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The Limitations of Professional Education

‘No notion has impeded the progress of architectural education more than the idea that the only educational function of university-based architecture schools is to produce professional architects . . . It is regrettable that educators have so single-mindedly focused their attention on the reproduction function, because in so doing, they mistake the true nature of the cultural capital provided by education.’¹

Introduction

The framework for this paper is structured around some assumptions about the generalized state of architectural education and practice in the UK (and US), which have been informed as much by text-based research as by long years of experience with architectural education, as both a student and an academic, as well as by somewhat shorter years of experience in architectural practice. Beginning with a perspective on the state of architectural affairs informed by Italian architectural historian and theorist Manfredo Tafuri, one of the basic premises of this paper is that the typical practice of architecture is now really much more part of ‘a building industry’ than it is a liberal profession.² The evolution of architecture into a position of subservience to real estate investment and development and the construction industry has required a significant shift in how architects are educated and architectural practices are organized. The consequences of this shift have included a lowering of expectations on the part of architects and the public in terms of what sorts of work should be considered worthy. Concurrent with this, the widening separation of architecture from the humanities has deprived it of much of its ethical substance. What remains is a practice or a profession in which the vast majority of architects are engaged in the production of unremarkable buildings at best, with architecture education apparently duty bound to provide the building industry with able technicians.

Paradoxically, the loss of qualities in architecture has paralleled its institutionalization, including its introduction as a university subject and its organization into a regulated profession. It is a paradox that illuminates a tension played out in many architecture schools in the US and UK, the nature of which is that the vast majority of full-time academics teaching in architecture schools have chosen this path out of some frustration with the realities of architectural practice in a radically free market capitalist system. Perhaps not surprisingly, the tension between the mainly unspoken desires of architectural academics and the profession (or building industry) they must serve is emphatically expressed by the most acerbic comments emerging from the academy, for example:³

‘To the apparent benefits of practitioners, consumers and the state, the professions reflect the desire to manage capitalism’s excess and reduce the threat of economic and social disorder. Professionals are neither expected

nor paid to generate ideas, whether critical or not. Focusing on technical competence and acquiescence to commercial and regulatory forces, the architectural profession wants neither architecture nor architects to be critical. To be critical, therefore, the architect must be critical of the profession.’⁴

However, the necessary criticism invited above is generally stifled by a professional architectural education that is overwhelmingly predicated on skills development, or technique, to the near exclusion of all else. Consequently, the humanities—which could inform a convincing basis of critique—must be given short shrift. Instead, students are overburdened with an array of tasks for which they lack the skills or time to accomplish, and so cannot be expected to do much beyond completing professionally oriented studio project work with any degree of depth. The inevitable splitting of the current situation has a negative outcome: at the end of their professional education, many architecture students are unable to construct a convincing (or critical) argument about their own work (or much else). Thus, professional qualification comes at the expense of the humanities half of architectural education. No matter how troubling such an educational deficit might be for the discipline, the real losers are all of us; such a narrowly focused training surely has a direct correlation to the generally low-quality and unresponsiveness of the built environment that we must all inhabit (no matter how alienating), and hence returns the discussion to the invitation to criticism aired the quote above.⁵

Oddly enough, the rise of an academic culture in architecture has actually amplified the split between the humanities and design.⁶ By widening the divide between speculative, theoretical and historical research and the professional education delivery systems that architectural researchers teach into, the ascendancy of (humanities-based) research in architecture schools has intensified the separation of theory (and thus the humanities) from the process of design. Research pressures internal to universities combined with extramural pressure on architecture schools to produce graduates for ready insertion into the building industry assures the persistence of this paradoxical situation.⁷

Professionalism

Architecture entered the universities even later in the UK than it did in the US and when it did, it found itself in a nether land between the humanities and the sciences, a position that architecture education largely continues to occupy.⁸ Demands on architectural education coming from the profession has assured that even cast as a university based subject it is neither scientifically nor theoretically based, instead, it has developed a primarily vocational character. Preparing students for work in (conventional) architectural offices upon graduation persists as the main aim for schools of architecture. On the face of it, there is nothing at all unreasonable about this condition, except that as architectural practices have become more ‘industrialized’ in their organization, the degree to which the academy ought to be led by its obligation to the profession emerges as an important ethical question. By the same token, because architecture has always sat uncomfortably within university settings (even more so in the UK than in the US) the Research Assessment Exercise

conducted by the UK's central government in 2001 (RAE2001) quickly revealed a number of vulnerabilities for departments of architecture with regards to the normal expectations of research endeavours and outputs in research-led universities; vulnerabilities that at least in part derive from architecture education colluding with the profession to emphasize marketable skills above all else.

