

Integrating research, practice and teaching

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BIOGRAPHY

Pattabi Ganapathi Raman graduated in Architecture from the University of Madras. Having gained two years of practical experience in India, he worked for six years in London. Raman thereafter received an academic post at Edinburgh University where he obtained his Doctorate. From 2002-2005, he was Head of the School of Architecture and Planning at the University of the Witwatersrand, where he was also the acting Head of the School of Building Economics and Construction Management as well as planning adviser to the Vice Chancellor. In 2005 he moved to the University of the Free State as a Research Professor where he taught undergraduates and supervised a number of candidates for Ph.D and Masters degrees. He is currently Head of the Department of Architectural Technology at Cape Peninsula University of Technology.

→ **Architecture has always been** about reflective practice and reflection is certainly one aspect of any research. Apprenticeship, which to some extent has been relegated to the background by academia, quite rightly has a powerful, if implicit presence in any vocational activity. Apprenticeship is about transferring tacit knowledge from generation to generation. Seen in this light, in a profession like architecture, the advocacy of fusion of research, practice and pedagogy is a natural stance to take. On the basis of my experience in research, teaching and modest practice, in this paperⁱ I explore the value of such a stance. Personal experiences of teaching and architectural practice are given priority over those of others because of their immediacy and ready to hand materials. Of course this way of approaching the issues of integration inevitably results in a degree of subjectivity, but I hope that my formulations will strike a chord among readers who have had similar engagement with this inclusive way of looking at teaching, practice and research. Wide-ranging examples across past and present, across practice and schools and across many areas of design, are necessary in order to establish a degree of generality to the propositions I advance.

The prevalent argument that architecture is a vocational field and therefore cannot be expected to engage in research is questionable. Nevertheless, since reflection is an integral part of the creative act of design, there is a need to recognise imaginative professional work as the equivalent of research. Scholarship on the other hand can be about pursuit of knowledge for its own sake. It has a place in architecture, and vocational practice cannot but gain from it some useful explicit

knowledge.ⁱⁱ All this points to a range of outlooks on research, and institutions that ignore this do so at their peril. However, one occasionally finds determined individuals who are temperamentally suited to treat research, practice and teaching with reasonable care and sensitivity. Here famous names like Alvar Aalto, Leslie Martin, Peter Zumthor and Christopher Alexander come to mind. In this paper, I demonstrate that even at a more modest level than the one at which these architects were and are operating, it is possible to work on research, practice and teaching in a nested and interlocking way. There are nonetheless certain pitfalls of which both teachers and management ought to be aware. There is always a temptation to teach one's research without considering the aims of the curriculum at different stages in the making of an architect. Equally, one is often looking for an opportunity to set a project one is working on as a student exercise without regard as to whether it is suited to a particular studio. Of course a number of architects of international esteem used their professional work as vehicles for design teaching. Louis Kahn, for instance, did just that, but he managed to abstract wider principles and value-laden beliefs from these exercises from which students, architecture in general and his own practice benefited. Here some examples of these principles might be considered: what can one do to counter the thinness of fabric perpetuated by modernist functionalism and minimalism, the recourse to history for stimulus, and the notion of appropriate monumentality.

In this paper, I demonstrate the possibility for an integrated approach with examples that had to come from my teaching, research and practice. First-person accounts are inevitable. They are presented

with a view to encouraging upcoming architects who are inclined towards this integrated approach, and with a view to urging institutions to recognise and reward these practitioners. The links between investigation, practice and pedagogy cannot be linear and not even cyclical, as one proceeds from opportunity to opportunity presented by a varied experience in all these areas. Sometimes they overlap and interlock and at other times they are discrete experiences. Nevertheless, in the interest of clarity one has to look for a pattern. Here, it is that of a mosaic whereby each subheading stands on its own and yet contributes to a considered view on the interconnectedness of education, practice and research.

The argumentative student as an embryonic researcher

Universities are for people who already know something, writes the Russian scientist and social philosopher, Peter Kropotkin (1880:21), and hence universities ought to be about the collision of mind with mind. However, the idea that students ought to be allowed to express their views freely remains a cliché in the field of architecture. To her credit, my professor at the University of Madras in the early 1960s, Sheila Tribe, following a lecture on Le Corbusier, organised student seminars in the form of debates around ideas of praise for Le Corbusier by one group and critical views by another. The role of leading the critical debate fell to me. Obsessed as the profession was at that time with Le Corbusier's fantastic adventures, it was difficult to find any critical views on the master on which an undergraduate could base his views. Even Edwin Lutyens (cited by Osley & Powers 2008:36-37) who could be expected to be critical of the great man, ended up calling him, "one of the outstanding artists of our century". The only - carefully expressed - critical remarks that I could glean at the time were in Giancarlo De Carlo's talk on the situation of contemporary architecture at the

1959 *Congrès international d'architecture moderne* (CIAM). Here De Carlo (cited by Newman 1961:84-89), while praising Le Corbusier's artistic talent, pointed out his inclination to be dogmatic, and his tendency to use an adulterated language of aesthetics. Inspired by that article, I kept up continuous exchanges with De Carlo, and when I started teaching at the University of Edinburgh, I took students on yearly field trips to Urbino where most of De Carlo's works are to be found. This led to some research work which now forms a small part of my body of teaching in architecture and urban design.

