

## XXVIII International Seminar on Urban Form

### ISUF2021: URBAN FORM AND THE SUSTAINABLE AND PROSPEROUS CITIES

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#### TO-NJ Round Trip (into a Room).

### A comparative urban morphology based design teaching experience between China and Italy at Politecnico di Torino

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#### **Abstract**

*In the realm of “teaching morphology” studies, there is the opportunity to test a comparative method based on analogies and differences. This paper describes a pedagogic experiment in an International Architecture Master Program held in Italy in Spring 2020. In the Design Unit “Architecture and Urban economics”, the main objective was practising urban morphology and building typology as reading and writing tools to understand and design the “urban block”. The Design Unit proposed students with the challenge of using morphological tools to compare, relate, and intervene in two urban blocks situated in very different contexts, but with the same surface, the same position in the urban context and the same shape. One study site is located in Turin, Italy; the second study site is located in Nanjing, China. The challenge to compare two different realities using the same tools and analogous sites helped students realise these instruments’ potential as generators of knowledge. The organisation of the course developed around weekly theoretical and practical collective discussions. The student’s design process was an incremental step-based process involving different stages, such as context diagnosis, envisioning master plans and programs, developing design options, selecting a specific project, and implementing it.*

*What is more, lectures on Real Estate evaluation, Urban economics & management and Media Sociology supported the design process, highlighting the importance of interdisciplinarity in studying and applying urban morphology. The design unit was developed in Spring Term 2020, during the beginning of lockdowns around the world due to the pandemic emergency. This particular situation became an excellent opportunity to test new communication methods with 45 students located in four different continents and verify/falsify the approach towards the way the topics were explained and developed to shape the next generation of architects and researchers, and practitioners.*

**Keywords:** comparative methods, teaching, urban block

#### **Introduction**

Urban morphology has a comprehensive set of theories, concepts and techniques that are utilized for the description and understanding of urban phenomena (Oliveira, 2018). A debate about how this field should

be taught to future generations of architects, planners and researchers has heated the minds and conversations during the last ISUF conferences, above all in Salt-Lake City Conference (2020). This paper wants to contribute to the discussion with the storytelling of a pedagogic experiment conducted in the Design Unit "*Architecture and Urban economics*", in the context of the International Architecture Master Program "*Architecture, Construction, City*" held in Italy in Spring Term 2020 at Politecnico di Torino. The main objective of the Design Unit was practising urban morphology and building typology as "reading and writing tools" to understand and design the "urban block" with a design process that looked for its links with society and its economic criteria. The urban and architectural design course was supported by lectures on Real Estate evaluation, Urban economics and management, and Media Sociology. The design process was guided by those disciplines through visions and decision-making actions.

It should be noted that this Design Unit was developed during the first lockdown in Italy caused by the Covid Pandemic, which was a period of experimentation for remote teaching techniques. The unprecedented circumstances affecting the world forced the course to be held remotely, pushing the planning of the course to find creative ways of communicating and reaching the attention of 45 students coming from four different continents. The Design Unit proposed students with the challenge of using morphological tools to compare, relate, and intervene in two urban blocks situated in very different contexts, but with the same surface (around 42000 MQ), the same position in the urban context (just out from the border of downtown on the main boulevard going towards the outer part of the city) and a similar shape (a big square with one half already built and a second half to be re-designed).

One study site is located in Turin, Italy; the second study site is located in Nanjing, China. The scope of the experimental comparative method proposed was to use methodological tools to regenerate parts of the Chinese and the European cities of nowadays using the same conceptual instruments. The core interest of the course pointed to reflect and compare the following realities:

– The morphological, environmental (and also social and economic) assets of an area in the centre of Nanjing, the North district of Taiping Nan Road, with its high cultural and historical value as an example of the 20th century planning of Nanjing as the Capital of the Republic of China during the so-called Nanjing Decade (1927/1937). Nowadays, the area is in downtown Nanjing, in a crucial zone for services and commercial activities and needs to be implemented by housing and services. (figure 1 left)

– The morphological, environmental (and also social and economic) assets of an area in the centre of Torino, just out of the Northern part of the historical centre, along Corso Giulio Cesare, with its high cultural and historical value as an example of the 19th-century enlargement of Torino as new industrial Capital of Italy after being no more political Capital (1865). Nowadays, the area is just out from inner downtown Torino, in

a multi-ethnic district (and fringe belt) with some social conflicts, into a crucial zone for commercial activities, and needs to be implemented by housing and services. (figure 1 right)



*Figure 1. Left: Satellite Images and Street View of Nanjing's site. Source: BaiduSatellite Images and Street View of Turin's site. Source: Google Earth*

This paper presents firstly the background of urban morphology theories utilized in the course, secondly, the comparative methodology, the 12 week-structure of the course discussed in a context of interdisciplinary pedagogy and the tools utilized for remote teaching; and thirdly the results of the experimental experience. The paper concludes with remarks about the importance of the utilized methods and the potentialities of them in the future teaching of urban morphology.

