearly managed – in purpose, method, dissemination and assessment as well as in relation to who is involved in these actions reactively or proactively.



**Diagram**  
Diagram of 3 interlocking social fields of relevance for architecture research here

In **architecture as an academic discipline**, research has a tendency to be dominated by methods that are primarily influenced by natural science, which is expected to be explanatory and predictive, although there is a longer history of critical reflection through the humanities. However social science and more recently art and design have now established their place in academic research, with traditions that are not necessarily predictive – or explanatory. Academic research has a quite closely defined field of validity and stresses the production of new knowledge and understanding, explicit methodology and theoretical relevance, with key characteristics being systematic enquiry and peer evaluation. Peer evaluation is usually within a national context, with some level of international comparison, depending on the subject area. The core requirements of this form of knowledge production are:

- a stated research *proposal*, based on an analysis of current knowledge and understanding (and often peer reviewed as a mechanism to access resources);
- a documented research *process*, with a clearly identified method, also open to peer review; and
- a research *product* which can be critically assessed by the peer group through some form of publicly available format – more often than not published text.

The establishment of academic research in art and design has opened new mechanisms for “publication”, e.g. through exhibition, with products other than text seen as valid for assessment. However, the nature of how architectural products can be evaluated in this way – e.g. through drawings and other forms of representation - has not as yet been clearly established within academia, nor has the role of the building as finished architectural product been clarified in recent research assessment exercises.

While **professionally regulated architectural knowledge** can draw on and interact with academic research it is essentially oriented to practice and thus application. The production of this form of knowledge is typically less systematic, especially in architecture where the funds for professional research and development (“R&D”) are limited, largely due to the fragmented nature of the structure of the architecture and building professions. Apart from product research carried out by construction-related companies and within the discipline of the “built environment”, production of this form of knowledge is carried out by and for:

- government departments and government funded research institutions, predominantly focussed on public standards and regulations, but also promotion of national status in an increasingly competitive global context;
- professional bodies and – more recently – semi-independent public policy-related bodies (e.g. the UK Commission for Architecture and the Built Environment CABE); and
- architectural practices.<sup>4</sup>

The former two institutional types publish and operate with a form of limited peer review for assessment (“expert comment”), and research as knowledge production has a quite distinctive

status, with this being disseminated in special reports and professional publications. Practices are more likely to embed their production of knowledge within their praxis and less likely to perceive of this as a distinct activity (ScotMARK, 2005b). They are also likely to consider the knowledge developed as providing economic advantage and thus protect this rather than disseminate it, although the end products (buildings and building representations such as drawings) are generally publicly available for scrutiny, as well as being the core material disseminated in professional journals.

The practice-oriented field of knowledge in general is less defined and covers a wide range of knowledge production and dissemination. There is little structure to research within this field, with considerable repetition and less degree of rigour compared to academic research (which penalises repetition and promotes rigour). However, architectural journals serve as an extremely important mechanism for the social field of architectural practice to define what is considered “acceptable” within architectural socio-cultural boundaries and as such serves as a form of peer ‘validity’ testing.

Wider **social, cultural and economic knowledge** of relevance to architecture is also produced by government bodies, professional associations, and – to some extent – practitioners, as well as by academics within other disciplines, such as art, sociology, economics, history etc. This field of knowledge is even more diverse and broad than the professional field described above, and (as noted above) this is only considered as a field in this analysis as a short hand way to indicate its distinctive nature, as knowledge in this field is often not produced by architects and in fact there are many other fields subsumed into this one here for simplicity of argument. Research in this field comments on architecture and its cultural, social and economic significance, often within wider research or social contexts, and is undertaken by a range of social actors, including – but definitely not limited to – academics of disciplines other than architecture or building science. An important form of such critical analysis of architecture is also carried out in the media and relates to public opinion.