There are many architectural and city form insights I derived from a study of Urbino and limited space allows me to explain only a few, starting with the import of the Duke of Montefeltro (1422-1482) in Urbino who anticipated François Rabelais's vision of how power should be handled with dignity. Rabelais wrote a masterpiece called *Gargantua et pantagruel* (1534). It is primarily a utopia for aristocrats, urging them to develop a peaceful rule based on culture and learning rather than authority and greed. How one wishes that contemporary politicians and technocrats would follow this ideal! However, it is not often that this joyful vision translates into practical action. During



Fig. 1. A view of the landscape setting of Urbino. Photograph by Pattabi Raman.

the Renaissance, the Duke of Montefeltro anticipated Rabelais's appeals and went even further. Jacob Burckhardt (1990:46) writes that the Montefeltros "erected buildings, furthered the cultivation of the land, lived at home, and gave employment to a large number of people: their subjects loved them".ⁱⁱⁱ The outlook of Montefeltro was not to emphasise the freedom of noblemen but the nobility of freemen, as it were.

A double portrait of the Duke and the Duchess of Montefeltro by Francesco di Giorgio (1466), not only captures the Duke's personality but also communicates something about the importance of landscape for both the artist and the patron. It is difficult to imagine another city where landscape, cityscape and architecture are so intricately knitted together (Fig. 1) and it is therefore no coincidence that De Carlo realised so many of his projects in Urbino. A number of projects executed by De Carlo in Urbino capture the concept of intertwining landscape, cityscape and architecture.

The value of speculative reasoning

Given that writing historical pieces is not part of my professional activity - and as an educator, freelance architect and theoretician - I would rather not put any constraints on my wish to make conjectural and suggestive deductions from established facts. My reflections and discussions with De Carlo on the Ducal Palace of Urbino provide me with an opportunity to illustrate the notion of conjectural deduction. Historians, intrigued as they are by turrets that are much larger than the slender ones of the Ducal Palace (Fig. 2), find the latter rather curious.^{iv} I have had many conversations on this with De Carlo and we came to the conclusion that the slender structures of the Palace were derived from minarets. After all, Luciano Laurana, one of the major contributors to the architecture of the Palace, came from Dalmatia and Ottoman buildings in that part of the world were familiar to him. Furthermore, to this day, the Ducal



Fig. 2. Façade of the turrets in the Urbino Ducal palace. Photograph by Pattabi Raman.

Study in Urbino displays books on Islamic architecture acquired for Montefeltro in Istanbul. Another example is the wall of the *Giardino Pensile* of the Ducal Palace that gives the palace a sense of enclosure for members of the Duke's court and accommodates a secret passage between the Duchess's apartment and the Ducal Study. In addition, with its false windows, the wall also serves a purely compositional purpose. Interestingly, this device of walled enclosure with false windows appears in Le Corbusier's *Villa Savoye* (Fig. 3). Since Le Corbusier's polemic on purism is full of references to Piero della Francesca, one wonders whether the master found the device in Urbino but never bothered to acknowledge it. After all, as TS Eliot (2000:22) observes, "bad poets copy; good poets steal". Both episodes lend support to the lucid and lively account of the creative process advocated by Norwood Russell Hanson (1958) who suggests that all inventions are inventive derivations. The pedagogic value of this observation is immense. I have written a number of

papers (see, for example, Raman 2000) around this notion and they form introductory lectures to some preliminary exercises for what I call 'touch-stone projects' described in this paper.

The uses of *flâneury*

Neither the recourse of Urbino architects to Islamic design of minarets for their slim towers, nor that of Le Corbusier to the Urbino false windows in the wall enclosure for his Villa Savoye court, can, by any stretch of the imagination, be the outcome of systematic research. However, what is known as the concept of the *flâneur* is most appropriate, and it has value. It describes those who are indirectly and unintentionally affected by a particular design they experience only in passing. Walter Benjamin (1892-1927) adopts the concept of the urban observer both as an analytical tool and as a lifestyle, which from my point of view, is the design lifestyle. Benjamin (2002)

