

Initiations

Preface

Overview

The works included in the present volume are based on two different pillars: the first one is interpersonal relationships, and the other one is the content of the workshop. The human factor should be put first as it is the most important of the two: without exchange of views and collaboration among peers, the content and the amelioration of architectural education – and in particular, in our case, of construction education – simply would not happen. My acquaintance with Ramon Sastre for 15 years now, put me in a delightful position to be co-organising with him in his School ETS Arquitectura del Vallès, Universitat Politècnica de Catalunya, Spain, and in the framework of the EAAE and the ENHSA events such workshop that gave rise to this volume.

The Construction Teachers' Network started back in 2001, with a workshop held at the Aristotle University of Thessaloniki, with 45 participants attending. At that time, the process of setting up a network was tentative and intuitive, especially when it was not obvious that having a network of construction teachers is necessary; a draft document was put together with some very basic but quite important questions which could allow the mapping, recording and understanding of where construction education stands. The entire process was speculative, and maybe, with hindsight, slightly superficial. The questions asked focused on what is taught (that is, the content of architectural education); how it is taught (that is, the methods and the pedagogy of construction teaching); who teaches it (that is, the specialisation of construction teachers, whether architects, engineers or experts from other disciplines); how much of it is taught (the extent to which construction is taught in schools of architecture); and, finally, at what stage, in what year, it is taught. Schools were asked these questions by means of an open-ended questionnaire that was circulated. The participants came up with answers to these questions, and illustrated their points with highlights of exercises that they asked their students to do in the format of an intriguing poster exhibition.

This experiment, if it can be called that, was quite successful, judging by the attendance to the workshop, but most importantly the character of the workshops to be debate-oriented was established. It was found that there was certainly a need for people to meet and exchange ideas on construction education in order to advance it. It was decided that it would be interesting for the forthcoming encounter for emphasis to be put on the methodology of construction teaching, or in other words on the 'how construction is taught' question. The question used as a vehicle the exercise, brief, course or module that if presented could best illustrate how each school operates in relation to teach construction.

The number of participants increased to fifty the second year, in the second workshop held at the very stimulating environment of the Grands Ateliers de l'Isle d'Abeau, outside Lyon, France. GA is an innovative experimental centre with a purpose-built building funded by the Ministry of Culture, which is run by people who are dedicated to the pedagogy of construction and which, of course, has partners that have put all these things together – schools of architecture, engineering and fine arts. There

were student exercises running during the workshop and participants witnessed this interesting experience in just the right setting.

Last year, which was the third, having tackled questions on the state of the art of content and methodology, it was felt that emphasis should be put on the future of content and methodology of construction pedagogy; this was a theme touched upon last year and is more focused upon this year. Last year the third workshop was hosted by the National Technical University of Athens. This was a brilliant coincidence in terms of works under construction, since it was the year of the Olympic Games 2004; participants had the opportunity to see all that, and to be in a city that was effervescent with the experience of construction, from a very emotionally charged building, which is one of the neoclassical prototypes of Athenian architecture of the time. Last year, debates focused on perceptions on the future. This year the number of participants has again increased in a sort of geometric progression with 63 participants, plus the host school's teachers of construction.

This year's theme is quite controversial: "Researching and Re-defining the Content and Method of Teaching Construction in the New Digital Era". Thankfully criticised by very few participants from past workshops the delicate point of it is whether construction education will have to change in the digital era. To claim that such an issue is not worth considering could be close to an ostrich attitude. The digital era is a reality, whether we like it or not. Whether that has changed the ways in which the world of education operates is an issue, but it is certainly a reality. That was the premise of this year's invitation. It is easy enough to talk about what has been done and what is being done, but what will be done is a crucial question. To be able to foresee the future might be a pointless exercise as it deprives life from the surprise of the unknown. The ability to foresee with teaching is quite different and absolutely necessary due to the responsibility educators bear to ensure competent and updated graduates.

The workshop, therefore, focused once again on the content of construction teaching but this time with reference to the future. It was an exercise of self-criticism as to whether what we have been doing is compatible with the needs of contemporary times and therefore we can continue to teach the same content with the same teaching methods or whether we have to think again, rethink, reassess, reconsider what will be happening in the future in the world, in architecture, in pedagogy, and in the pedagogy of architectural construction in particular.

(Re)searching and Redefining the Content and Methods of Teaching Construction in the New Digital Era

From the debates and discussions of the first three construction sub-network workshops it has become apparent that teachers of construction today are preoccupied with adapting the content of construction teaching so that it responds to the new conditions rapidly imposed by the socioeconomic, political and cultural environment we live.