Due to its diverse nature this form of knowledge varies considerably in its systematic nature and analytical depth, ranging from media review to historical analysis, social comment to economic analysis. The essential difference from academic and practice-oriented knowledge and research in architecture (other than who typically produces this) is that this field basically views architecture within wider non-architectural frameworks of knowledge and analysis. These can of course be other academic and/or professional frameworks of analysis, and this reinforces the non-exclusive nature of these three fields of knowledge.

The nature of knowledge - and its means of production, forms of validity testing and methods of public dissemination – embedded within the above social fields are quite different but overlap. The principal distinctive characteristic is that they tend to be championed by different groups and these, through their value systems, are often critical of the other fields. For example, aca-

demographic research evaluation mechanisms do not rate professional practice-oriented publications or forms of mass media and journalistic comment highly, if at all. Journalism is critical in its turn of the academic approach to knowledge, especially of its perceived lack of wider relevance and accessibility. Practice-oriented knowledge sees itself as of a higher order than journalism but does not usually depict itself as research and focuses more on the product rather than the knowledge embedded with this, let alone how this is produced. Another distinctive aspect of these fields of knowledge is the different resources needed to operate within them – including time. Media coverage can be resource intensive but relatively quickly produced, although a newspaper article and a TV programme require very different forms of resource. Practice review is also relatively quick, and thus the professional journals can comment on more current affairs. Academic research, partly due to the degree of contextual analysis and the funding required, but also the relatively slow peer review and publication procedures, is by far the least responsive to change.

Here it is argued that what matters is that:

- a) the different fields of knowledge are seen as valid and respected for their different social value, and not evaluated with the mechanisms used in another field (unless it purports to this status);
- b) the overlaps and relationships between these fields of knowledge be seen as porous and changing over time, and mechanisms to permit this be recognised and promoted where appropriate;
- c) there be clarity about why research matters in each of these fields (purpose), how it can be produced (method), and disseminated/implemented, and what are the evaluation procedures (validity assessment); and
- d) proactive knowledge management needs to be based on such awareness to avoid reactive barrier-building between different perceptions of, and practices within, knowledge sets.

This paper suggests that a clearer conceptual approach to research in architecture requires a proactive understanding of the social fields within which research is produced. It acknowledges there is considerable overlap between fields, and hence argues for the need to also distinguish dominant and secondary fields of relevance for specific research. We also advocate clarity about the way that value is applied within these fields through different epistemological ‘filters’, and how these affect purpose/objectives, method/resources, dissemination/publication and evaluation/ assessment, as well as awareness of past, current and potential future trends in how these conceptual definitions change, or can change.

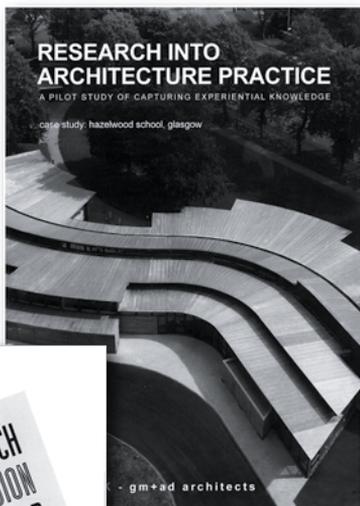
### **Critical reflection on knowledge management practice – the experience of ScotMARK**

ScotMARK was created in 2005 and has developed its activities across a range of architectural knowledge sets in the past three years, initially engaging with academic perceptions and activities in research of relevance to architecture; expanding this to engage with perceptions of, and knowledge development activities within, architecture profession and practices; and more

recently engaged with wider social issues in architecture – again from a conceptual, institutional and practice-oriented position. As such it has both a) attempted to engage with the three identified fields of major relevance for knowledge development and research in architecture outlined above, and b) approached this assuming complex multiple knowledge validation processes, but grounding the activities in a critical action-oriented praxis.