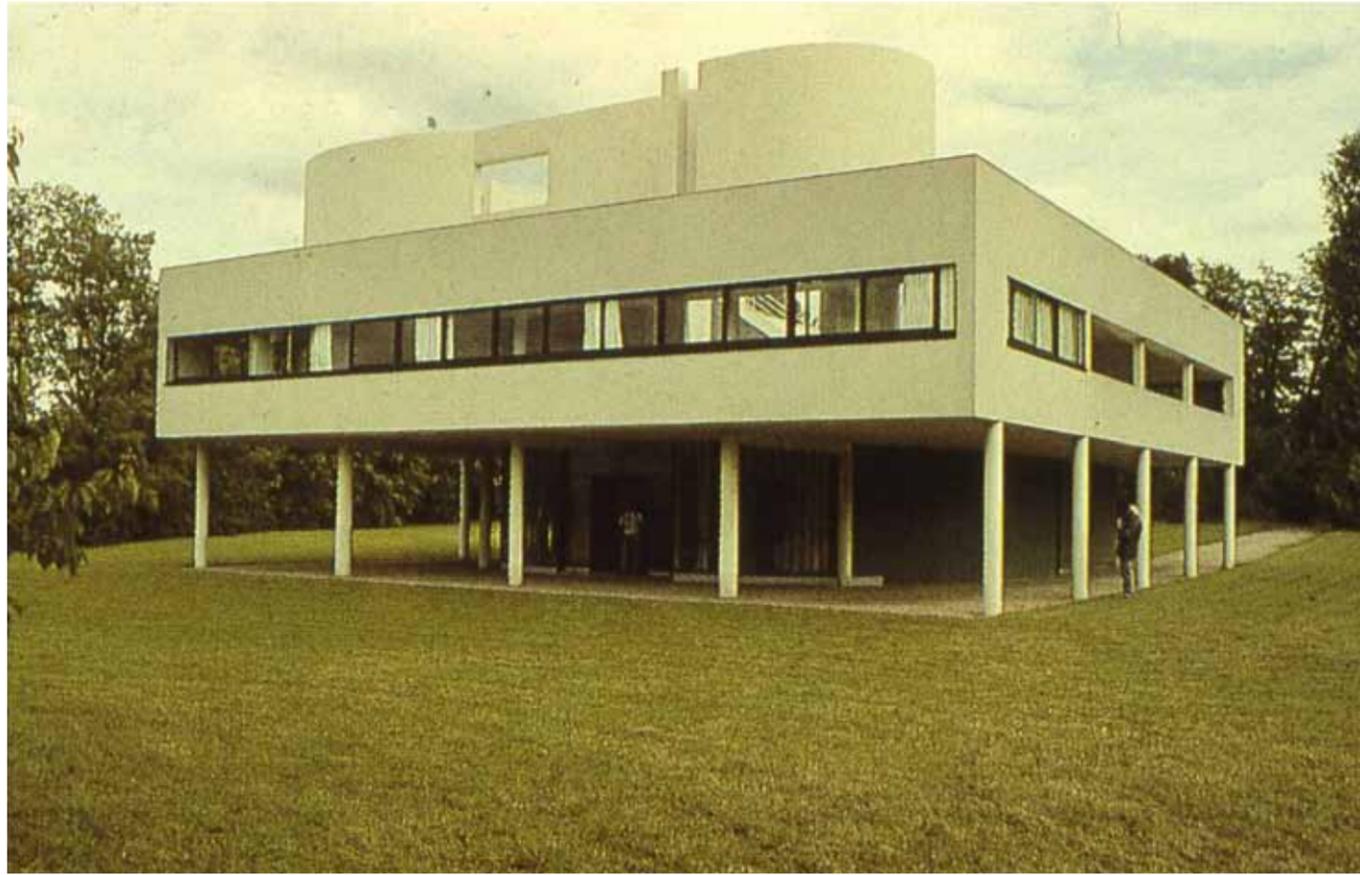


Fig. 3. Le Corbusier's *Villa Savoye*.
Photograph by Pattabi Raman.

describes the *flâneur* as an uninvolved but highly perceptive *dilettante*. Benjamin became his own prime example, making social and aesthetic observations during long walks through Paris. Even the title of his unfinished *Arcades* project comes from his affection for covered shopping streets. In 1917, the Swiss writer Robert Walser (1973) published a short story called *Der Spaziergang*, or 'The walk' – a useful product of *flâneur* literature. The deployment of thin towers in the Ducal Palace, and false windows in the wall enclosure there and at *Villa Savoye*, aim to provide surprises, distractions, and fresh sequences which are the veritable outcome of *flâneury*. None of these devices could be mistaken for cliché or kitsch. The use of these devices involves transfer from original source to new context followed by restructuring to possess the nuances of the second, which in the case of Urbino, are Renaissance ideals and in the case of the *Villa Savoye*, modernism.