## **Background**

One of the missions of the “Transitional Morphologies” Joint Research Unit is teaching urban transformative design in Schools of Architecture through a deep knowledge of urban morphology as an investigation and design tool. That means that every Design Studio contains a series of lectures devoted to outlining, explaining and detailing the theoretical background of those urban morphological studies especially interested in the city as a built environment and particularly based on the three concepts of topography, typology and tectonics (BAO, Trisciuglio, 2018).

A preparatory part includes a wide introduction to the conceptual and graphic instrument of typological maps: from the map of Rome traced by Giovanni Battista Nolli in 1748, to the archaeological maps of Rome and Pompei during the 19th century, from the historical maps of Venice by Saverio Muratori to the map of Como by Gianfranco Caniggia, with the urban patterns of nowadays overlapped on the Roman traces of walls and streets (Trisciuglio, DONG, 2017).

Also, the 18th-century idea of “type” (as it was invented by Nicolas Louis Durand as a taxonomic, but also as a powerful operative tool, at the same time) is another one of the main topics of the theoretical lectures.

Both cities that were chosen as the theme of the Design Studio and the specific plot subjected to transformative design, are carefully described in their morphological history (the city) and in the play of permanencies and permutations (the plot) that drove their transitional changes in time.

These descriptions are a first step, useful to investigate which could be the new morphological phase of the city and the new order previewed by the project. So, in the study cases that are object of this paper, Torino has been fully described in its Roman foundation as a premise for the “chessboard” based urban form of Baroque and Neoclassical enlargements (and also for the industrial city settlement of 20th century), while Nanjing has been described in its ancient foundation and development until it became the great walled Ming Dynasty Capital of Chinese Empire at the early of 15th century (and again Capital of the Republic of China in the 1920s and 1930s, with some important morphological invariants in patterns and typologies).

The Design Studio never works on the basis of a sequence “from theory to praxis”, but on the contrary from a double sequence that goes from MAPPING to PROGRAMMING, in which the first phase aims to obtain a good knowledge of the place (but already watching at the vocations of buildings and spaces in terms of design) and the second phase enlarge the analysis to social and economic data (so that it become possible to better define the topic of the design activity and the reading of happened transitional phenomena).

When it is not possible for students operating through direct surveys and measurements, MAPPING can become (as it happens in the case here described, during the Spring Term 2020) a serious and intense work of re-drawing and investigating typological maps already given, as already measured on the fields and also already traced by other scholars, archaeologists or the Joint Research Unit members themselves in previous investigations. In such a case the topic of mapping becomes relevant as a generator of knowledge and it can help students in understanding how they can investigate typological maps.

Going beyond the economic data and social data mining, the PROGRAMMING action can be driven, even outlining new shapes and new orders, able to re-draw the settlements in a way that can be able to face new needs and host further innovative facilities. This is possible working on the classical topics of “ars combinatoria” and “the city as collage”, that is adopting existing special types and existing basic patterns in order to propose a first and general configuration of the transformed plot. Special types and basic patterns arise from the memory and the settlement tradition of the urban culture (or urban cultures) that the Design Studio is investigating, but the two concepts of utopia and prophecy (discussed with students) can be the right key to move towards the future times and to coming and different urban forms and orders. So, prophecy and memory, utopia and tradition are a couple of concepts able to drive students to work in this second phase of the design activity.

## **Methodology**

The methodology proposed for the class explored COMPARISON as a valuable resource for understanding and planning a place. Comparing as action involves the symbolic act of bringing two or more things together (physically or in contemplation) and examining them systematically, identifying similarities and differences among them (Manning, 2003). The purpose behind the experimentation of comparison as a methodology for urban and architectural design was to give students the tools to explore the morphology of different places, learn from them and then strategically design projects that would fit the context. In this sense, students were asked to develop individually and simultaneously two projects, one for each site.

The methodology included an incremental step-based process, which involves different stages related to general topics of PLACE (diagnosis of the context), URBAN DESIGN (envisioning master plans and programs) and ARCHITECTURAL PROJECT DESIGN (development of several design options and selection of a specific project and its implementation). Clear limitations on site boundaries and historical morphological reviews about the places were included in the general lectures, and collective reviews were given constantly. What is more, the unprecedented Pandemic situation worldwide changed the teaching and learning methods to online platforms and technological interactions; the Google drive platform and a WordPress website were used as ways of communicating and sharing students' works.

