

5

TEXTIDATTICA:

Saggio Teaches Information Technology in Latin

- › facoltà Quaroni
 - › information technology
 - › it revolution in architecture
 - › università La Sapienza
 - › web
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The didactic position held by Antonino Saggio at La Sapienza, Rome, addresses a combination of theoretical and practical features. The theoretical features are slanted toward the relationships that exist between IT and architecture during this historical moment. From a theoretical point of view students are taught about specific information environments (from raster software to advanced 3D software). From a pragmatic point of view students are driven, by means of tutorials and attending the laboratory, toward the experimentation of different information environments and the theoretical and methodological understanding of the diverse operative possibilities. The learning path gradually develops through a series of steps. Each step is characterised by a specific theoretical and pragmatic environment and by a specific assignment to work out. All the assignments from the first to the last are steered by the same topic of research, which during the last few years is defined by the title: “Modernity, Crisis, and Information Technology”, whose features are gradually introduced to students starting from the initial introduction of the course.



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information technology

education

1 2 9 7 25

information architect.

17

Obviously it's not true! I don't teach IT in Latin. The title of this essay only serves to tell you that this way of teaching is only viable for those capable of mixing the fields of dynamic architectural design, theory and history of architecture, and for those who have a twenty-five year experience of teaching Information Technology. It's a combination that creates a special menu. Since the following text is long and dense, it's important for you to start with some clear ideas.

I assume that readers want to know how my teaching activity works in relation to Information Technology and thus I would like to proceed by telling you about some specific didactic experiences and then soon after pinpoint some theoretical features. As an example we can use a case study from the course I held in 2003, the title of the course: "Texpo. Mostra virtuale sul Tevere" (Texpo. Virtual Exhibition on the Tiber).

The course takes place in La Sapienza, Rome, within the five years of the UE degree. It is not a compulsory course in the curriculum. In 2003 about eighty students completed the course. The course is split into eight sections. Each section treats a different topic but they all share the same structure and philosophy. Ingredients may change, but each section has a recursive frame.

digital design

19

In order to simplify, I can say that each section has four "cylinders", working together simultaneously. The first one (I) is simply a theoretical and cognitive introduction. Here we select a topic that can assume a valuable meaning in contemporary architectural research devoted to Information Technology. This topic is explored with a number of architectural examples, and also with references to fine arts and sociology. The second cylinder (II) is about a technological leap that the students are asked to tackle. For some students this leap is easy "like jumping beyond a puddle", for some others it's "an epochal modification of my being" (I'm quoting from memory). The third cylinder (III) contains one or more tutorials to assist students from a technical but also psychological point of view during their leap. The fourth one (IV) gives the classroom some theoretical concepts, bibliography and links. It also provides students with a partially self-sufficient mobile process of studying.

So far so good, but now you may ask: we have seen the different elements, but how do these four cylinders pragmatically work and what are the main topics?

Let's see the first section in action. It focuses on the reason we call this contemporary architectural period the "Information Revolution in Architecture". The title of this section is "The impact of informatics on cities and contemporary architectural research | The World Wide Web" and it deals with the fundamental role of Information in the present-day society.

To teach this section we need at least six lessons of five hours each. Their titles are: 1. The Web; 2. Information; 3. Mental panorama; 4. Marsupial Communication; 5. The long crisis of the Nineteenth Century; 6. The Catalyst. Throughout these lessons, which constitute Section 1. Theoretical and cognitive introduction, I convey the knowledge that is also contained in the first three chapters of my book "Introduction to Information Revolution in Architecture" (Carocci, 2007).

As you may imagine, this is not the right moment to go into detail about these particular aspects.

Let's now analyze the second cylinder (II. Technological leap). Students can enrol for the course only via e-mail. Just this simple requirement represents for some students a huge barrier, yet for others it is a real leap forward, a revolution. Trust me, in 2008 some students still don't use e-mails, even during their fifth year.

In 1999 almost all the students weren't used to writing e-mails and in 2003 more than half of the enrolled students didn't have an e-mail account. After this "transformation" of the relationship between teacher and student (I always answer e-mails), we usually produce a public mailing list so I can send students letters and explanations.