Here is an instance of deployment of the *flâneur's* technique in a design; Figure 4 shows the design for a school for physically handicapped children I worked on in collaboration with Robert Giles and David Penny. The plan organisation was along two parallel corridors with alternate classrooms and courts and in the central area were shared rooms such as entrance lobby, assembly room, library, physiotherapy room and workshop. Our initial idea had the unsatisfactory arrangement of a flat roof over the entire building but our recourse to mosque complexes which had schools and other accommodation each roofed over by domes of various dimensions suggested varied roof forms for each distinct space. Again, in its modern way, the school demonstrates the transformation of original motifs into something new, thereby avoiding any semblance of cliché or kitsch.



Fig. 4. School for physically handicapped children. Bromely Hall. London (1967-1969).
Photograph by Pattabi Raman.

The role of visual culture in design practice and education

The visual culture of Urbino, initiated by Piero della Francesca, is a vital part of the *genius loci* of Urbino. The 'placeness' of Urbino may have eluded Le Corbusier but the efficacy of its artistic contribution did not escape him and his mentor and friend Amédée Ozentfant. When they came to formulate the tenets of Purism they argued that Cubism was perpetuating chaos and that there was a need to rediscover order; artists such as della Francesca could provide inspiration (see Curtis 1986). Eventually, Le Corbusier's Purist paintings were organised around contrasts of warm and cold colours, crowdedness and dispersal of elements, linearity and curvilinear elements within a number of selected elements of composition, of lines, circles, semi-circles and so on.^v Furthermore, these paintings became touchstones of the architecture of his early career in early buildings such as the *Villa Savoye*, where a selected number of elements, for example, pilotis, ramps, ribbon windows and grills were organised in ways that established contrasts between wide areas and narrow ones, low volumes and lofty ones, bright spaces and dimly lit ones, indoor rooms and outdoor rooms, and so on. It is possible to expand on the role of visual culture in design practice which I have done elsewhere (Raman 2000). It is also possible to incorporate the notion of touchstone in design education. While precedent studies are important, I often get the feeling that in students' minds they end up being a hunt for visual

motifs. To enable them to think for themselves and in order to answer Louis Kahn's (1992:65-76) famous question, 'what does the building want to be?',^{vi} over the years I have developed exercises simply called 'touchstone' which have now become a mainstay of many studios in the University of the Free State. The Oxford Dictionary (2010) defines 'touchstone' as the meaning of a standard or criterion by which something is judged or recognised, and suggests as an example the sentence "they tend to regard grammar as the touchstone of all language performance" as an illustration. Roget's Thesaurus (Davidson 2004) enlarges the scope of its meaning and gives words such as 'testing agent', 'yardstick', 'gauge', 'litmus paper', 'proving ground', and so on. Bearing this in mind, students are asked to construct a touchstone for their project, something abstract to represent its theme, something that shows what it wants to be. The exercise asks them to synthesise one powerful, suggestive representation of their aspirations for the project. The exercise in effect booby-traps students into thinking out their ideas rather than relying on visual impulses from fashionable images in magazines and websites. This is a way to nurture the students' natural urge to develop original ideas and employ that urge with a sense of control. In this respect, touchstone exercises are to do with 'design metaphors'. The designer stands back from the phenomenon under consideration. Metaphors can help students ask questions such as: 'what is its nature? What is it like?'. In a project undertaken at the University of Edinburgh in 1992, involving the insertion of a performance space in a

number of ruined castle sites in order to revitalise these sites, the students began with a preparatory exercise. They were asked to insert a 'device' in the ruin to test what is implied in any insertion of this kind. The term 'device' was chosen to eliminate all baggage that comes with the idea of integrating the old and new and to explore new possibilities. One student inserted a Nylon spinnaker sail to see the effect of the juxtaposition of a streamlined modern high-technology material and the rugged castle ruin, and concluded that the effect was one of mutual enhancement of each other's intrinsic qualities. In other words, the castle ruin looked more rugged than it actually was, and the sail even more fine and delicate than it actually was, due to the effect of counterpoint. The net result of the investigation was to design a performance space with a fabric structure. Another student inserted a device for locating crucial panoramic views from the castle and concluded that important spaces in the insertion should orient towards these views. A third student noticed that not only the views of the castle ruins were striking but the views from some of the less accessible parts of the ruins were dramatic too and devised a machine for hoisting the visitor's camera to take photos of these views. The resulting photographs led her to the conclusion that from the surrounding landscape the ruin became a stage and hence it should be used with additions as a set for promenade theatre. She went on to write a storyboard for the performance of Shakespeare's *Midsummer night's dream*. In case it is thought that only projects like performance spaces in historic ruins lend themselves to exercises that are based on the principles of lateral thinking, here is an example of a housing project set in Istanbul Technical University. In a wooded site in Karaköy, opposite Mimar Sinan, university students were designing housing for staff and students of an imagined department of forestry. The preparatory exercise in metaphoric design was to think of the model or the photograph of the site as a base plate and produce an etching conveying something significant about the future composition of the site. One student produced a Mondrianesque etching suggesting that a future composition should establish connections between the site and the university, the two being separated by a busy road that is flanked by high and powerful stone walls. In addition, the composition was also required to make connections with the Bosphorus. Not all these connections needed to be physical; some could be visual and even psychological. A further proposition of this etching was that man-made features such as buildings and routes were to be orthogonal and in contrast with the organic nature of the wooded area.