The demand for a knowledge-based economy corresponding to a knowledge-based society, as this is promoted by the European policies, the reinforcement of the prac-

tices of globalization, the internationalization of our cultural behaviours and the parallel accentuation of personalized choices, creates a particularly new context for rethinking and reactivating architectural education.

It is true that the content of construction modules appears inefficient while it remains distant from the current tendencies that characterize the production of the built environment, as well as from the new attestations to the architecture(s) that this condition creates.

New architectural ideas and concepts that correspond to new ways and methods of construction, as well as new conceptions of humans and social life, marginalize the so-called traditional and conventional issues of building construction, turning them into material that possesses historical value, but has a limited operational capacity. This fact reduces student interest in construction modules, as students rely on the design studio to take a closer look at technical issues, as these are initiated by the avant guard.

New content, new subject areas and new techniques seem to be necessary knowledge for the profile of contemporary architects and which students, at the time of their graduation, ought to possess in order to survive in a particularly tough professional realm.

Nanotechnology, new building materials, new ways of manufacturing building materials, elements and products, demand new knowledge in construction, as well as new perceptions of architectural design. Moreover, the increasing use of computers drastically redefines the content and pedagogy of the so-called traditional construction modules. Within this context, (re)searching and redefining the content and pedagogy of construction teaching is a priority in the conscience of the majority of construction teachers.

New research areas emerge in the domain of building materials, the domain of new living conditions and new construction methods that redefine ways of experimentation and research with the architectural form as a way of 'shaping' social life.

A great deal of research in the domain of construction has already shifted from universities – the traditionally established context for the generation of research and innovation – to non-university research centers. Therefore, the importance of universities in the socioeconomic context diminishes and researchers' interests shift into other subject areas for the acquisition of postgraduate research degrees and acknowledgement.

The Workshop lays its emphasis on the question of (re)searching and redefining the content of construction teaching and the aims and objectives as well as of the means, methods and pedagogic practices required to ensure expected learning outcomes and competences. This question has been debated upon a three-subject axis:

The content axis

What must be the corpus of construction knowledge nowadays? What are the new subject areas which will have to be included in the new construction teaching? How will these new areas coexist within and be organized around the given educational curricula? What will the prioritization mechanisms and criteria be for classifying mod-

ules as compulsory or optional? What forms of collaboration with other subject areas will have to be invented in this new context? Will new specialisations emerge from these collaborations? How could the new content in construction teaching reinforce the relationship between design and construction? Would the design studio serve as the appropriate milieu or should other niches be defined? How can the teaching of construction incorporate the continuous developments in innovation? How does this (new) content affect student competences and skills necessary to practise architecture?

The teaching method(s) axis

How do changes in the content of construction teaching affect the teaching process? Do they affect the aims and objectives of the already established modules and courses? Should new teaching methods and pedagogic strategies be invented for this new content to be transferred more effectively to students? How will new technologies – nowadays indispensable means of transferring knowledge– become even more creative tools for the teaching of construction? What tools and vehicles will be employed in the new construction teaching? How will new information on innovation, new materials and construction methods, become known to construction teachers? How could this information be taught and disseminated to students? What tools would facilitate this dissemination? What tools would respond to this need (software, databases, websites etc.)? What are the necessary initiatives our Network should take towards strengthening this new form of information exchange and towards enriching and improving the process of teaching them?

The research axis

What types of research will emerge from the (re)search and redefinition of the content of contemporary construction teaching? What can be researched, experimented and tested in the context of construction today? Where can research on construction be published and disseminated? What research results will be useful to advance construction and construction teaching? What types of interdisciplinary collaborations and effective research outputs might emerge? Are our institutions prepared, equipped and supported adequately enough to allow research to be included in the new content of construction teaching? Who would be interested in funding research in construction nowadays? What are the necessary initiatives our Network should take towards strengthening the research activities and collaborations among its members?

It is expected that many of these questions will have more than one answers in the contributions to follow. However, it is only natural for new questions to be raised, a restlessness that makes the work of an inquisitive educator worthwhile.