The most serious recent consequence of architecture's peculiar *neither fish nor fowl* existence in UK universities is the amount of effort expended since RAE2001 to assure that it would make a better showing in the upcoming RAE2008, mostly by lobbying for an improved (and more inclusive) understanding of what constitutes research in architecture by panels better able to assess it.⁹ If architecture has a scientific side it is in those aspects of it that are vaguely quantifiable (or measurable), such as relates to building science and structural engineering, as well as acoustics, lighting and other systems (heating, ventilation, air conditioning and plumbing for example). However, although student architects are meant to leave professional education with an ability to produce a comprehensive solution to a moderately complex building problem, most are not particularly interested in the more technical side of architecture, less interested still are many of the academics who populate architecture schools.¹⁰

If architecture's potentially hard science side is of little interest to students and those who educate them, its social science dimension is only moderately more attractive to both groups. Human factors in design, environmental psychology, environmental aesthetics, the sociology of architecture and even urban studies fail to capture the imagination of most students, and thus even if an increasing percentage of architectural academics are engaged in one form or another of social science influenced research, it often fails to find its way into their teaching, especially in the studio, which is predicated on the acquisition of (immediately marketable) skills, enabling students to achieve exemption from RIBA (Royal Institute of British Architects) qualifying examinations and to get jobs. Because architecture students must acquire the skills that will make them employable, it is not surprising that they have little interest in developing a deeper cultural understanding of architecture such as humanities-based learning affords. Most architecture students' expectations of architecture education are shaped by the profession (or conceptions of it) rather than by a deepening interest in architecture as a discipline. This condition creates a profound tension between the aspiration of academics who are mostly engaged in developing their own, primarily interpretive, cultural understanding of architecture, and the skills acquisition that students believe to be the most important contributor to their success in getting jobs, a view the profession certainly encourages.

One way out of the situation elaborated on above would require acknowledgement of an all but unrecognized problem for many architectural academics that arises out of a widespread hastiness to escape the discipline of architecture as quickly as possible for the environs of other branches of knowledge, such as philosophy or literary theory. Consequently, it is not unheard of for academics teaching and researching in architecture schools to be all but unfamiliar with the literature of architectural theory from Vitruvius to Le Corbusier. This peculiar situation can indeed make it seem as though 'Architecture is not a discipline in the traditional sense since it is not served by

a definable body of knowledge', as one educator surveying the terrain of architecture and its teaching argued.¹¹

A Discipline?

Characterizations to the contrary notwithstanding, of course architecture is a discipline and it does have a definable body of knowledge. With design at the centre of its education and its core symbolic value, it should come as no surprise that at least one limb of architecture's body of knowledge is made up of designs for buildings (both built and unrealized) from which much could be learned. At the very least, designs for buildings, drawings and other representations, present architects with a reservoir of knowledge regarding how to think architecture and how to communicate architecture. Drawings and other representations are the most effective way into an understanding of how architects think through design (sketching, drawing and model building).

Analysis of these representations offers a pathway into the mental processes of architects, not least of which is insight into how the imagination of an individual architect works on the contents in his or her mind, drawn from internal and external references alike. No matter how much individual creativity is said to be the driving force behind invention in design studios and professional practices, there is rarely an architect (student or professional) whose work would not benefit from a deeper analysis of past and contemporary representations. This form of learning has something to do with studying precedents, which often forms a part of design projects in educational and professional settings. However, in most instances, it is fair to say that while precedents might be referred to, there is very infrequently anything approximating an intensive examination of them. The benefit of such analysis would be a developing capacity for interpretation of methods and results on the one hand and a deepening understanding of how forms and materials, not to mention modes of representation, communicate on the other.

Thus, at least one part of the cognitive basis of architecture—its definable body of knowledge—is made up by architectural representations and their study, which promises to lend future representations a more compelling and authoritative foundation in the objects of its own discipline. The value of architectural knowledge drawn from an analysis of architectural representations remains undiminished even in the computer age. If anything, CAD has introduced a uniform sameness to architectural representations that begs for alternatives that only a deep understanding of the full range of investigative and communicative devices available to architects, developed over a very long duration, could give rise to.