The experimental methodology proposal for the Design Unit included four main activities developed during the semester:

1. Lectures on morphological studies
2. Weekly exercises that in the first weeks provided an introduction to various ways of observing and analysing both urban areas and boosted their interest in the complexities of the urban environment. In the last weeks, the exercises guided the design of two projects that shared common strategies in both sites.
3. Introductory readings on Urban Morphology Studies.
4. Online communication experimentation for remote teaching techniques.

Information on specific Weekly development of the course can be found in the following Table 1.

|       | Week | Lecture, Reading & Exercise   |
|-------|------|---|
| Place | 1    | <b>Lecture 1: 2 Cultures, 2 Cities, 2 Projects</b><br>EXERCISE 1. DIFFERENCES AND ANALOGIES   |
|       | 2    | <b>Lecture 2: Urban Morphology. Mapping as generator of knowledge: How to investigate Urban typological maps?</b><br><i>READING: Oliveira, V. (2016). 'The Study of Urban Form: Different Approaches' in Urban Morphology. Switzerland: Springer International Publishing.</i><br><i>READING: Marzot, N (2002) ' The study of urban form in Italy'. Urban Morphology 6(2) 59-73</i> |
|       | 3    | <b>Lecture 3: Torino. An urban morphological portrait</b><br><b>Lecture 4: Nanjing. An urban morphological portrait</b><br>EXERCISE 2. URBAN TYPOLOGICAL MAPS, "Reading" cities   |

|                               |    |  |
|-------------------------------|----|--|
| Urban Design                  | 4  | READING: Rafael Moneo (1978). 'On Typology' in <i>Oppositions. A journal for Ideas and criticism in Architecture. MIT press.</i><br>EXERCISE 3a: TOWARDS A MASTER PLAN. EXAMPLES   |
|                               | 5  | <b>LECTURE 5: Typologies: special types and basic types</b><br>READING: Forty, A. (2004) 'Type' in <i>Words and building. A vocabulary of modern architecture. Thames &amp; Hudson</i><br>EXERCISE 3b. CONCEPT AND MASTERPLAN. "Writing" cities  |
|                               | 6  | READING: Peterson S. (2018) <i>Urban Design Tactics. Peterson Littenberg Architecture and Urban Design</i><br>Midterm Collective Reviews   |
| Architectural projects design | 7  | COLLECTIVE REVIEWS<br>EXERCISE 4a. SPECIAL TYPES AND BASIC TYPES TO BUILD THE MASTERPLANS. TWO CATALOGUES  |
|                               | 8  | <b>LECTURE 6: Ars Combinatoria and Collage City</b><br>EXERCISE 4b. SPECIAL TYPES AND BASIC TYPES TO BUILD THE MASTERPLANS. TWO COLLAGES<br>READING: Rowe, C. and Koetter, F. (1978) <i>Collage city. MIT Press</i>                              |
|                               | 9  | EXERCISE 5.: VOLUMETRIC PROPOSALS AT NJ AND TO   |
|                               | 10 | <b>LECTURE 7: Notes on infographics</b>  |
|                               | 11 | EXERCISE 6.: ARCHITECTURE OF THE CITIES<br>READING: Rossi, A. and Eisenman, P. (1982) <i>The architecture of the city. MIT Press.</i><br>READING: Cheng V (2010) <i>Understanding density and high density in Designing high-density cities.</i> |
|                               | 12 | <b>LECTURE 8 : FINAL LECTURE</b><br>COLLECTIVE REVIEWS<br>EXERCISE 7: FINAL ALBUM  |

**Table 1.** Weekly development of the course

## Results and Discussions

In general terms, the experimentation was concluded successfully. The level of detail obtained with the development of the projects in both cities showed the potential usefulness of the tools to be implemented in different contexts. A critical aspect to reflect on is the limits that constrain the tools utilized; a crucial aspect of the course included understanding the contexts in morphological, social and economic terms. In this sense, the comparison gesture was applied and utilized with the constraints and understanding of the specificities of both sites. The three stages of the course (place, urban design and architectural projects design) were developed incrementally week by week, allowing students to reflect and apply the tools and ways of seeing. One example of exercises from each phase is presented ahead.