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SAINT CUGAT

A personal reflection on the EAAE-ENHSA Conference: The Teaching of Construction in Architectural Education, Spain 22-24th September 2005

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There was a very telling pair of images in Christian Schittich's presentation on *Detail* showing a parapet by Tadao Ando compared to a similar German building of the 1990s. The former was almost uninsulated with the single glass butting the raw concrete whereas, in the latter, the structure was entirely covered by insulation which in turn was covered with an intricate skin of folded metal with a complicated double glazed window. How, I wondered, could one explain to a young architectural student the difference between the two and why they were both exemplary technical solutions? To do so would involve history, culture, technology and philosophy and a lot of time. What did they have to do with the 'New Digital Era' which was the quandary posed by the Conference?

Of course, the answer is partly in the history. To the modern student there is no history – information is delivered digitally instantly and its reality or fiction, past or future, is only in the mind. We, an older generation charged with teaching construction, have consciously and unconsciously inherited all that baggage from the pre-digital era and regard the new era with innocence, suspicion and trepidation. Is this world really the world we want for our children and will its architecture really be better for them? Like the heroes of the Heroic Period of modernism, I guess that we still believe that architecture is for the social good and its technology a moral quandary but I wonder if this generation would analyse their chosen profession or its technology in any such way?

It is not surprising that our adoption of the new digital technology is so diverse. Was there ever an industry that wasted resources so much and calculated their profit base so immorally? The equipment and programmes with their short shelf lives are not available democratically and it is easy to be excluded from and easy to be jealous of those who appear to have cracked the digital code. So, for me, it was Mark Burry and Oliver Fritz who impressed - partly because I did not understand how they did their parametric gymnastics and partly because I realised that I was never going to imagine such forms, let alone put them into technical practice. At the other end of the rainbow were the full-size models as realised at Vallès, Dundee and Lyon but few of us have access to the resources that these require to be as successful. There is clearly a danger that the process is dominated by pragmatism and merely adopts standard technologies rather than demonstrate actual innovations.

Caught somewhere between the two is a spectrum of databases which the digital era so easily allows to grow and grow. Clearly big is beautiful and the systems can be adapted to almost any branch of the technological teaching industry – pipes and plans to typologies and tubes. It's like collecting postage stamps, one never quite achieves the whole set. What, I wondered, does the student do with all that information? Who collects and censors it all? Is the future of architecture and technology merely a metamorphosed clone, however skilled, of something done before and

how do we know that the precedent was ever successful or not? We all know that we are dealing with an industry that deliberately conceals its mistakes. And then we all worried about the clone-image, what I rudely call the pornography of architecture. I suggest that it might be wise to stop worrying about such things because the students regard it all as 'normal' and they will very quickly show us the way out of the digital stamp album and get on with far more interesting things.

Then there was the thorny problem of research. Curiously, we seemed to be suspicious of the building industry and especially of the building products industry although the Conference was sponsored by one such and the synergy between construction research and product seems so obvious. That manufacturer was actually sponsoring a student construction project but this seemed exceptional as were the rumours of connections between the Schools of Architecture and industry that might be happening in Scandinavia. Was this yet another Shangri-La? Those parametric boys seemed to have cracked the problem (although the reality always seemed to result in yet another market hall roof) but this left the rest of us wondering how we could prove we were researchers and which refereed journal would accept our texts. There seemed to be a note of desperation creeping in here which might be another indication that the construction teacher has a permanent inferiority complex and it is only theorists, historians, urbanists and true scientists that achieve the research points by publication. And, of course, that it is only the studio designers that have any fun.

What struck me most were the similarities between our approaches and what we taught. From Athens to Århus, Naples to Napier, Wrocław to Vallès we were more-or-less doing the same thing and we more-or-less understood each other. Was this another sign of new European unity or a result of the universality of the digital era? When *Detail* is published in English, Japanese and Chinese, European construction culture will be available worldwide as will that cloning culture. Whilst this may be interpreted as a triumph of Europeanism, one wonders if the Chinese really deserve it and if it would be better if they sorted out construction for themselves. Sitting here in Plymouth with an autumn Atlantic storm beating at the (single glazed) windows one is reminded that climate and natural environmental conditions are not the same universally and what may be appropriate for a building in Stuttgart may not be appropriate in Xinjiang. So first on my list for the construction course subjects would be climate and environmental conditions and then the materials and then the details. Two obvious things follow from this: that new buildings might be very different in Germany and China and that the divisions between environmental teaching, construction teaching and design are very artificial indeed. I think that we would do well to remember these when bogged down in the machinery of construction teaching, architectural courses and the realities of modern university education. The current student generation cares not one bit about all this stuff but believes that the world is accessed with the prehensile thumb via its mobile 'phone. We too have to decide where we stand.