If architectural representations are one limb of architecture's definable body of knowledge, the life of realized buildings through time provides another. A careful study of existent architecture, from any age and from any culture, offers the architect a method for developing an enriched understanding of architectural expression but also of the social life of buildings, including how changes in use can transform the meaning, or significance, of a building.¹² Beyond expression, use and reception, thoughtful consideration of existing buildings offers the best lesson in how materials weather over time and differently under different conditions. Such study also offers

insight into which buildings are valued by a society and also reveals changing attitudes and uses of materials and methods of construction. All of these myriad aspects of understanding a building will also inform its original design and thus, regardless of how technical or otherwise one or the other of these parts might be, each is justifiably an aspect of architectural poetics. On an even more technical level, the integration of various systems into a building is also a worthy topic of study. Such consideration certainly informs the mostly well-reasoned, carefully crafted and comprehensive work of the firm Renzo Piano Building Workshop. And so, even systems integration is rightfully a topic of architectural poetics.

Design and buildings are undoubtedly worthy of study by architects and certainly contribute to the corpus of knowledge an architect should master. But the value of such study does not lie in its contribution to an art historical conception of the history of architecture. The worthiness of such knowledge resides in its theoretical value. Familiarity with the working methods and products of past, foreign and contemporary architects in specific situations, provides any architect with a body of knowledge to draw upon when attempting to invent a new architecture in the present. In addition to the theoretical value of studying architectural representations and buildings, the literature of architectural theory contributes another limb to the body of architectural knowledge. In this instance, what is intended by architectural theory includes those texts specific to the discipline of architecture that more than less come from within it. This would include the full range of architectural treatises from Vitruvius to Alberti and Le Corbusier, as well as the writings of Loos, Kahn and Aldo van Eyck, among other architects. Such a corpus would also include writings by the likes of Karsten Harries who, although a philosopher, demonstrates a rare familiarity with writings from within the discipline of architecture. Simply put, representations and architectural theory from Vitruvius to Le Corbusier and beyond to commentators including Rykwert, Leatherbarrow and Perez-Gomez, who work from within the discipline, ought to confirm beyond doubt that there really does exist a ‘definable body of knowledge’ that belongs primarily to architecture, which, as construed above, also reveals it as justifiably a discipline within the humanities.

The position outlined above is in contradistinction to the commonplace assumption that for architecture education and research to have structure—to be a subject with topics—it must ever seek to escape its own disciplinary knowledge as quickly as possible, as if the only means to elaborating a structured method for learning, understanding and inventing architecture must inevitably rely on the ‘borrowing [of] theories and techniques from other disciplines’.¹³ Moreover, locating architecture in the way I have done above (as one of the humanities) throws normative approaches to its teaching and practice into question.

Beyond the Limits?

The description of architecture as a discipline advanced above clearly attempts to bring it within the vicinity of the humanities; nevertheless, professional education in architecture severely restricts the potential for maturing a humanities mindset, which is crucial for the design creativity of architects. Reflecting on Manfredo Tafuri’s preface to his 1973 book *Architecture and Utopia: Design and Capitalist*

Development (Progetto e Utopia) reveals, I believe, a viable alternative to the norm. In his preface he argues that architecture is a discipline whose traditional role has ceased to exist. It is a chilling prospect considering how much it is our habit to take architecture for granted as providing the stage upon which we play out our lives. Nonetheless, my sense is that if a de-professionalized—figurative—architecture emerged to take the place of its defunct current form, not only would that bring some solace, it could also provide architecture with the space to get closer to the humanities. But first, perhaps, architecture as it was (especially the persisting fantasies that it remains so) must collapse, just as Tafuri argued it already had.

Paradoxically, the new tasks given to architecture are something besides or beyond architecture. In recognizing this situation, which I mean to corroborate historically, I am expressing no regret, but neither am I making an apocalyptic prophecy. No regret, because when the role of a discipline ceases to exist, to try to stop the course of things is only regressive utopia, and of the worst kind. No prophecy, because the process is actually taking place daily before our eyes. And those wishing striking proof, it is enough to observe the percentage of architectural graduates really exercising that profession.¹⁴