To better understand the importance of this section you need to understand how the fourth cylinder works (IV. Mobile studying). The Web is not replacing the traditional way of teaching, but it is intensifying it. The aforementioned lectures, even though they require a physical involvement between students and teacher (students need a face to face learning situation), are also available on the Internet. I put the lessons, links and images on the Internet (and after 2005 also lectures recorded during lessons). This has several consequences. Naturally the course can also have some virtual students, not enrolled and maybe for instance living in Brazil, however the main upshot for enrolled students is that they can "go back" to review lessons or to go into deeper detail, but above all to intervene: students can add their comments, bibliography and other information in a specific part of the web-page called "elaborations". I then filter these elaborations and when they are of general interest publish them online, or I may choose to only send them as private e-mails responding to individuals.

To better understand this next aspect, you need to pay attention to the third cylinder (III. Psychological tutorials) and the information and technological knowledge to be learned concretely. During the first section students learn how to write e-mails and manage a personal web page! This structure is the key-point that allows the course to proceed in the desired way. It also enables me to create links from the official website of the course to contents in some of the students' web pages.

At this point you can understand that this introductory part, as with all the other following ones, provides a set of mechanisms, motivations and theoretical and practical reasons aimed at the involvement of the students.

I think the metaphor of the four cylinders enables you to get the point. Students are enthused by a machine that works on four different levels at the same time. In some cases, they can see its beauty, speed, power and pressure. In the great majority of the cases, students feel that they need to do something otherwise they will be overwhelmed.

Later on, students refer to this phase as a moment of great crisis to be tackled head-on. Someone used the term "electroshock" or the sentence "breaking my mind to put new things into it". These are surely strong images but really effective, from the students' point of view. Of course some do leave the course, but the majority of them make the leap to the second section.

As you may rightly imagine, within this space I cannot give details about all the materials, topics and structures of the second, third, fourth, fifth, sixth, and seventh sections of the course. However, I can give you a vision about the main topics, which are mainly related to theoretical and practical aspects on CAAD tools.

The main themes:

1. The impact of informatics on cities and contemporary architectural research | The World Wide Web (aforementioned in this essay).
2. Pixel's World, materiality and immateriality | Hardware and screens, digitalisation of images. The world of raster.
3. Stratification and Superposition | The world of Vectors. Geometries and layers.
4. Masses, collisions, and trajectories | The creation of three-dimensionality. Extrusions, Rotations, Boolean operations.
5. Strategic projects, data driven | Organization of Information. Data-bases.
6. Projects of modification | Dynamic interconnections. Hierarchical structures and intelligent models.
7. New frontiers for research | Morphing, modifiers, poly-surfaces, attractors.

Let's look synthetically at some of these topics. Here's what the second section involves: The students learn the role of the computer screen and bi-dimensionality in contemporary architectural culture, they see case studies of surface-architecture, which they can compare. Contemporaneously they learn how to work "with bits" by using different rastering software. They work out the key assignment of this phase: the self-portrait. This is an important and meaningful product; the self-portrait has been the subject of various exhibitions and publications.

During the third section students learn how to work "vectorially" and understand the importance of research in contemporary design dealing with concepts such as layers, translations, movements, duplications and oscillations.

With regards to the theoretical background, I usually talk a lot about Peter Eisenman. Students learn (some more easily than others) vectorial design with some Autocad tutorials (I personally haven't ever used Autocad, but I understand that students need to know it for their professional future).

The third cylinder in this phase requires a small project, usually preparatory to the main one. In 2003 the exercise was described as follows:

"In a perfect semi-cube, 16.60 meters high and 33.20 meters large, work in the following way:

- › Define a keyword, a verb, or an action;
- › Think about the meaning of this action in the space;
- › Produce plans and sections in a 2D CAAD drawing;
- › Then produce a 3D CAAD;
- › Finally, a rendering.

Present the assignment on your web site and send me its link. Deadline: 05 July, 2003".

After the deadline, I collect and publish the assignments (including the self-portraits) in "index pages" where I show a key picture for each one, linking it to the students' personal web site. These index pages not only enable to share all the works among all the students, but also prompt the start of the negotiation for the creation of the working groups for the final part of the course.