As outlined in ScotMARK 2005a the initial activities within ScotMARK – funded by a government grant from the main higher education funding body in Scotland - concentrated on identifying research of relevance for architecture across the six schools of architecture and main school of the built environment in Scotland (based on prior research into trends across the UK of higher education research in architecture schools Jenkins, Forsyth & Smith 2004). This entailed defining what is *research of relevance to architecture* – a deliberate phrasing to avoid a more narrow definition – and led to the acceptance of a self-defining criterion, albeit subsequently structuring the identified research into a series of categories which mapped on to the UK government's regulatory body for architectural education (Architects Registration Board ARB): design; cultural context; technology & environment; communication; management, practice & law. In addition to using a Steering Group with academic and policy-making institutions as a social validating tool for this activity, ScotMARK organised a UK national Conference on Architecture Research Futures in 2005, which provided a wide academic, practice and policy-making forum for discussion on what can and should constitute research of relevance to architecture (ScotMARK 2006).<sup>5</sup> This open approach to what could be considered as relevant to architecture was successful in identifying a broad range of research but institutional competition eventually led to a limited role for such a pan-Scottish institution across academia – probably reflecting the prevailing competitive attitude to limited research funding more than any other factor. It was, however, fully embedded within the academic field of architectural values where peer review dominates validation and academic hierarchies dominate peer review (Shipman & Shipman 2006).

The second approach to identifying research of relevance to architecture was in the professional/ practice field, where (as outlined above) a different form of peer validation operates, one less epistemologically based and more obviously socially based. In response to a request to examine research across the architecture profession in Scotland, ScotMARK undertook a survey of a structured sample of architectural firms registered with the Scottish professional body, the Royal Incorporation of Architects in Scotland RIAS, identifying both how knowledge development was understood and also undertaken in practices (ScotMARK 2005b). This highlighted three main approaches: the search for knowledge of practical relevance; knowledge development activities on a project basis (R&D or experiential learning); and 'pure' or 'real' research, where some firms engaged with academia or other specialised research institutions. The realisation in many firms that indeed they were engaging with 'research' through their project-based R&D activities – and the lack of systematic 'capture' and dissemination of this (leading to much 're-inventing the wheel') led ScotMARK to a further project funded by the Scottish Government's knowledge transfer scheme to the built environment KTTBE.



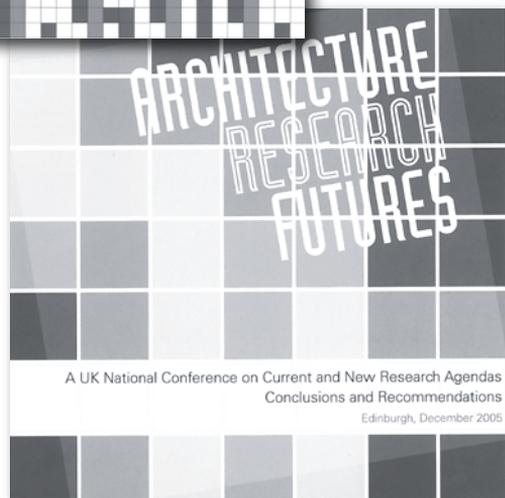
Scotmark report



Practise-based research report



Research and profession report



Conference report

In this project ScotMARK worked with an innovative architectural practice in Glasgow examining how particular knowledge necessary to develop a special needs school was developed, refined, stored and communicated – directly assisting with the latter two processes through the research, which was thus a research-action project. Critical reflection through – and of – the study processes permitted a wider understanding of what might be required to replicate such processes in different types of architectural practices across the country and is planned to lead to policy engagement on this issue (ScotMARK – gm+ad 2008).<sup>6</sup>

The third major approach to research of relevance to architecture was funded within an academic environment (by the prestigious UK Arts & Humanities Research Council) as a speculative research project, but founded on the policy nexus for research and knowledge and oriented to wider social perceptions and engagement. Scotland is unique within the nations/regions across the United Kingdom in having a national Policy on Architecture and this has been advocating both direct engagement with users and wider social engagement with architecture as the basis

for improved built environments (Scottish Executive 2001). The study was also stimulated by traditions of practice – some of which had academic bases – as in various areas of the UK architects pioneered and continue to champion direct participation of users and social groups in the architectural process, whether promoted by government as part of its widening governance agenda or as a means to regenerate cities or due to social motivation.