As part of my own architectural odyssey, I began struggling with the prospect of architecture at its end some time before coming across Tafuri's articulation of it. And in the long years since, my default position has been to reject his pessimism.¹⁵ And yet, over and over again I come back to Tafuri in recognition that even casual observation reveals a built environment that in the vast majority of instances surely cannot be the result of architectural endeavour; the few golden moments notwithstanding. It is a peculiar coincidence to have spent something like three decades studying what might already be a dead art. But returning to Tafuri for a moment, might it possible to grasp some life from the death rattle of architecture:

Also, there is the fact that this decline within the profession proper has not yet resulted in a corresponding institutionally defined role for the technicians charged with building activity. For this reason one is left to navigate in empty space, in which anything can happen but nothing is decisive.¹⁶

Tafuri's negative critique of the possibilities for architecture organized as capitalist production presents two risks: on the one hand he arguably promotes the dead end of architecture, on the other, even limited survival requires reclamation of an impossible purity which, to paraphrase him, only sublimely useless architecture can achieve. Neither option is particularly comforting. The first offers negation, the second emptiness. Nevertheless, it is the terrain in-between termination and uselessness (perhaps the empty space Tafuri leaves us to navigate in the quote above) that offers up some real possibilities for a successor to a defunct architecture, a survival of it even, capable of constructing a *counterform* to a more nuanced conception of human being than the building industry or routine practice can. Even though Tafuri would likely dismiss such hopes as

doomed from the start, it is my contention that a renewed architecture (or something like it) will emerge only if architecture is paradoxically freed from its dominance by the building industry, its uncritical dependence on technology and scientific management and its obligation to the profession, to be recast as properly one of the humanities.

Conclusions (of a sort)

The positions vis-à-vis architectural education elaborated on here can be summarized as follows. Firstly, most architectural practice is routine at best. By being subsumed within a ‘building industry’ and organized according to the objectives of scientific management, architecture must be content with playing a limited role in determining the character or appropriateness of the built environment. The outcomes of such practice must, I argue, be of very limited interest to any academic research agenda in architecture preoccupied with the methods and results of what could be considered exemplary.

Secondly, since most practice is not really worth thinking about, except to criticize and/or challenge it, the role of architecture schools in research-led universities must be to either set about exploring alternatives and how these might be established, or, failing that, such schools ought to be quite explicit about the difference between consideration of architecture in an academic setting and the routine practices that generally characterize the activities of the profession.¹⁷

Thirdly, if design is research, how is it (or should it be) assessed or evaluated? If schools of architecture want a blanket acceptance of their core activities centred on the studio design as research, design will need to become as rigorous as it must become much more reflective as a mode of enquiry. As long as design studio and crits (or design reviews of student work) remain primarily mechanisms for indoctrinating students into a fairly homogeneous professional culture of architectural practice and design, it will be difficult to see how design as such is a contribution to knowledge, rather than a vocational activity. For so long as design studio and crits are a circular rite-of-passage, in the form of an extended hazing ritual that inculcates students to the unexamined habits of architectural practices, the claim for design-as-research will sound something more like a defensive (or exceptionalist) justification for the specialness of architecture as a university subject. Without sustained critical appraisal of the design studio as primarily a site of indoctrination—in terms of both vocational skills and habits of architecture—design will of necessity persist as primarily an activity rather than an enquiry.

Fourthly (or finally), although some critics of architecture education see its coercive and unhealthful aspects—especially with regards to the dominance and character of design studio and the near (physical and intellectual) sequestering of students demanded by the intense claim on their time by the subject, I think most students come into architecture school either tacitly or explicitly ready to conform to the expectations of routine architectural practice, perhaps this is even their desire. In fact, students often have little tolerance for divergent (or deeper) educational modes that challenge convention. It is worth noting that in schools and in the profession,

challenges to design convention generally take the form of extreme novelty rather than evincing the results of sustained critical enquiry.

The repetitive and sustained process of indoctrination that occurs in architecture schools, mostly around the design studio and in crits, may be brutal or damaging to students but the generally complacent atmosphere that prevails assures that students and teachers alike will continue to conform to this system for reproducing routine practice.¹⁸ Over the years, the professional demands on studio effected through the encroachment of practice on architecture education has limited the possibility for students on validated courses to gain a substantial grounding in the humanities. And yet, without the humanities, architects, charged as they are with imagining the environment that houses us, will lack the sorts of knowledge necessary for inventing more nuanced human settings. Despite the limitations of their education, architects really ought to be better able to think about and respond to the world, by knowing how to examine and make sense of ‘human experience in general’ and ‘individual experiences in particular.’

