IO3
2021

Manual of best practices for a blended flexible training activity in architecture for higher education institutions

FAM ArchéA

Architectural
European Medium-sized City
Arrangement

This volume returns the results of the Intellectual Output 03 of the research project "ArchéA. Architectural European Medium-sized City Arrangement", with the aim of analyzing and restating the state of the art achieved in the field of flexible mixed training in architecture, strongly encouraged by the emergency period of the Covid-19 pandemic. The result is a collection of good practices carried out internally and externally to the ArchéA partner network, in the context of higher education institutions, made possible by new virtual tools capable of mediating teaching and mixed and flexible learning around the disciplines related to the project.

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# Manual of best practices for a blended flexible training activity in architecture for higher education institutions

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Analisys of the Best Practices
Call for papers

Veronica Ferrari
Architectural Design Studio activities in times of pandemic. Alternative models and tools for managing mixed-mode teaching.

Polytechinc of Milan, Italy
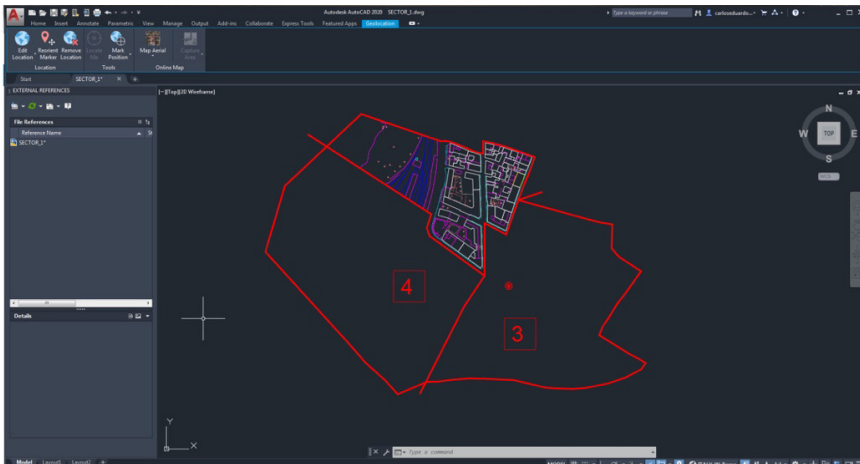
This contribution deals with the experience of the Architectural Design in Historical Context Studio held by professors Luigi Spinelli, Barbara Bogoni and Eduardo Souto de Moura, that takes place in the second semester of the first year of the Master of Science in Architectural Design and History - AUIC school of the Politecnico di Milano.

The course, held in English, is part of an international program that welcomes students from all over the world, offering them the opportunity to fully experience the integration of the different disciplinary components of design practice.

The course aims to learn the fundamentals of architectural design and the application to the historical context of the city of Mantova of the theoretical, analytical, historical and instrumental knowledge that students have had the opportunity to develop and increase during their studies, to reach the definition of an architectural project developed in all its parts.

The course was held in combined sections with about 40 students each, who are engaged in carrying out individual research and group project activities. The course activities were carried out by adopting innovative teaching methodologies - *flipped blended classroom* - alternating face-to-face and remote activities. The Microsoft Teams platform - for lectures, presentations, collective reviews and conferences - and the Beep platform - for the sharing of materials by the teachers, the delivery of documents by the students and the management of notices were used to the course.

Of particular importance was the participation in both sections of an international design teacher such as Eduardo Souto de Moura and with the collaboration of the architects Nuno Graça Moura, Joao Pedro Falçao de Campos, Joao Mendes Ribeiro

who dedicated themselves to following the activity planning of the second part of the course.

The calendar of activities included introductory lessons on the Portuguese territory to give students the basis to undertake an individual study and research work, in which each of them had the task of deepening a work of contemporary Portuguese architectural design in a historical context. In parallel we also worked on the study of the historical context of the city of Mantova, through lessons on the history and morphology of the city - also held by external guests particularly competent in the sector - and through study activities through sketches and redesign of the most important buildings and architectural complexes of the city. This activity, called "Knowledge of the city" was carried out in two different ways depending on the ability of the students to participate in the activities in the presence or not. For the students present in Mantova, were organized trips through the streets of the city during which each student illustrated the building object of his personal research to his classmates, followed by moments dedicated to the design and representation of the compositional and architectural characteristics of the artefacts; for distance students, on the other hand, materials relating to the case studies assigned to them have been prepared - shared through Beep - useful for independently reproducing the same type of exercise.