These ideas were further developed to produce timber-frame buildings of up to three storeys that had a very light ecological footprint and treaded lightly on the ground of the wooded site.

On the fusion of visual culture and architecture in South Africa

The remarkable spatial, formal and decorative qualities of southern Ndebele art and architecture in South Africa are legion. Spatially, Ndebele architecture demonstrates the sequential build-up of houses for different members of the family as pavilions in courts organised as incremental enclosures. The plan composition begins with a central axis at the colourful main entry but later develops as an open-ended, loosely fitted structure of growth courts to the rear of the settlement, constantly reconciling symmetry and asymmetry. One could of course simply do a visual and verbal documentation of this, as Peter Rich (1995:74-76) has ably done. This contributes to the accumulation of explicit indigenous knowledge, which needs complementing with a presentation of implicit knowing, as revealed in contemporary practices in art and architecture. One presentation of implicit knowing is my critique of the work of Wendy Vincent and Geoffrey Armstrong (Raman 2007:16-20) where landscape, land art and the tectonic exist in a typically indigenous way as a continuum (Fig. 5). Theirs is an original and painstaking work, which sees the specific terrain as being special, the indigenous plants as being precious and as design elements, and puts them together into an indigenous landscape where the house takes its place as another landscape episode in the terrain. These kinds of principles of dealing with architecture and landscape as a continuum can be instilled in students' minds. As an illustration of how this relation can be achieved, even in a flat terrain, consider one of the projects executed by my student, Rudolf Naude, in 2002. It is set in the flat terrain of the University of the Free State. Through his realisation of the project, Naude takes a positive view of this terrain and appreciates the continuity and the wide horizon presented by the area, groups the blocks of student residences together to form a differentiated communal open space for two or three blocks, and acknowledges the flow of ground by placing the building lightly over an open semi-sunken car park, seen as a landscape element rather than a functional one of an asphalt surfaced area. The outcome is one of respect for the terrain and a gentle cohabitation of architecture and landscape (Fig. 6).



Fig. 5. House and garden of Wendy Vincent and Geoffrey Armstrong where landscape, land art and the tectonic exist in an indigenous way as a continuum. Photograph by Pattabi Raman. Courtesy of Wendy Vincent and Geoffrey Armstrong.



Fig. 6. Student project by Rudolf Naude in 2002. It is set in the flat terrain of the University of the Free State. Photograph of drawing by Pattabi Raman. Courtesy of Rudolf Naude.

Pedagogic value of research into the generic

Archetypes, prototypes and models often enable a strong link between teaching, research and practice. While I worked on a competition-winning university project in London (1967), I - together with the team of architects from Shepherd and Epstein - had to visit a number of university sites in the process of being built. The muddy site-works at most of them made it difficult to negotiate the route to already completed parts. Therefore we came up with the idea of building from the centre outwards in a linear way so that the already completed parts would not be disturbed by the new ones. This is linear planning^{vii} which goes back to city planning in the Middle Ages, on which some research had to be done. Once done, we managed to recreate the linear planning strategy but separated pedestrian movement in a central spine, from vehicular traffic in two roads on either side, and off them the car parks in *cul-de-sacs*. An underpass connected the two traffic routes, over which was placed the central square containing key buildings like the library and

the administration block. There followed visits to celebrated university buildings by architects such as Alvar Aalto, which led to the conviction that we should build in brick but in a way suited to the damp and wet weather of England which, in turn, was informed by the tradition of Georgian buildings in that country. In this tradition, the fair-faced brick is always punctuated by white surfaces often serving as cornices, window heads and sills, that sheds rain away from the wall surfaces (Figs. 7a & 7b). There is thus a wealth of possibilities for research, learning and teaching in the pursuit of precedents and prototypes, but the focus ought to be on the transferable concepts underlying them, which again need to be transformed to suit the new programme and context as opposed to being simply on their expression.

The body of research arising from this work can, of course, be used in subsequent professional and teaching engagements. Between 2002 and 2005, I was asked to chair the task force for the Spatial Development Framework of the University of



Fig. 7a. The linear planning strategy of Lancaster University showing separated pedestrian movement in a central spine, with vehicular traffic in two roads on either side, and off them the car parks in *cul-de-sacs*. An underpass connects the two traffic routes, over which was placed the central square containing key buildings like the library and the administration block.