The other three sections, which I will not discuss in detail here, regard topics related to the progression that spans from three-dimensional awareness to the role of dynamic information and models (database, GIS, worksheet), from hierarchical structures to the presence of interactivity and generators of architectural forms. As you can probably imagine, I would like to delve deeper into these subjects, but I will now introduce you to the final part of the course.

During the sixth section, students are introduced to the final work of the course. Each year I try to find a theme capable of gathering the widest interests of the students. It has to be stimulating (or better still exciting for the students), it has to produce a specific contribution to the cultural debate on Information Technology for architecture, and it has to present some possible operative repercussions for the students, for the Faculty and so on.

The theme of 2003 was focused on the creation of a big virtual exhibition on the river Tiber. The concept came from a visit I had to the Swiss Expo 2002, that was a crucial point for research in the field of Information Technology applied on architecture (I am referring especially to Ada Pavillion Blur, designed by Diller & Scofidio). So my idea was: “Good, since I don’t have a billion Swiss francs as Swiss Expo does, why can’t we have a similar Expo, but virtually?” The idea was also happily accepted by my collaborators, who were Francesco De Luca (curator of tutorials) and Italia Rossi (project manager of the final work in that year). To proceed we needed a site and an urban plan for the site. At that point it was really difficult to produce significant urban planning within the course, so I decided to work again on the site that several years before was studied in detail by Ilaria Benassi for her excellent graduation thesis. We also had a physical model of the urban site, which was clear and effective in showing the guidelines of the project.

The site was the Ostiense, a classic post-industrial area in Rome. It was perfectly suitable for our Expo, because the Ostiense was undergoing a deep transformation from an industrial setting that characterised the last decades, to a new vital and mixed-use modern city of information. The site of the project was located along the Tiber River spanning from the landmark of the Gasometer to the Marconi Bridge. Ilaria Benassi’s master plan redesigned both banks of the river with some new platforms (each one with its own shape) hosting different functions and activities. Taking into account this master plan, we defined twenty-five specific areas, with particular urban designs and vocations. One area was around the Gasometer, another one connected the two opposite banks of Tiber with a new bridge, and another area was situated along a part of the riverbank and so on. We also defined some specifications concerning layouts and volumes, these rules stemmed directly from the master plan. Each group of students had to negotiate with the brief and identify the area best suited for their shared project. Then we started the design process.

Here is the description of the project as it appeared in the official document of the course: “TEXPO proposes a large virtual exhibition on the banks of the Tiber River, in the Ostiense area, between the Gasometer to the north and Marconi Bridge to the south.

The idea of TEXPO came about as a reply to the Swiss Expo 2002 and it is based on this assumption: if the Swiss exhibition represented a moment of high acceleration in these last years in the relation between information and architectural research, is it possible that also Italy can give a contribution toward this direction? One possible solution arrives in this work.

TEXPO is a virtual project only as far as its cost, that being zero, nevertheless the buildings are realistic and could be viable as real projects.

TEXPO is organised around twenty-five projects/installations. Each installation is located in a specific location within the framework of a harmonic master plan that redesigns the banks of the Tiber as a series of emerging thresholds. Each threshold defines areas with various shapes and vocations. Each project/installation is characterised by a set of features, which can be outlined as follows.

A. First, each project is based on a “theoretical and technological” issue, which is relevant for today’s information research (sensors, quanta, topological structures, innovative materials, projective or physical interactivity, etc.).

B. Each issue generates a “story”, i.e. it finds a concrete application by means of an effort that links research to reality. Often functional facilities are designed in order to support the exhibition (a projection tower, a thermal facility, a baby-sitting area, a changeable skate track, metro stations, an arena for sport and shows, restaurants, cocktail bar, shopping areas, etc.) while sometimes they are just installations (event space on the water, moments of meditation and therapy, changeable configurations of landscape, etc.).

C. Each project/installation is within an area of the TEXPO. Hence there is a specific design of the space, its surroundings and links with both the adjacent interventions and the project at a large scale.

D. People can enter the Exhibition through the Web, where they can see the different projects. They can browse the projects by means of different ways: from textual indexes to geographic references.