All the work of acquiring knowledge was preparatory to the development of the project, whose theme was the redesign of a side of Piazza Carlo d'Arco in Mantova with the insertion of a collective building, conceived as a functional space for the use of the university and at the same time also of the city.

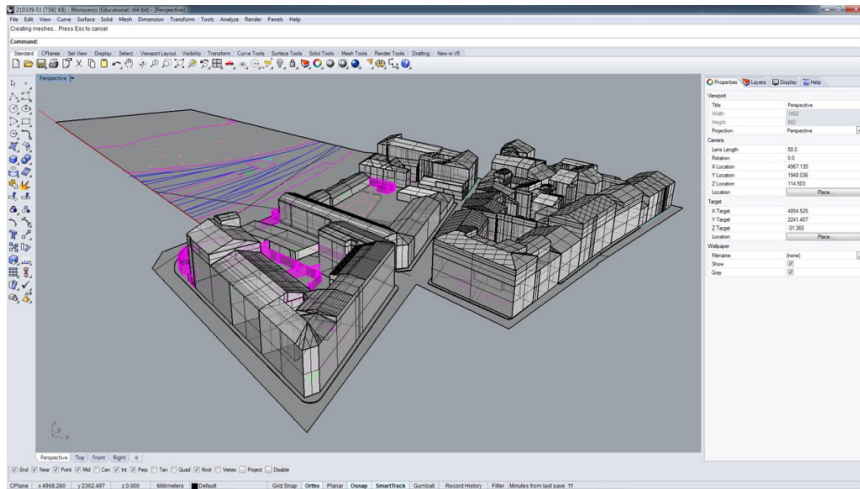The calendar of activities sees the intensification

Fig.01 View of Knowledge of the city trip
Fig.02 Working on common model: division of the sectors

Fig.03 Working on common model: sector 1 progress with roof and sidewalk

Fig.05 Working on common model: final result of the model and creation of a common tool
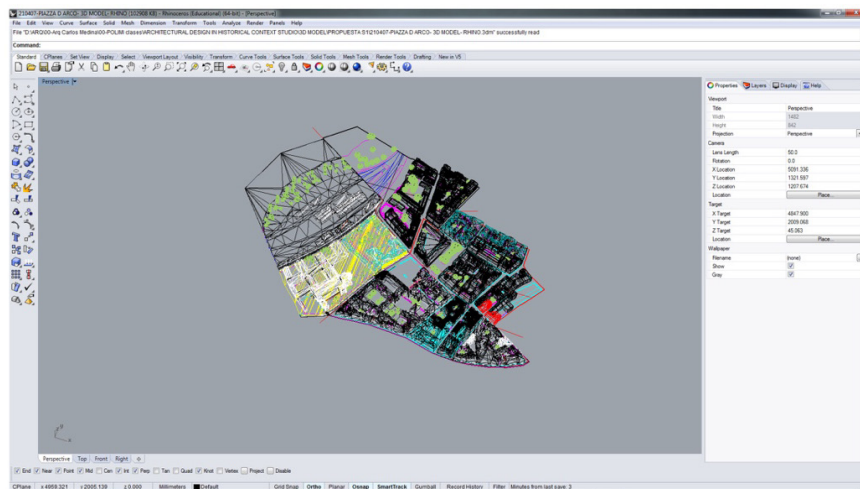

Fig.04 Working on common model: the first attempt on merging files

of activities in May, an intense and important month for all the students and teachers of the Politecnico di Milano and for the city of Mantua, where the Mantovarchitettura program takes place every year, a review full of events and conferences organized by the Polo Territoriale di Mantova - with two intensive weeks, interspersed with a week of rest during which an intermediate review took place, during which students and teachers work assiduously on the project. The lectures, held in part in the presence and transmitted in real-time within the virtual classroom of the course on the Microsoft Teams platform, or remotely, were followed by the students through their personal devices. The tools provided by the platform allowed not only to follow the lectures of the teachers and guests but also to ask questions, create discussions and share opinions from all the participants.