Witwatersrand (Wits). The framework proposed by the winning team, GAAP Architects, saw the main campus as a series of precincts. While the entire project would have been an inappropriate vehicle for teaching, the residential precinct provided an opportunity to explore it as a studio exercise. The premise formulated was that the man-made forest of Johannesburg at the Parktown side of the campus stops at Wits, and the playgrounds located at the Parktown end of the campus are, in effect, an ecological desert about which something needs to be done. However, the residential precinct provided even more of an opportunity to introduce dense planting. With this in mind, the students began with a workshop with some leading landscape architects in Johannesburg and then designed the residences. A four storey residential building was located in the heavily planted sloping site where the precinct was to be situated. Access is provided by a suspended boardwalk at mid-level with access to two floors below and one floor above. The outcome is a series of tree houses in a newly created forest which by no means is an unrealistic proposition.

Again, experience in university planning feeds forward into the Spatial Development Framework I put forward for the University of Johannesburg (UJ) in 2006 as a member of the company called KWA Urbanism (meaning 'the place of urbanism' in Zulu), which included Anne and Thorsten Deckler of 26'10 south Architects, in collaboration with Ikemeleng Architects. Figure 8 shows the theme of the Virgilian arcadia for the Auckland Park Kingsway Campus with a proposed restriction (as much as is practical) of vehicular access to the periphery, with the rest to be landscaped into a field serving the cause of an arcadian environment. Furthermore the lofty walkways below the science and engineering buildings are to be embellished with science-inspired artwork, further contributing to the notion of 'arcadia' where scholars are enabled to stroll, reflecting on nature, art and science. Other campuses each have their appropriate themes.

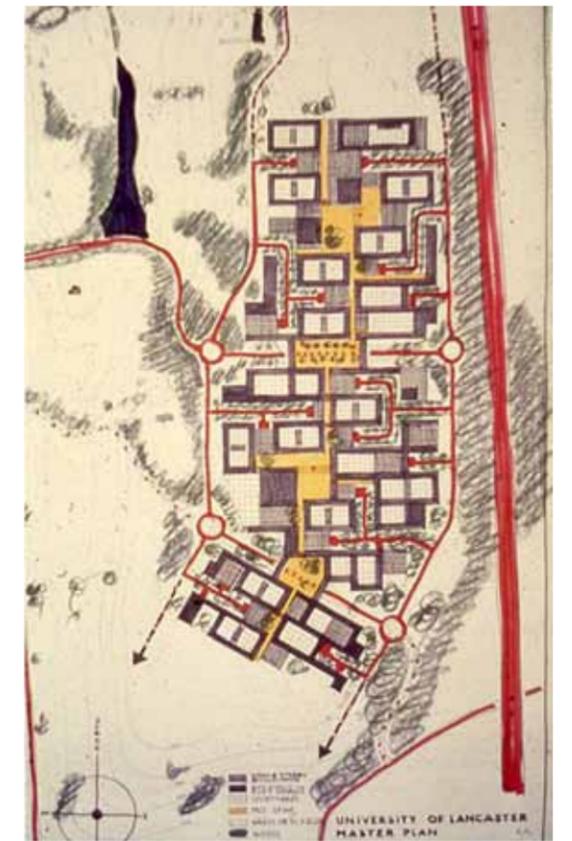


Fig. 7b. Lancaster University. A building in the English tradition of fair-faced brick which is punctuated by white surfaces often serving as cornices, window heads and sills that shed rain away from the wall surfaces. Photograph by Pattabi Raman.

Humanitarian concerns of architecture as research and educational avenues

Environments for student living provided yet another area of research while I was engaged in university planning work. The practice of Shephard Epstein Hunter was concerned that student residences tended to be rather uniform and institutional. I was therefore asked by the practice to research projects that effectively come to terms with this issue. One interesting example of a project that deals with these concerns is the student residence designed by Maguire & Murray at Surrey University in England (1971). What contributes to an institutional atmosphere in halls of residence are double-loaded corridors and shared bathrooms. Internally, students may have to live in a small room for several years and elements such as wash-hand basins and bulky wardrobes make these rooms rather unfriendly. Bearing this in mind, Maguire & Murray developed a pattern of organisation, the direct result of which is a terrace form of houses for ten students, with two students sharing a lobby. Each lobby had a bathroom and wardrobes (Figs. 9a & 9b). In the attic of the terrace house there are duplex rooms with designated personal territory for each student, a desirable arrangement for undergraduates. Each house for ten students has communal kitchen and dining areas. The outcome is a congenial village for students. This is but one example of concern for student culture and for other residences with even higher densities the reader is directed to De Carlo's *Collegio dei Cappuccini* in Urbino which Aldo van Eyck (1966: 151-161) described as a congenial castle for students. At even higher density is the residence built by Lucien Kroll at Leuven University in Belgium (see Kroll 1987). Again, much of this research can be fed into seminars for students while they tackle projects of similar nature - as I did at the University of Free State.