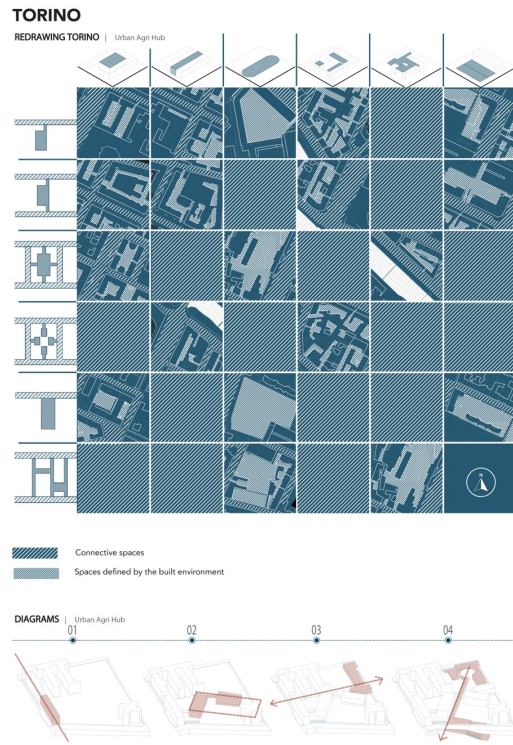
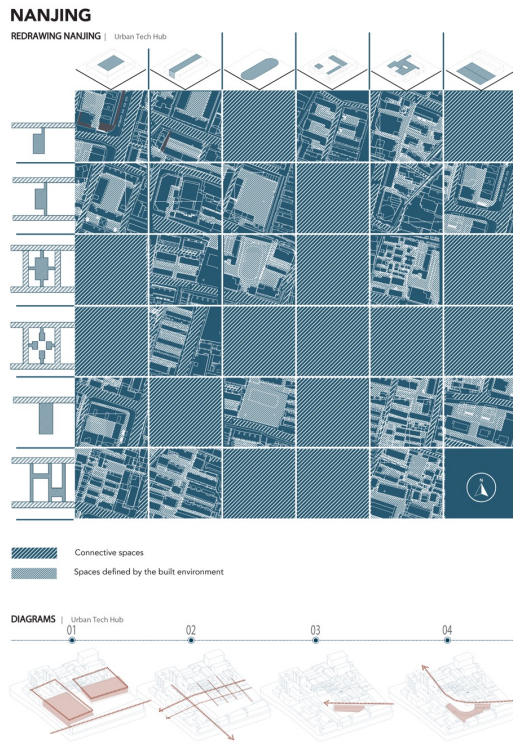


Figure 2. Student example of morphological reading and writing exercises “Place”. Credits: Soumer Al Kamand

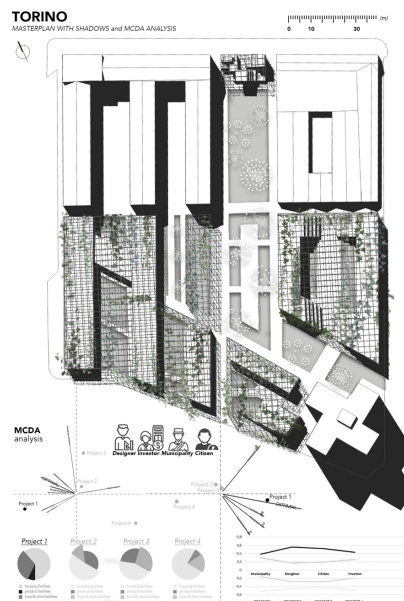
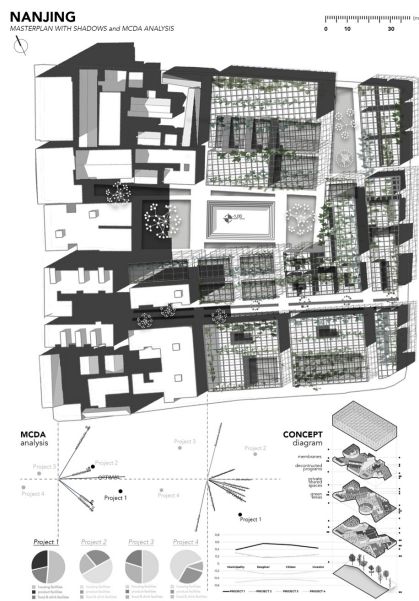


Figure 3. Student example of morphological reading and writing exercises “Urban Design”. Credits: Marko Mihajlovic



**Figure 4.** Results of projects developed for “Architectural projects design”. Credits: Tan Wen-Yee

## Conclusions

In the contingency of distance learning in which the Design Studio had to operate, two elements, in particular, could be verified: a) the MAPPING / PROGRAMMING sequence, played above all between the critical revision of typological maps and combinatorial re-elaboration of settlement types; b) the COMPARING action, based on the simultaneous study of two cities located in two different settlement cultures, with the transformative project of two blocks, however comparable in size, urban position, extension.

This work of "pedagogy of urban morphology" was tested on 45 students "coming" from Europe, China, South America and Africa, some attending from their own home in their own country, others residing in the same city as the school in where the experiment was taking place (Turin), but unable to meet each other and meet their professors. The quality of the results achieved in such an extreme contingency makes it possible to evaluate the REPEATABILITY of teaching as a study of transitional urban morphologies (and their impact on urban design) to be carried out with an international class by comparing two worlds and two cultures very distant from each other.

## Acknowledgements

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