The work that led to such results (there were eighty students organised into twenty-five groups!) was developed between the first week of June (when lessons had finished) and the next-to-last week of July, in several personal meetings with students.

Final works are presented during an oral examination and in occasion of a Public Symposium where each group illustrates to students of previous years and to a jury of national and, sometimes international, experts their projects. These Symposiums are relevant cultural events, because students not only present their projects but also the IT background that gave rise to their project.

A lot of my friends have been coming to these symposiums for years and they consider the event an important occasion to get up to date with new trends and to open up their research toward new possibilities. Over the years I have invited about 40 guests as jurors.

Quite obviously all the projects are presented “directly” on the Internet. They are always available and indexed in a sort of book, which is all organised by the students. The book is the web site that summaries the works done by students and lets visitors access each presentation. Visitors can browse every single project on the Internet and evaluate the students’ results that are often brilliant with regards to research, use of technologies and design.

Thanks to Texpo, my course was invited to participate in a wonderful exhibition of architecture held in December 2003. The name of the exhibition was “Spot on Schools”. From the point of view of the curators it presented the best practices in the international scenario of digital research in architecture.

collaborative work space

19

On that occasion we set out an important installation to show and made accessible what we did during the course. My idea was to make a traditional installation, using only physical supports and avoiding any digital tools, even though the course was on Information Technology.

I thought this was the best way to let the visitor feel the complexity and richness of the work.

Here follows the description of the exhibition: “BEYOND MEDIA/OLTRE I MEDIA 2003 edition, organised by Marco Brizzi and the University of Florence, is hosting for the very first time a significant exhibition devoted to some of the most distinguished schools of architecture in the world. The exhibit SPOT ON SCHOOLS – edited by Paola Giaconia – offers an initial survey of courses that have explored the topic of communication in architecture and, in particular the influence that the new media play in this field.

Within this context, course Caad 2003 run by Prof. Antonino Saggio (Faculty of Architecture “L. Quaroni”, La Sapienza, Rome) presented “Texpo 2003”, a virtual exhibition on the banks of the Tiber River at Ostiense in Rome. With a detailed master plan and twenty-five projects/installations that investigate the relations between digital technologies and architectural projects.

Texpo that was presented at the festival Beyond Media (“Intimacy” was the main topic and name for that edition) presents a collaborative installation, just as the course at the university was collaborative.

In the corridor along the small balcony on the first floor at Leopolda Station in Florence were four big waving panels showing images of the Expo site on the Tiber, summarising purposes and giving web addresses where one could see the projects. In the middle of the installation, facing a void of three stories, there was a web of coloured fabric designed by Italia Rossi, with Alessandra Proietti and Claudio Ampolo.

Pinned on the fabric was a set of postcards that depicted the projects and that were actually sent out by the students. On the front they had an image of one of the 25 projects and on the back there were the students and designers’ web addresses.

Besides these, the visitor could also find postcards connected with the experiences of the students who attended the courses between 1999 and 2002. These postcards featured digital self-portraits, substances, the word-project, “L” shape houses, semi-cubes and much more.

From an organisational point of view, the installation had two parts: one being a specialised task force that conceived and designed the collaborative exhibition, the other being all the students that were requested to participate by sending through snail-mail postcards of their projects, and thus taking part and contributing to the installation.

OTHER EXPERIENCES

I have used the 2003 course as an example for this essay. However, we held a 2004 course following a similar approach as for the methodology, but dealing with a completely different topic. The topic was “Terragni futuro (Future Terragni)”, because we wanted to remember Terragni’s centenary and because we were able to count on the support of the National Committee for the Celebration, of which I was part.

The course was organised around the same eight cycles of lessons, although in parallel I gave several long lessons on Terragni’s architecture. Each lesson was based upon several keywords, which enabled students to look at his oeuvre under a diagonal and problematic light. Following the titles: 1. Word, Text, Hypertext, 2. River, Stream, Life, 3. Saints, Fathers, Brothers and Sisters, 4. The motif of the three, 5. The history of the loom. An ongoing liberation, 6. The tower. A masterpiece: the kindergarten, 7. All about Terragni.