Low-cost housing is another area where there is a need to inject humanitarian concerns. Charles Correa's pioneering project in Mumbai on incremental housing (1985) is well known. Here the idea is to provide a cluster with a hierarchy of public open spaces and private courts which acknowledge the importance of settlements for the newly arrived villagers as opposed to an urban layout based on the western ideas of street. This is an intelligently conceived and realised project for low-income housing.

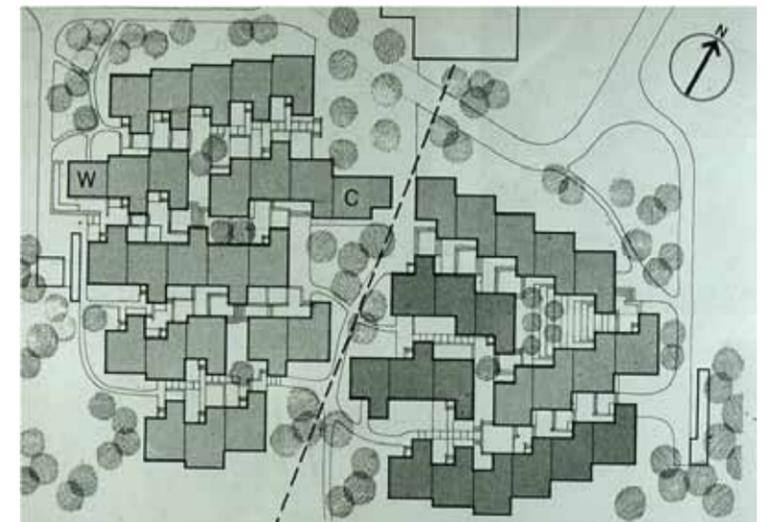
As an example of recreating the dwelling culture of earthquake victims, consider the project by Brinda Somaya in Bhadi, Gujarat, India (2008). The architect suggests that most appropriate architecture emerges when the process followed is least authoritarian and when the professional becomes a catalyst and an enabler. Her project for replacement houses for the earthquake-damaged village of Bhadi in Gujarat, which won the Aga Khan Award in 2003, is an illustrative example. Buildings were reconstructed on their old footprint enabling the original people to return to where they lived before the disaster (Figs. 10a & b). The existing layout was slightly adjusted to be more of a cluster than was the case before, with communal open spaces for four or five houses. The houses were built of local stone by the villagers; Non Governmental Organisations (NGOs) provided the materials and the finance. No government aid was needed. The process was administered by the village Panjayath (an elected village council of five) and, within the rules agreed, provision for a larger house than before and future expansion was possible and in many cases realised. The area is well known for its decorated households and world famous for its colorful tie-dye textiles. An opportunity for embellishing the new houses with decorations was there too, and this was exploited by the owners of the households. Inspired by these examples, I developed a project for incremental housing with students at the Winter School for European Schools of Architecture Association (2009), shown in Figure 11. I am currently in the process of developing this project as low-cost housing to suit South African constructional expertise, using steel frame construction normally employed for farm sheds and carports.

Concluding thoughts

There are endless possibilities for combining research, development work, practice and pedagogy. What is important is that the person involved in this integrated view takes an ethical stance and does not allow the teaching to be sacrificed in favour of private practice or even research. In this connection it may often be necessary for lecturers to simply engage with free-lance architectural practice, which is more than enough to keep abreast of developments in the profession. Full-time teachers have the obligation to give undivided attention to the educational needs of their students, combining their knowledge



Figure 8. The theme of the Virgilian arcadia for the Auckland Park Kingsway campus of the University of Johannesburg with a proposed restriction (as much as is practical) of vehicular access to the periphery, with the rest to be landscaped into a field serving the cause of an arcadian environment.



Figs. 9a. The pattern of organisation for Surrey University's Halls of Residence consisting of a terrace form of houses for ten students, with two students sharing a lobby. In the attic of the terrace house there are duplex rooms with designated personal territory for each student. Photograph by Pattabi Raman.



Figs. 9b. The pattern of organisation for Surrey University's Halls of Residence consisting of a terrace form of houses for ten students, with two students sharing a lobby. In the attic of the terrace house there are duplex rooms with designated personal territory for each student. Photograph by Pattabi Raman.

with in-depth understanding of what is happening in the world out there. This is where activities such as writing of criticism, research papers, development work, acting as consultants to consultants and having a professional practice without ignoring the obligations to students can help in developing an integrated approach to teaching, research and an active involvement in practice. An architect who follows these principles of an inclusive engagement with the state of the art in architectural field, working with an awareness of it in what little practice he or she does and allowing them to flow into teaching is necessarily an architect who has control over his or her ego. This role cannot be played by 'prima donnas' however inspiring and glamorous their presence in the studio may be. This does not mean celebrity architects must be shunned, but institutions need to handle them with care and students may have to learn to take them with a pinch of salt. They may have to develop a liking for the old-fashioned notion of a dedicated, knowledgeable and even a wise teacher. Such a person may not be a virtuoso performer but what he or she often can do is to teach by demonstration as a result of a vast range of accumulated implicit and explicit knowledge and practiced skills of composition and technical elaboration.