This study, entitled ‘Wider social participation in the architectural design process’, set out to scope the accumulated academic and practice experience in wider social engagement with architecture across the UK (with an international dimension) through academic and policy literatures, illustrative case studies of identified good practices and a social process to refine the knowledge produced by the project as it developed. As such, while starting from a traditional academic literature review it moved to a process of wider literature and practice review through key informants and then contextually situated case studies. Validation of the knowledge acquired was undertaken initially through from a Steering Group with experienced actors from practice, academia and policy-influencing institutions, then a wider groups of ‘stakeholder’ institutions including other government and professional institutions, and subsequently through a series of wider participatory workshops (mainly but not exclusively attended by practicing architects). The sources of knowledge in this project were thus socially grounded as in the previous two approaches, albeit with wider fields of reference, and a more specific proactive approach to engage with a wider social group in producing and validating such knowledge.<sup>7</sup>

In each of the above approaches to define perceptions of valid knowledge for architecture and identify current practices, the objective has been to inculcate a proactive, contextually grounded approach to knowledge definition and validation, arguing that such an open-ended approach to knowledge of relevance to architecture is not only **epistemologically contemporary** (as argued at the start of this paper), able to cross **institutional and social fields of validation**, but also essential to deal with the **complexities of knowledge management** for practices, academia and wider societal interests vis-à-vis architecture. As such, the findings of the various projects have not only a broader validity, transcending narrow disciplinary, institutional ‘silo’ and social field definitions, but have engaged with the challenge to proactively manage and critically site forms of architectural knowledge beyond simplistic assumptions and make these widely available to assist in a clearer basic understanding of architecture research. As such, the research has a validity that goes beyond the specific social fields within which it has been predominantly structured to engage proactively with the wider conception of research and knowledge of relevance to architecture in emerging paradigms.

## Notes

- 1 Paul Jenkins is Professor of Architecture & Human Settlements at the School of the Built Environment, Heriot-Watt University, Edinburgh and seconded as Coordinator of ScotMARK to the School of Architecture, Edinburgh College of Art. This paper has been enriched by discussion and joint work with Leslie Forsyth, who as Head of School directs ScotMARK activities. See: <http://www.scotmark.eca.ac.uk/>
- 2 This section draws on Heylighen, F (1993) *Epistemology, Principia Cybernetica* <http://pespmc1.vub.ac.be/EPIS-TEMI.html> accessed April 2008
- 3 Within the above fields, academic and practice-oriented knowledge are forms of what has been defined as "professionalized knowledge", which has been the target of critical appraisals on the basis of e.g. Foucauldian analysis, seeing it as an elite attempt to maintain power and dominance in society (Foucault, 1980; Illich, 2005; Stevens, 1998).
- 4 Duffy (1998) argues that the architectural profession's success in Britain since the Second World War has been related to its control of what he calls "architectural knowledge", which he sees as linked to the ability to understand the relationship between user requirements and design, and capacity to lead the procurement and construction processes.
- 5 Both this and the document cataloguing academic research were widely distributed nationally and internationally – see <http://www.scotmark.eca.ac.uk> and <http://www.scotmark.eca.ac.uk/reports/8.pdf>.
- 6 A more recent study partly by ScotMARK (and led by one of the authors) was undertaken for the Scottish Government on how design is perceived and engaged with across the private sector housing developers in Scotland – see <http://www.scotland.gov.uk/Publications/2007/11/08110758/0>
- 7 Publication of this study is still in process but detailed information is currently available at: [http://wiki.eca.ac.uk/index.php/Wider\\_social\\_participation\\_in\\_the\\_architectural\\_design\\_process](http://wiki.eca.ac.uk/index.php/Wider_social_participation_in_the_architectural_design_process)

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