Teaching and Research in Architectural Education

"... comment veut-on que des idées nouvelles puissent se développer? A peine peuvent-elles se faire jour sur le papier; comment pourraient-elles se traduire en pierre? C’est à développer l’indépendance de l’artiste et à lui assurer cette indépendance qu’il faut tendre si l’on veut avoir un art de notre temps."

Viollet Le Duc

From classical antiquity to the 15th century, architects were both planners and builders. As “master builders” architects were responsible for both the design and the construction. The master builder was a highly skilled and highly experienced leader of the construction team. He was apprenticed in all the main construction crafts, such as masonry, carpentry, plumbing and roofing. He possessed a range of skills that were immediately related to the design, the engineering, the materials and the overall concept for construction.

From the 15th century onwards, the unity of art and technology, of designer and tradesman, began to disintegrate. This was due primarily to the emergence of a less regulated, expanded concept of art. The preoccupation was not the loss of a unity but the quest for a new complexity. It was at that moment that the concept of the master builder disappeared and the process of designing and constructing a building became divided. This division was further underlined by the foundation of the “Ecole National des Ponts et Chaussées” in the year 1747, when training in engineering became independent of architecture.

The architect’s influence on the shape of our built environment has declined ever since. There has been a dramatic reduction in both the variety and range of the architect’s activities. Where architects once designed a building by themselves, they now share the task with many consultants. In addition, the range of the architect’s involvement in the process of planning and construction has diminished over time. In consequence, the architect’s traditional role of integrating and coordinating the entire planning and building process is being undermined. Today, architecture finds itself in the paradoxical situation of being more popular than ever before, while at the same time being exposed to total decline. Never before has architecture had such a high profile. Yet never before have architects so little influence on the actual construction work.

A few projects by so-called “star architects” draw enormous media, political and marketing attention while at the same time over 90% of all new buildings are unworthy to be called “architecture” since they show no recognizable architectural aim. On the one hand architecture has become the medium of many: developers, investors, cooperations and institutions, and on the other hand, construction happens without architects.

Our society seems to find itself in an era that is radically rethinking its terms of cultural identity. Architecture has always been a cornerstone of identity in every society and religion. In an age when the local and the global collide, architecture is faced with the question of whether to embrace specific cultural values or universal goals of civilization. Architecture should pursue both these aims. But with the tendency towards iconic architecture, any radical revival of religious, tribal, family or corporate values harbours the risk of architecture tending to favour the quest for cultural unity and uniqueness, at the cost of universal values of civilization. In other words, architecture runs the risk of losing what Leon Battista Alberti described in the 15th century as its claim to be the “construction of society”. Even though the task of actually constructing a building may no longer be taken for granted by today’s architects, they still have to face up to the responsibility of “constructing society” if their trade and craft is to survive at all.

Technological development and effects of globalization have a deep impact on the building industries and on the practice of architecture. The architect has to take responsibility in constructing for this rapidly changing society. The demands are increasingly complex and the
parameters for architectural production in constant shift. The rhythm of project development and realization has dramatically increased over the last decades. Scale and complexity have risen with the technological feasibility of conceiving new forms or ways of building. Climatic change puts pressure on the existing stock of buildings and demands new measures for ongoing and future projects. The design integrity of a project needs to be maintained even though it may be informed and challenged by an increasing number of specialists, clients, advisors and planners. Material, building techniques as well as legal frameworks are subject to constant change and architects need to play a proactive role in the development of those. The availability and amount of information to be processed and communicated to the different parts in order to realize a building project has massively increased. The success of communication and efficient transfer of information is essential to the translation of a concept to built reality and the dialogue between the different parties is to be intelligently steered to assure the survival of the architectural quality.

The increasing digitalisation of planning and production offers a unique opportunity to expand the architect’s field of influence. By regaining the territory of construction the architect can again mutate from a sheer designer to a producer of buildings, thus reconnecting Construction (Bau) and Art (Kunst). It is only by influencing the construction process that the architect can fulfill his cultural and social responsibilities and, in doing so, lend expression to his or her art. Technology – especially digital technology – permits a more complex perception and a more comprehensive view of the world. The increased efficiency brought about by digital technology has made it possible to research and design highly complex structures. Needless to say, this has also had a direct impact on architectural form. But digital technology has had an even greater influence still on architectural production.

We are faced with a paradoxical situation in which computerisation presents both a threat and an opportunity for architects. If architects fail to seize the opportunities offered by computer technology and use them to their advantage, we may eventually be faced with a situation in which the built environment is produced without the involvement of architects. Instead the mass customized production of construction will be undertaken in direct negotiation between the client and the contractor. In this scenario digital technology will replace architects as an interface. It is easy to imagine people designing their own homes at a computer screen in the future. There will be software to guide them through the local building regulations and programmes featuring the structural modules of rival construction companies. Any component will be able to be added or removed at will, building costs can be quickly calculated and the overall visual impression from the street corner or even from the sofa can be viewed at leisure. This is neither a good thing nor a bad thing. It is quite simply the logical and foreseeable consequence of digital information systems.

And yet, the need for architecture will remain, the profession will still be viable. One could draw parallels with the film industry, in which art-house cinema is over shadowed by Hollywood blockbusters, but new independent directors continue to emerge and carve a niche for themselves. Arthouse cinema is often one step ahead of what is served up in diluted form to mainstream audiences. This also means that the mainstream industry – be it in the world of film or in architecture – actually needs the creative input of the independents in order to survive.