Each final assignment investigated Terragni’s architecture, deepening one specific project by the architect from Como, in a very critical way, while at the same time transposing the work from the past into the future and affronting the work with the reality of Information Technology research issues, such as interactivity, morphing, critical animations, hierarchical structures and databases. What comes from these studies is a spatial action whose main purpose is to give meaning to the whole operation: today’s young people are able to study architecture by any famous architect, they can inquire into its historic relevance, and at the same time examine it through the lenses of the conceptual frame that the new technologies suggest. When this recipe works, we face a synthesis as simple as it is emotionally and intellectually unpredictable.

The work with Terragni’s architecture was also showed in Florence in 2005 by means of an exhibition, which involved all the students. It was described as: “The exhibition at the Stazione Leopolda in Florence, in part presenting again and in part reinventing the spaces and contents of the “Terragni Futuro” exhibition, which was held at La Casa dell’Architettura in Rome in order to celebrate Giuseppe Terragni’s centenary – Meda 1904 – Como 1943.

A large map was hung from the balcony of the first floor of the old railway station of Florence. The large map summarised the general design of the exhibition, the locations and the 25 installations’ websites. The exhibition space was characterised by a board, 3 meters high and 4 meters large, and by a second ambit where the film, that features students’ assignments and a brief overview on Terragni, was projected on curtains visible from all over the station.

The exhibition space was characterised by 30 strips of drawings hung on wires and several critical models by the students and teaching staff. As visitors made their way through these drawings and models they were directly plunged into the world of architecture.

THE TOOL

The 2005 course was dedicated to the theme “the tool” and was titled “Non neutral relationships among knowledge, artistic creation and tools”. Students who proposed the best results took part in the elaboration of proposals and ideas for the Zeche Zollverein (a large industrial area in Ruhr) in collaboration with Urban Drift, which is a cultural association with its headquarters in Berlin.

Students' proposals investigated new ways of using the ex industrial German facility by means of nine diverse designs for the exhibition spaces devised for the factory space. Each project searched for the knowledge of a tool rooted in the productive events of the large factory (a gear wheel, a conveyor belt, a drill, the railway, etc.), but its history was disarticulated in order to transport visitors from the traces of an industrial memory to the promises of the information age.

The course was characterised by a series of ten conferences with one musician, one chemist, two engineers, one designer, two architects, one astronomer, two artists and one curator of exhibitions who spoke about their experiences starting from the tool, from slide-rule to notebook, things which define the job of any lecturer.

The 2006 and 2007 courses were organised in parallel with a session of the Athens International Meeting devoted to the same topic: “Modernity, Crisis, Information Technology”. These two last courses did not offer any general topic (Texpo, Terragni Futuro, or the Tool), but students were set free to identify the fields, in design, architectural and urban design domains, where Information Technology is not a gadget for affluent peoples' houses, but a field of actions and technologies capable of tackling, on the one hand, an objective situation of difficulty and, on the other hand, a research aimed at the necessity of a new aesthetics.

The title of the course, “Modernity, Crisis, Information Technology”, echoes the idea according to which modernity transforms the crisis into value, a contradictory moral, and engenders aesthetics of rupture (Zevi, Baudrillard).

During the final conference projects were presented in order to tackle the following issues: urban noise by means of protective and spatial systems; the separation of the two Tiber's riverbanks with mobile devices filled with useful social events; the Umberto I Polyclinic's internal and external connections, which were treated as a neuronal net that creeps into the hospital fabric; an active strategy for several socially and ecologically innovative playgrounds; finally, new possibilities for inter-modal places nowadays debased and poorly designed.

During the final presentations of the 2007 course devoted to the same issue, projects were presented on the following topics: the abandonment of San Lorenzo's overpass and the proposal to modify the nearby buildings into houses for cinema lovers; new relationships between spaces and activities for the new faculty of via Gianturco; an interactive and “environmental” game capable of awakening the feeling of social cohesion in a reality such as Aprilia. New aesthetics can provide places with “life”, filling these residual locations with new spaces for living, spaces that are mutable and not classifiable. One project looks at the areas around Rome's metro and transforms them from city wounds into areas capable of enriching urban experiences. Another assignment deals with the abandonment of small towns. For Cellano a proposal for arts and shows was chosen in order to bring life to the old place again. Finally, there is a study on the “Muraglioni” along the Tiber River.