The use of the Teams platform was also essential for managing the creation of a common model of the project area, which was initially planned to be p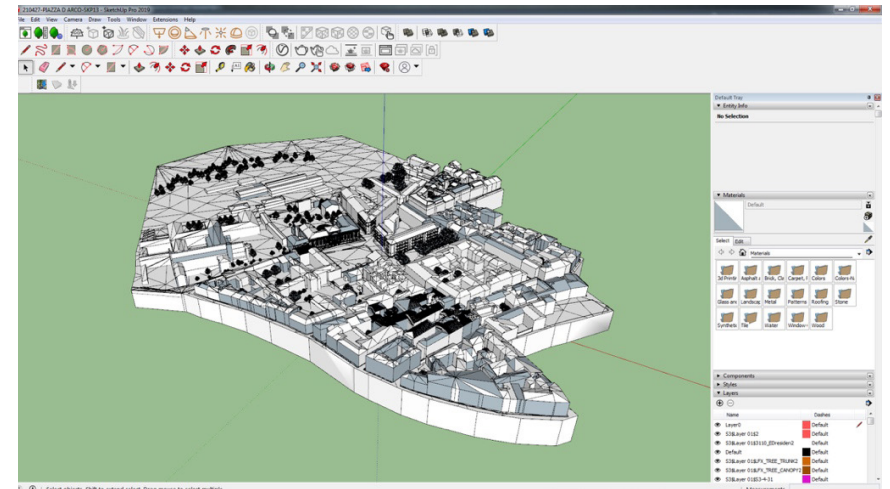hysically built, but due to the pandemic, it was necessary to opt for a virtual 3D model. One student per group participated in the creation of the virtual model, working together to define the volumes and surfaces that form the context of Piazza d'Arco and its surroundings. Starting from a CAD cartographic base, the students - guided by assistants - selected the levels and information of interest to them, proceeding with the gradual construction of the virtual elements of the model. The work was managed through weekly appointments held within the virtual classroom on Teams, in which operational methods, technical and practical doubts and the degree of definition and detail that this tool should have achieved were discussed. The 3D model was created using modelling software such as AutoCAD, SketchUp and Rhino. The result was very satisfying, both from a practical and a graphic point of view; it helped the students to learn to divide the work and to coordinate in a common line for the construction of a shared design tool.

The result was very satisfactory, both from a practical and a graphic point of view; it helped the students to learn to divide the work and to coordinate in a common line for the construction of a shared planning tool. The use of technological tools, and in particular of virtual classrooms, has made it possible to carry out easily, even if not exhaustively the reviews: there was the lack of possibility of acting directly on documents with indications and corrections - pencil on the paper - as is usually done for project activities. To make up for this lack, however, students and teachers have worked hard to find different communication techniques, from the most conventional scans or photos of materials to the use of whiteboards and graphic supports on which to draw in real-time and view comments on the video.

Unfortunately, however, there are issues related to the genesis of the project that technology is not yet able to deal with correctly: the management of the scale of the drawing and of the different information at each scale which - working on the computer, without being able to have a formalization on paper - is presented very problematic. «The design must consist of a *continuous passage*, from one to another scale, precisely because the tests adopted at one or another scale (examining a single parameter, or two, or three at the same time) must be verified at a different scale»: with these words Ludovico Quaroni (2001, p.54) raises the question of the need to work parallel to the different scales, juxtaposing sheets with different designs, a habit that, the use of the computer and the possibility to zoom-in or zoom-out on the different contents, is modifying, making us partially lose the perception and the meaning.

These tools were however indispensable for managing relations and communications with Portuguese professionals who were unable to take part in the activities in person as was the case in previous years. Through a precise calendar of revision management and the creation of various virtual classrooms, students had the opportunity to better organize their time and to take advantage