So what does all this tell us about training architects? Authors have to be trained; independent spirits who are capable of telling a story and engage their audience, their collaborators, their advisors and clients. That means we have to practise the creation of concepts and their realization. If the development and the visualization of an idea can’t be done at student level, it certainly won’t work under the economic and technical pressures of the construction industry. Thus architectural education ought to be a training field for reality and must empower future architects to participate in and moderate the construction process from the conceptual development to the implementation on site.
The globalization of architectural practice leads to a large number of projects conceived outside the cultural context of their final implementation. Architecture is to be decisive whether cultural diversity is supported by the built environment or not. Architecture education needs to prepare professionals to face the multitude of those challenges. It is no longer sufficient to teach the craft of design and construction in response to a given brief, if the profession is to survive and regain its authority.

Therefore, the architecture student needs to be trained to analyze topics outside its subject area and to integrate them, to have a curious and explorative attitude towards the complexity of each specific context, to be able to abstract and translate potentials as much as problems into architecture. Because design is not a question of solving problems, but of confronting them, this is what has to be learned. In each and every project, there is an awareness of situations in which not all requirements can be fulfilled to satisfaction. Design requires the evaluation of various aspects of a problem. To consciously accept certain drawbacks of a design is a creative act. We have been taught to think that every problem has a solution – like a mathematical exercise in the classroom. But it isn’t as simple as that. Teaching should be about developing concepts – concepts that are not simply aimed at solving a problem.

The most important tool for any architect is abstraction. Most architecture, however, tends to be entrenched in purely technical abstraction. Technical abstraction is governed by rules and standards, making it universally applicable. The abstraction of an idea, however, linked to the idea itself, is unique. It has to be worked out differently from case to case and demands a high degree of flexibility both in approach and in application. In other words, we do not teach our students how to apply recipes but we want them to develop an attitude or approach.

Good architecture is fundamentally the result of the multiple authorships of client and architect. The practice of an architect has to be accommodated in the process of dialogue between the architect, the client and the different specialists. What sets good work apart from the rest is the way that it integrates the individual personality while avoiding too much emphasis on the independent voice. The real challenge lies in commanding authority without laying claim to authorship.

Architecture not only poses formal, structural and technical questions, but also, more importantly, it addresses social, cultural and ecological issues. So architecture is in fact both these things: it is a technical, scientific discipline and at the same time a discipline of the arts and humanities. Architecture is an instrument of perception and a tool for understanding the world and society.

The architectural concept serves first and foremost as a means of designing a distinctive personality for a building. It is only through critical dialogue that the architecture takes form and the most important contribution one can make to architecture is through role-playing. The fundamental design approach in architecture should be one of appropriation: appropriating the site, its energies and its history. In doing so, it is extremely important that different kinds of adoption come into play. Anything too personal is quickly unmasked. The anecdotal is stripped away. Strangely, this multiple appropriation automatically pares the design down to the essentials that can be grasped by everyone.

What do these thoughts mean for the teaching of architecture?

The primary goal is to ensure the architect’s continued role in the planning and building process and to reinforce the architect’s position as a central, integrating and coordinating force. Research therefore aims to improve the understanding of the architectural process and to advance the state
of the art of implemented technology. The working methodology proposed by Laboratoire Bâle (laba), merges analytical research methodologies with creative design, developing investigative processes for urban planning and architecture. This procedural approach promotes the interdisciplinary process of architectural production.

The teaching objective is to show that the role of the architect is not limited to the planning and design of the building, but rather that the architect is producer and coordinator of the entire architectural process. The teaching thus emphasizes 4 fundamental beliefs:

- Architects must be capable of working within the context of an interdisciplinary process where cooperation with specialists and tradesmen is a fundamental constituent of the architect’s working method.
- The basis of an architectural project is the development of a “functional brief” and the evaluation of its overall feasibility within the project context.
- Architects must study the technologies that are revolutionizing design and fabrication processes. Digital data, generated in the design processes, is a valuable commodity and architects must develop and promote the potential of an unbroken “digital chain” from concept to construction.
- Finally, architects must understand the life cycle and impact of their work; that the maintenance, operation and demolition/recycling of a building pose architectural problems, which must already be addressed in the conceptual phase of a project.

How can we foster this awareness and these capacities?

We teach by guiding the process of a miniature project over the course of one year from initial project development to specialist consultation to urban planning to the project development to full-scale construction. The demanding program simulates a simplified reality, thus giving insight into the wide range of the possible involvement of the architect from dealing with development concepts and ambitions to the mastery of a detailed project and to using hands-on experience of actually producing a building part.

The successful development of an architectural project is based on research. Feedback loops inform the design of a project and its reworking in response to problems which become apparent only through the design process. Designing is a way of understanding problems and making potentials apparent.

The hypothesis of the initial brief, be it an urban improvement, the exploitation of a site or the design of a custom-built house, is explored through research in general background information and evaluated against it. Its adaptation and subsequent translation into an architectural concept is a trial-and-error process which allows one to explore and respond to the ever more specific problems of the city, the site or the client. Finally bringing the architectonic concept to realization is again a process implying feedback loops, sometimes requiring radical redesign and reformulation of the brief. The final project stands as “proof of concept” and is tested by its use. Its successes and failures are observed and fed back into the practice. This process is dynamic and informed by all project participants. The architect is in the best case the steersman heading a crew, since teamwork and interdisciplinarity are core to the studio work and reflect the reality of architectural practice.

Each year laba chooses a location or site as a basis for its teaching and research project. Sites are selected based on a significant research interest related to the issues of architectural production. Each project brings together specialists and project partners to expand the field of research, to ensure the inclusion of contextual factors and incorporate extended relevant issues that affect the overall methodological approach and the designed results.