Without broader and deeper exposure to the humanities, architects will continue to be unable to ‘ask fundamental questions of value, purpose and meaning in a rigorous and systematic way’ and thus will remain ill-equipped to reflect upon the lives of the individuals and groups they design for.¹⁹ Although architecture students are overburdened with the acquisition of marketable technical skills, what they really ought to be learning is how to develop a capacity for ‘critical and imaginative thinking about the issues that confront us as citizens and as human beings’ so that they will be able to engage in ‘reasoned and open-minded discussion of the basic values that are at stake in the various policies and practices that are proposed to address these issues’. Moreover, architects ought to have a highly developed capacity for ‘understanding and appreciating the experiences of others, and the ways in which the issues that confront us now have been understood in other times, places, and cultures.’

Such abilities as described immediately above are not typically identified with architects, in either the public or professional imagination. Nevertheless, because ‘[t]he humanities concern themselves with the complete record of human experience—exploring, assessing, interpreting, and refining it, while at the same time adding to it’, architecture recast as a discipline of the humanities and taught and practiced accordingly would promise a much more nuanced and convivial environment while assuring the vitality of the discipline and also highlighting it as a subject assuredly best housed within research led universities.²⁰

Ultimately, it is a question of ethics: only if architecture education veers away from the production model that organises the mainstream of professional practises will it be possible to reintroduce a strong humanities stream to design education. Otherwise, architecture schools will inevitably continue to reproduce the very results—or problems—that characterize architecture culture today; the same ones that often trouble academics in their reflections on the conditions of the present.

Endnotes

¹ Garry Stevens, 'Struggle in the Studio: A Bourdivin Look at Architectural Pedagogy', *Journal of Architectural Education*, Vol. 49, No. 2 (Nov. 1995), P. 111

² Manfredo Tafuri, *Architecture and Utopia: Design and Capitalist Development*, trans. Barbara Luigi La Penta (Cambridge, MA: MIT Press, 1976).

³ The frustration architecture practices and the building industry have with architecture education is by now well rehearsed. For some indications of this condition, see the following: Sir John Fairclough, *Rethinking Construction Innovation and Research: A Review of Government R&D Policies and Practices* (London: Department of Trade and Industry, Crown Copyright, 2002), available online at <http://www.berr.gov.uk/files/file14364.pdf> (accessed 06 July 2007), especially p.69 of the PDF; RIBA Review of Architectural Education, Chaired by Sir Colin Stansfield Smith, 'Architecture Education for the 21st Century', (October 1999), available online at: <http://www.archaos.org/resources/CSSreport.pdf> (accessed 06 July 2007); Robert D. Hingle & Pantaleo Rwelamila, 'Resistance to Change: Architectural Education in A Turbulent Environment', *Engineering, Construction and Architectural Management*, Vol. 5, No. 2 (1998), pp. 156-157; Ernst L. Boyer and Lee D. Mitgang, *Building Community: A New Future for Architecture Education and Practice* (Princeton, NJ: The Carnegie Foundation, 1996); Garry Stevens, 'Struggle in the Studio: A Bourdivin Look at Architectural Pedagogy', *Journal of Architectural Education*, Vol. 49, No. 2 (Nov. 1995).

⁴ Jonathan Hill, 'Criticism by design: Drawing, Wearing, Weathering', *Journal of Architecture*, Volume 10, Number 3, June 2005, p. 286.

⁵ Interesting considerations of the problems with architecture education outlined here include: Styliane Philippou, 'On a Paradox in Design Studio Teaching or the Centrality of the Periphery' (Proceedings of the Architectural Education Exchange 2001 Conference), available online at, <http://cebe.cf.ac.uk/ae/pdf/philippous.pdf> (accessed 06 July 2007); Linda N. Groat and Sherry Ahrentzen, 'Reconceptualizing Architectural Education for a More Diverse Future: Perceptions and Visions of Architectural Students', *Journal of Architectural Education*, Vol. 49, No. 3 (Feb. 1996), P. 166-183; Kathryn H. Anthony, Private Reactions to Public Criticism: Students, Faculty and Practicing Architects State Their Views on Design Juries in Architectural Education, *Journal of Architectural Education*, Vol. 40, No. 3 (Nov. 1987), pp. 2-11.

