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**Teaching Construction in the New Digital Era
“The reverse of the medal”**

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It is evident that teaching methods, as well as design process itself, cannot remain unreceptive to the opportunities brought by the 'new digital era'. The IT has changed, and will continue to change, the way we think and represent architecture.

The computer is nowadays a legitimate design tool and an integral part of our endeavor to educate future architects. But it can also become a major distraction, with long term effects concerning essential competences of the future graduates.

Several aspects of digital design have been easily adopted in professional practice and in architectural education, such as geometric modeling and rendering, but not all the implications of it are fully considered in School.

Teaching of architecture is fundamentally related to theories and media of *representation*. Design has come to be seen synonymous with drawing; through drawing and redrawing, the architect explores possibilities and gives shape to ideas. "*The sketch is a window into the architect's mind*"¹, it reflects architect's thinking and intentions, expressing different individual personalities in approaching architecture.

The 'new digital era' brought important mutations in architectural representation. The new technologies have given new possibilities of visualization that make the conception, understanding and communication of architectural ideas much easier, but also richer in spectacular effects and *more powerful in impact*.

The obsession of architecture as graphic image has currently reduced CAAD to image processing. Digital drawing, modeling and rendering have been quickly assimilated in professional practice and in architectural education. Schools and students dedicate a large amount of time to improve their skills in *image processing*.

In our School, the 'representation' area is the main field of computer use. It gets an increasing importance within curricula; IT and CAAD are practically synonymous with 'representation' and the design studio is the main field of application. For the new generations of students the computer is the common drawing instrument. Usually their projects are demonstrations of high ability in digital graphics.

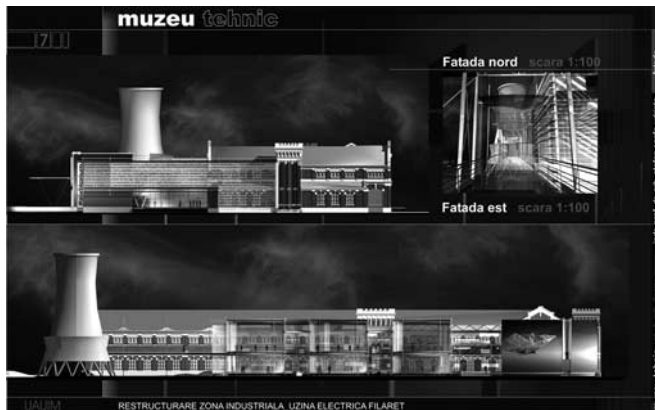
Obviously, it is a useful skill, highly requested by the present professional market. But, from educational point of view, some 'secondary effects' are also to be considered.

The act of drawing digitally is different to that of drawing by hand: different mental mechanisms are involved in. By repetitive exercise, these mechanisms create in time *different ways to understand architecture*.

The data usually embedded in manual drawings are now replaced with data automatically generated. The engagement of drawing by hand is not replicated in the digital world; when 'zoom', 'copy' and 'paste' are available, the process of redrawing - exploring alternatives - disappears.

The digital representation leads to an understanding of architecture not as construction of bricks, timber and glass, but as data sum, a digital description which builds upon and extends other digital pre-existing descriptions.

'Prefabricated' details can be easily downloaded from data bases or simply reproduced with digital instruments, even without understanding their logic. The IT and the digital devices are part of our daily (professional) life and it is normal, even necessary, to consider them in education. What new competences are necessary to the architect in the 'new digital era', how to form them, when and by what means - this is another argument. What I am trying to point out is that the more and more extended use of digital representations is accompanied by a more and more accentuated