Figs. 10a. Replacement houses for the earthquake-damaged village of Bhadi in Gujarat. Buildings were reconstructed on their old footprint enabling the original people to return to where they lived before the disaster. Photograph by Brinda Somaya. Courtesy of Brinda Somaya.



Figs. 10b. Replacement houses for the earthquake-damaged village of Bhadi in Gujarat. Courtesy of Brinda Somaya.

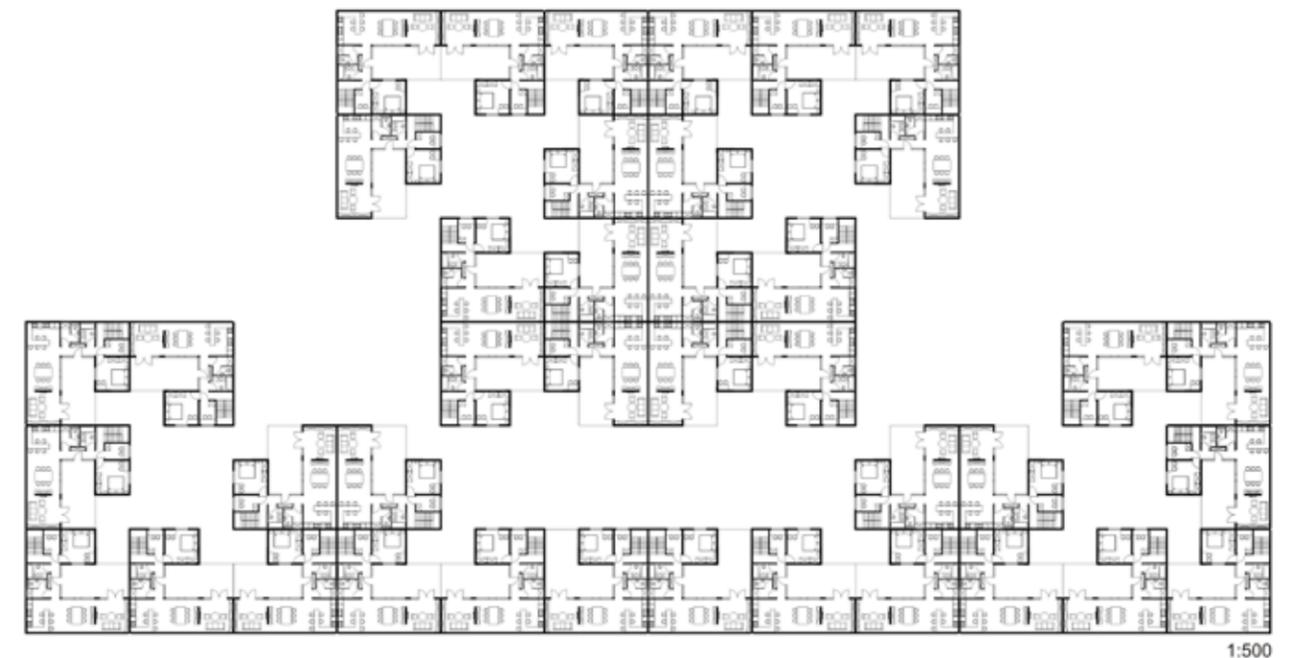


Fig. 11. A project for incremental housing developed by the author as the group leader and his students at the Winter School for the European Schools of Architecture Association in Ankara.

Endnotes

- i. This is written as a shortened version of a lecture given in various forms at Departments of Architecture in Newcastle-upon-Tyne in England, Durban University of Technology and the University of Johannesburg in 2009.
- ii. The distinction between implicit and explicit knowledge was first introduced by Michael Polanyi (1983) and now has considerable currency in epistemology.
- iii. Since its publication in 1860, Burckhardt's text has become a seminal publication on the Renaissance.
- iv. For instance, those of Castel Nuovo in Naples (see Murray 1963).
- v. There are many essays on the relation between the paintings and architecture of Le Corbusier but the most informative one is that of Sekler & Curtis (1978).
- vi. Kahn asked this question with all his projects. See Kahn 1992:65-76.
- vii. At the time this research was greatly influenced by the writings of George Collins. See Collins 1959a & 1959b.

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