⁶ For a consideration of this split see, Mark Jarzombek, 'The Disciplinary Dislocations of (Architectural) History', *The Journal of the Society of Architectural Historians*, Vol. 58, No. 3 (Sept. 1999), pp. 488-493.

⁷ In the UK, debates around research in architecture were frequently aired the *Journal Architectural Research Quarterly*, however few commentators reflected on the problem identified here. For examples of commentators who have see, Philip Steadman and Ben Hillier, 'Research Assessment Under the Microscope: Disturbing Finding and Distorting Effects', *Architectural Research Quarterly*, Vol. 6, No. 3 (2002), pp. 203-207. In their article, the authors observe that the RAE, which has spurred-on the increase of research in UK architecture schools, 'has driven a wedge between teaching and research, which in some universities has resulted in these activities being split into completely separate units (ARQ, vol. 6. no. 3, p. 207).' See also, Various, 'Letters', *Architectural Research Quarterly*, Vol. 6, No. 2 (2002), pp. 101-105, for a range of lively views on the topics of the RAE and research and teaching in UK architecture schools. And, David Porter, 'Lost in the Backlash', 'Letters', *Architectural Research Quarterly*, Vol. 5, No. 1 (2001), pp. 5-6. Finally, see also, Paul Jenkins, Leslie Forsyth and Harry Smith, 'Research in UK Architecture Schools—An Institutional Perspective', *Architectural Research Quarterly*, Vol. 9, No. 1 (2005), pp. 33-44.

⁸ For further detail on the UK system of architectural education, see Allen Cunningham, 'Notes on Education and Research around Architecture', Volume 10, Number 4, September 2005, pp. 415-441. For the US context and an illuminating view of architecture education in 1984 from a 1959 perspective see, Walter A. Taylor, 'A School of Architecture of the Future', *Journal of Architectural Education*, Vol. 14, No. 2 (Autumn 1959), pp. 48-52. See also, Sprio Kostof, Editor, *The Architect* (London: Oxford University Press, 1977) for an interesting overview on systems of architectural education.

⁹ For information regarding the RAE2001 see the following website, <http://www.hero.ac.uk/rae/>, for RAE2008 see, <http://www.rae.ac.uk/>.

¹⁰ For an introduction to the debate surrounding the RAE, research and teaching in UK architecture schools see the following articles in *ARQ (Architecture Research Quarterly)*: Various, 'Letters', *ARQ*, Vol. 5, No. 1 (2001), pp. 5-8; The Editors, 'Leader: Theory and Practice', *ARQ*, Vol. 5, No. 4 (2001), p. 291; Patrick Hodgkinson, 'Postscript: On Leslie Martin', *ARQ*, Vol. 5, No. 1 (2001), pp. 297-300; ; Christine Hawley, 'Letters: Undermining the Profession', *ARQ*, Vol. 6, No. 1 (2001), p. 5; The Editors, 'Leader: Research Responsibilities', *ARQ*, Vol. 6, No. 2 (2002), p. 99; Various, 'Letters', *ARQ*, Vol. 6, No. 2 (2001), pp. 101-105; Bryan Lawson, 'Design as Research', *ARQ*, Vol. 6, No. 2 (2002), pp. 109-114; Various, 'Letters', *ARQ*, Vol. 6, No. 3 (2002), pp. 197-198; Philip Steadman and Bill Hillier, 'The 2001 RAE dissected: Some Facts and Figures', *ARQ*, Vol. 6, No. 3 (2002), pp. 203-207; Various, 'Letters: Three Views on the RAE', *ARQ*, Vol. 6, No. 4 (2002), pp. 292-293; Editors, 'Jack Pringle Interviewed', *ARQ*, Vol. 7, No. 2 (2003), pp. 104-106; Jane Rendell, 'Architectural Research and Disciplinarity', *ARQ*, Vol. 8, No. 2 (2004), pp. 141-147; Various, 'Letters', *ARQ*, Vol. 9, No. 1 (2005), pp. 5-12; Marcial Echenique, Allen Short and Koen Steemers, 'What is Architectural Research', *ARQ*, Vol. 9, No. 1 (2005), pp. 13-15; Alex Veal, 'Design as Research', *ARQ*, Vol. 9, No. 1 (2005), pp. 17-19; Paul Jenkins, Leslie Forsyth and Harry Smith, 'Research in UK Architecture Schools—an Institutional Perspective', *ARQ*, Vol. 9, No. 1 (2005), pp. 33-43; Jeremy Till, Judith Mottram and Chris Rust, 'Town Meetings', *ARQ*, Vol. 9, No. 2 (2005), pp. 103-104.