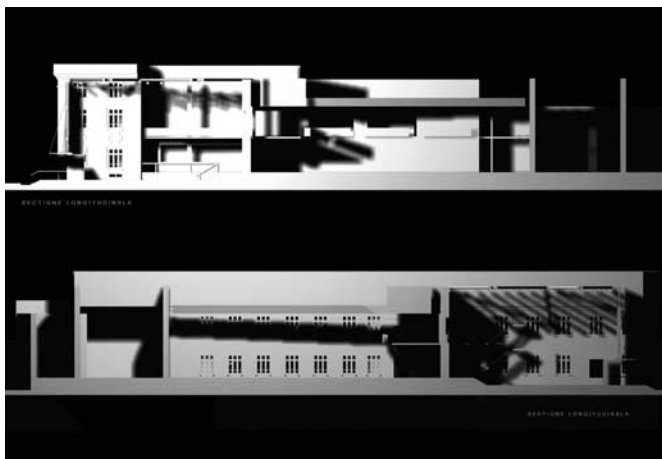
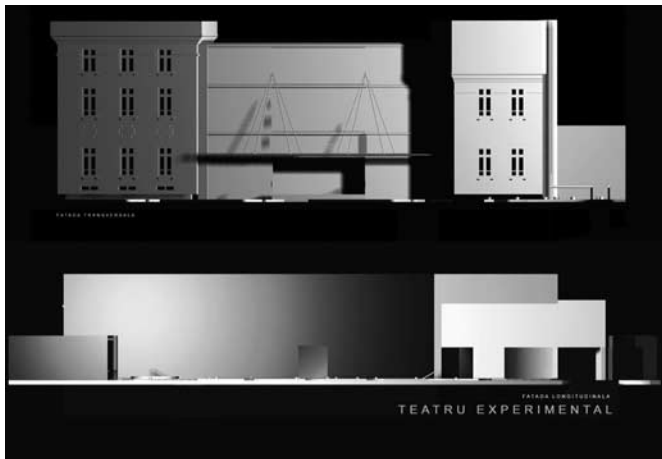
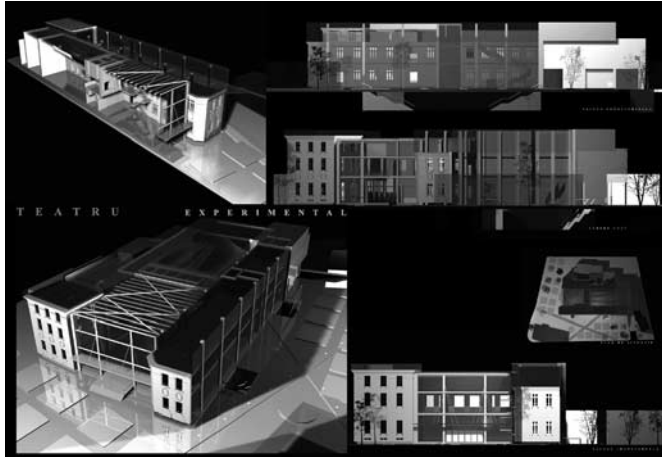
loss in the exercise of constructive logic and finally by an increasing ignorance of the constructive processes.

The manual drawing always follows the constructive logic of architecture: so, it is (was) implicitly an instrument of learning construction.

'Draw as it is built' says a basic rule of detailing. Drawing by hand, the designer needs to keep in mind the *materialization of architecture*. In the digital design this is not a necessary condition!

The current digital design distracts attention from the materiality of architecture; it focuses on IMAGES, not on substance. This is often so evident in students' projects!

The obsession of ARCHITECTURE AS IMAGE, fed by fascinating digital tools, is a fact. It is more and more visible at the students (maybe also at some teachers?), accompanied by a *decreasing interest for building processes*, especially observable in diploma projects. Even executive designs and details become often 'graphic compo-



sitions' of digital lines, patterns and colors, losing, more or less, their communicative function.

Not only the School, but also the contemporary architectural creation seems to concentrate on IMAGE. The last Venice Biennale offered an overview of the international architecture dominated by the *aesthetic of the closures*; it pointed out how the superficial IMAGE of the architecture becomes dominant in respect to its spatial and structural content.

In a recent interview, Jean Pierre Buffi expressed an interesting point of view on this argument: *"It is important to understand that the new methods of producing projects, like informatics, have introduced a lot of force in producing seducing images (...). The architecture is losing its essence: in order to re-find it we have to transcend this image facility and its mediatization. The Biennales mythicize the consumable image; quickly devoured, it doesn't have a profound existence anymore, it loses its own materiality and inexorably the architecture is reduced to pure spectacle."*¹²

The fascination of spectacular digital representation, this 'obsession of image', is accompanied by *the loss of the constructive sense of architecture*. It can lead to a deeper fracture between 'architecture' and 'construction' – already considered as a major dysfunction of the present teaching and professional practice – minimizing the role of the second one in 'architectural creation'. If for older professionals it can be only a problem of option for new specializations, in education it could be dangerous to ignore this fact.

Don't misunderstand me: it is not about 'condemning' computers or ignoring their importance in present professional practice and education. But we have to be aware that there is also an 'other side of the medal' easily screened by so many 'special effects'.

In education the 'digital era' hasn't brought only advantages, but also some possible loss in fundamental competences of the future architects. Contents and methods in teaching constructions have to be reformulated in order to compensate this loss.

I think it is a problem which deserves attention. It might be the 'seed' for a research in construction education investigating and comparing the psychological mechanisms involved in analogical and digital drawing, their relation with the learning process, the present and future mutations within these processes, with pluses and minuses, in order to have a scientific base for formulating effective corrections in teaching construction.

References

- 1 Kendra Schank Smith, *Architect's Drawings: A Selection of Sketches by World Famous Architects Through History*, Elsevier, 2005.
- 2 Jean Pierre Buffi, Interview by Elisabetta Pieri, in *Costruire in laterizio* n.104, March/April 2005.