of the contribution of each teacher. In this way, the students received continuous stimuli and discussions on the development of their project.
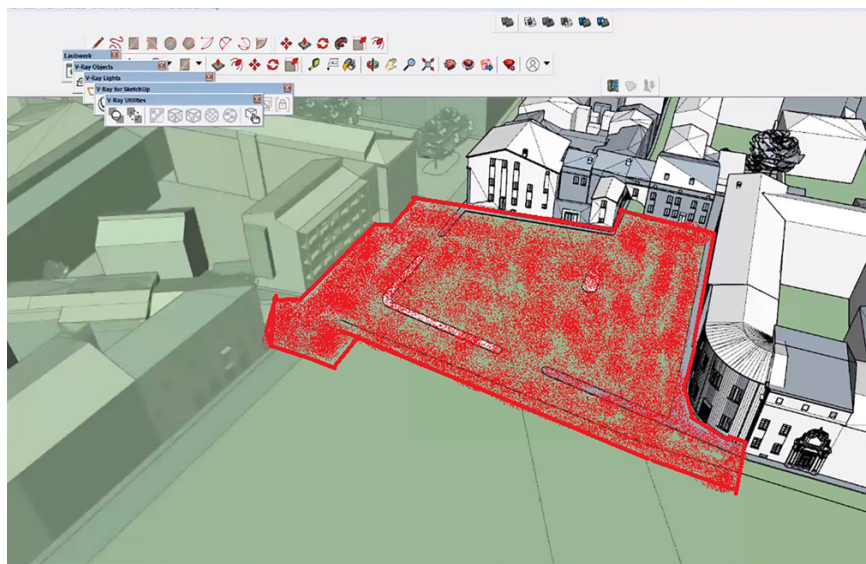
Part of the didactic activity was also the interventions and lectures by Eduardo Souto de Moura, Nuno Graça Moura, Joao Pedro Falçao de Campos, Joao Mendes Ribeiro - also included in Mantovarchitettura, recorded and available on the YouTube channel of the program - where the architects illustrated their projects to students and the public and reflected on their way of working and seeing architecture.

An interesting synthesis exercise, tested within the course in the first intensive week in May, was to invite the students of each group to represent through a floor plan their design idea on the blackboard. Each group, being able to draw only a few lines of chalk, was invited to carry out a synthesis process, to select and represent only the most important and distinctive elements of the project. This moment was also useful in defining the finished form of the project, putting a point in the progress of the design activity and inviting students to continue in the definition of the project, through the study of construction techniques, materials and technological details.
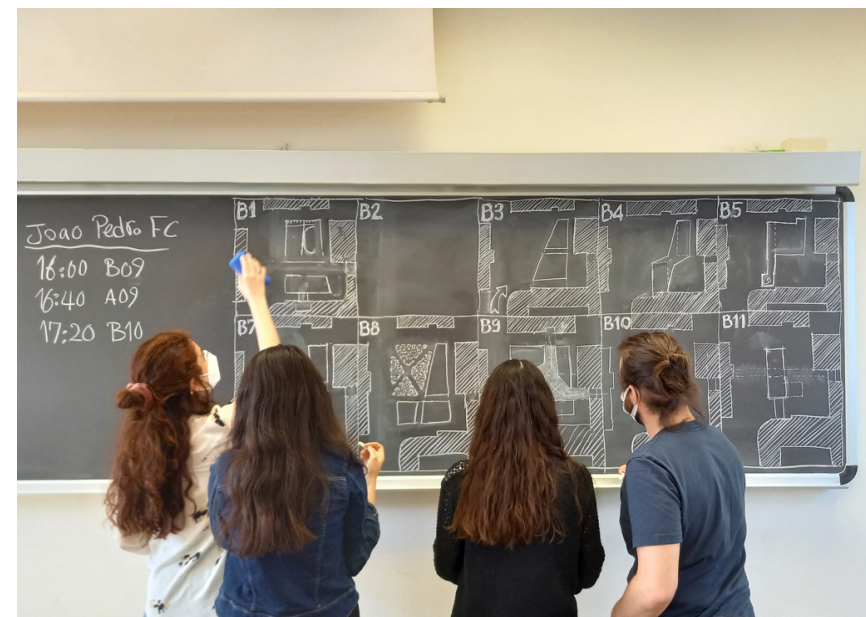
In the same way, the precise organization of the times and methods of communication required by tools such as audio and video sharing platforms encouraged students to select the materials to be exhibited through the preparation of pdf or PowerPoint presentations and to optimize the storytelling of the project, also acquiring a critical eye towards their project and its explanation.

The richness of the course contents and the variety of educational activities offered - and the contribution of international architects - make this course a unique training experience, which due to an extraordinary situation such as that of a pandemic would have been impossible to carry out without the aid of the technologies described above and the great commitment of all the students, assistants and teachers who took part in the course; but it is important to remember how certain habits and certain methods of making and learning architecture cannot yet be replaced worthily by technology.

Fig.07 Students summarizing project ideas on the blackboard

Bibliography

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Fig.06 Use of the Paint program on 3Das tool to discuss about the project area