¹¹ Allen Cunningham, 'Notes on Education and Research around Architecture', *Journal of Architecture*, Volume 10, Number 4, September 2005, p. 415.

¹² For more on the modes of interpretation and the cognitive basis of architecture touched upon here, see the following: Nathaniel Coleman, *Utopias and Architecture* (London: Routledge, 2005), Nathaniel Coleman, 'Words of Desire: Envisaging Architecture', *Interfaces, Image, Texte, Language*, Vol. 24, 2004, pp. 183-197, Nathaniel Coleman, 'History Theory Design: a pedagogy of persuasion', *ARQ*, Vol. 7 . Nos. 3/4. 2003, pp. 353-360.

¹³ Allen Cunningham, 'Notes on Education and Research around Architecture', *Journal of Architecture*, Vol. 10, No. 4, September 2005, p. 415. For a contrasting view to Cunninghams see, David Leatherbarrow, 'Architecture Is Its Own Discipline', *The Discipline of Architecture*, Andrez Piotrowski and Julia Williams Robinson, eds. (Minneapolis: University of Minnesota Press, 2001), pp.83-102.

¹⁴ Manfredo Tafuri, *Architecture and Utopia: Design and Capitalist Development*, trans. Barbara Luigi La Penta (Cambridge, MA: MIT Press, 1976), p. ix, x.

¹⁵ See for example Nathaniel Coleman, *Utopias and Architecture* (London: Routledge, 2005), pp. 53, 64, 65, 71-73, 84, 97, 100, 162. Given the title of my book, it might even be construed as riposte in response to the negativity of Tafuri's *Architecture and Utopia*.

¹⁶ Manfredo Tafuri, *Architecture and Utopia: Design and Capitalist Development*, trans. Barbara Luigi La Penta (Cambridge, MA: MIT Press, 1976), p. x.

¹⁷ For a brief overview of these activities see, for example, Bob Burnham, 'Specialized Knowledge, Professionalism and the Discipline of Architecture', *Journal of Architectural Education*, Vol. 41, No. 2 (Winter 1988), pp.53-55.

¹⁸ For a range of views on the negative effects of architectural education see the following: Helena Webster, 'The Architectural Review: A Study of Ritual, Acculturation and Reproduction in Architectural Education', *Arts and Humanities in Higher Education*, pp. Vol. 4, No. 3 (2005) 265-282; Rachel Sara, 'Feminising Architectural Education? A review of current trends in UK architectural education' (Proceedings of the Architectural Education Exchange 2001 Conference), available online at, <http://cebe.cf.ac.uk/aee/pdfs/sararj.pdf>. (accessed 06 July 2007); Linda N. Groat and Sherry Ahrentzen, 'Reconceptualizing Architectural Education for a More Diverse Future: Perceptions and Visions of Architectural Students', *Journal of Architectural Education*, Vol. 49, No. 3 (Feb. 1996), pp.166-183; Garry Stevens, 'Struggle in the Studio: A Bourdivin Look at Architectural Pedagogy', *Journal of Architectural Education*, Vol. 49, No. 2 (Nov. 1995), pp.105-122; Kathryn H. Anthony, 'Private Reactions to Public Criticism: Students, Faculty and Practicing Architects State Their Views on Design Juries in Architectural Education', *Journal of Architectural Education*, Vol. 40, No. 3 (Spring 1987), pp. 2-11. An alternative view of the studio is offered by Donald A. Schon, 'The Architectural Studio as an Exemplar of Education for Reflection-in-Action', *Journal of Architectural Education*, Vol. 38, No. 1 (Autumn 1984), pp. 2-9.

1984), pp.166-183;

¹⁹ For a some views on architecture and the humanities see, Peppino Mangravite, 'Relation of Creative Design to an Education in the Humanities', *College Art Journal*, Vol. 11, No. 3 (Spring, 1952), pp.

172-177; Douglas Jones, 'Architecture as a Discipline of the Humanities', *Journal of Architectural Education*, Vol. 34, No. 41 (Summer 1981), pp. 18-23

²⁰ The definition of humanities threaded through this section was drawn from the home page of the Massachusetts Foundation for the Humanities, available on-line at: <http://www.mfh.org/foundation/human.htm>, (accessed 01 July 2007).