The effort of each assignment, in both 2006 and 2007, was to detect an objective and evident situation of crisis and tackle the situation coupling the right designing action with an innovative and creative use of Information Technology. A search for technologies effective for each project that support the design.

SUMMARISING CONCEPTS

teacher

cognitive models

2

education theory

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Obviously it is not easy to comment on this work, above all for the author. Some consequences should be already evident to the reader, but as a type of summary I will briefly elaborate a few concepts.

Density and pressure. Electroshock

When I teach it's fundamental for me to try to create the right intellectual pressure toward students. Only this charge will autonomously trigger them to challenge themselves and, finally, to learn.

Thus it is possible to learn because there is a deep need, a real necessity. Learning how to use the web (or create a 3D model or use morphing) is not an exercise, it's a necessity – and that's the point! A fundamental base of this pressure is provided by means of my lessons. There is no technology capable of substituting a professors' word or gesture.

Collaboration and flat-fat net

Working in a public fashion (from web pages to Web 2.0, blog and You Tube) is aimed at creating nets and links among people and at obtaining collaborative working environments.

The exchanges of complex operations and common actions, as occurs in our exhibitions and presentations, would have otherwise been impossible. At the same time e-mails trigger a personal and direct relationship between professors and students. Students are not used to this, but they really appreciate it: "Teacher replies to e-mails!"

Four Cylinders. An engine in action

A key feature of the work developed during this course is that part of the actual architectural research is considered in relation with the IT evolution. This happens at different levels. From those more superficial, which are related to "the vision of the world", to those more structural, which are focused on the concepts of "model", "mental landscape", and "reification". All these issues have been set out in the aforementioned paragraphs.

Hypothesis – Verification

The approach of each student is deductive. Students hypothesize a field of possible designing actions and verify them by means of a set of information and discussions with my assistant and me. If their hypothesis is interesting and viable we go on, otherwise we start again. Obviously I continuously propose and suggest creative cues for the evolution these projects. I play four or five different roles at the same time.

Self-learning and technical lessons

The base of the work of teaching in the field of information technology is founded on self-learning. This is true in every field, also in theoretical ones, and this is even more true when you are learning how to use software. Therefore, a really important task as far as teaching is concerned is to provide the major motivations (pressure has to push the student to understand the personal necessity of learning) and, in the case of software, the general settings and main operative keys. This is done within the

framework given during my lessons and also provided by finalised tutorials that have been held by my assistant Francesco De Luca for many years. The tutorials have an instructive, but also psychological purpose, as being part of a group and having a guide to start a process of learning is really important.

Black holes

Naturally, I talk about a lot of things with my students and I often politely refer to things as "black holes". If 23 years old (and sometimes older) has never heard about Cezanne (whom I talk about for twenty minutes during one lesson), then it's a black hole. You don't need to tell anyone you don't know about Cezanne, but my goodness, with the Internet it is so easy to inform yourself. The black holes have to be filled – always!

Publication, advertisement, authorship

One of the leitmotifs of the course is the respect of the sources, at every level. Sources deserve the same respect and completeness whether information derives from a colleague or from a super cited expert. On the one hand the respect of the source is a symptom of professionalism, on the other it's a solid base on which to construct future buildings.

Also the ability to talk in public is particularly stimulated during the course and checked on at least four occasions.

IT Revolution

Obviously, this way of teaching the presence of informatics in the architectural domain is like the way the IT Revolution book series (Birkhäuser since 1999, EdilStampa since 2005) is outlined. There is a devaluation of the very technological, aimed at favouring a focus towards moments of conceptualisation and design. This approach comes from, on the one hand my choice, and on the other hand the situation. In fact, the University of La Sapienza doesn't have any well-equipped laboratories as many other university do.

Since I have taught with this approach also abroad, I can confirm that this way of considering the subject works very well and is appreciated even in a hyper-technological context, where the harvesting of ideas, conceptualization, design and further key aspects, promoted by this didactic, enable a collection of energies and ideas, which contribute to the development of the students' and the Schools' research.