

DE-SIGN ENVIRONMENT LANDSCAPE CITY

Scientific and Cultural Approach to Drawing
and Representation of Tangible and Intangible Heritage

VIII International Conference DE-Sign Environment Landscape City 2023 as part of La Biennale di Venezia, 18 Mostra Internazionale di Architettura as a collateral events Students as researchers, Creative Practice and University Education.

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La collana vuole mettere a sistema le tematiche affrontate nel Convegno Internazionale De–sign Environment Landscape City, che si pone come occasione di confronto e dibattito multidisciplinare nell’ambito di ricerche e pensieri che dalla Rappresentazione si aprono a tutte le discipline che coinvolgono l’analisi, lo studio, la valutazione, il progetto, il design, il colore, dell’“Ambiente uomo”. Il tema della rappresentazione e delle ricadute scientifiche di tutti quei settori disciplinari che coinvolgono l’ambiente che viviamo, guardiamo, immaginiamo, progettiamo viene affrontata presentando i seguenti topics: rilievo e rappresentazione dell’architettura e dell’ambiente; il disegno per il paesaggio; disegni per il progetto: tracce — visioni e pre–visioni; i margini, i segni della memoria e la città in progress; cultura visiva e comunicazione dall’idea al progetto; le emergenze architettoniche; il colore e l’ambiente; percezione e identità territoriale; patrimonio iconografico culturale paesaggistico: arte, letteratura e ricadute progettuali; segni e disegni per il design e rappresentazione avanzata.

The editorial series aims to systematize the themes addressed in the International Conference on De–sign Environment Landscape City, which serves as a platform for multidisciplinary discussion and debate in the field of research and ideas that, stemming from Representation, extend to all disciplines involving the analysis, study, evaluation, design, and color of the “Human Environment”. The theme of representation and the scientific implications of all disciplinary sectors involving the environment we live in, observe, imagine, and design are tackled by presenting the following topics: survey and representation of architecture and the environment; drawing for the landscape; drawings for the project: traces — visions and pre–visions; margins, signs of memory, and the city in progress; visual culture and communication from idea to project; architectural emergencies; color and the environment; perception and territorial identity; cultural iconographic heritage of the landscape: art, literature, and project implications; signs and drawings for design and advanced representation.

Patronage

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BEST POSTER AWARDS ICAR/17

De_Sign: Environment Landscape City 2023, Biennale di venezia.

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Preface

Giulia Pellegrini

Department Architecture and Design, University of Genoa. Responsabile for the “Students as Researchers” events at the Venice Biennale 2023

The VIII International Conference De-Sign Environment Landscape City held at the Venice Biennale 2023 as part of the project called Students as researchers: Architectural education as a place of creativity and technology innovation, has been chosen among the 9 Collateral Events by the general curator of the Biennale Architettura 2023 Lesley Lokko on the occasion of the 18th International Architecture Exhibition of the Venice Biennale, and organized by the New York Institute of Technology (NYIT). The Conference arises from the desire to share, compare, debate and disseminate research and thought that from Representation opens up to all disciplines that involve a certain responsibility of cultural approach, analysis, study, evaluation, project, design, colour, of the “Human environment”.

The theme of Representation and the scientific implications of all those disciplinary sectors that involve the environment we live, look at, imagine, and design is addressed with a dedicated conference, presenting the following topics: Survey and Representation of Architecture and the Environment; Drawing for the Landscape, De-signs for the Project: traces – visions and pre-visions; The margins, the signs of memory and the city in progress; Visual culture and communication: from idea to project; Architectural emergencies; Color and the environment; Perception and territorial identity; Landscape cultural iconographic heritage: art, literature and design implications; Signs and Drawings for Design; Advanced Representation.

The topics related to Drawing and Representation concern aspects of conceptual and design analysis, almost a predictive practice through a path that from analogue to digital tools proceeds to visualize the current and future of cities and environments.

The conference featured a succession of various events, workshop-symposia, and contests involving scholars, students, PhD candidates, and experts from Italy and abroad on the theme of research and teaching, as well as the role of drawing and design in the future vision of architecture and design.

“At the heart of every project lies the principal and decisive tool: imagination,” explained Lesley Lokko, Curator of the 18th Venice Architecture Biennale. “It is

impossible to build a better world without first imagining it.”

If drawing, as Leon Battista Alberti said, is primarily a product of the mind, then drawing is indeed a privileged tool for the development of ideas and imagination.

The workshop “A new design for the city: representing transformations, complexity, and resilience” was organized over two days and served as a moment of reflection on the current city and its transformations, aiming to stimulate debate and reflection on current issues such as climate change mitigation, promoting a more sustainable model for design, planning, and implementation.

The presentation of the book “LA CITTA’ DELLE RELAZIONI” curated by Pellegrì G., Scaglione M., and Repetto D., with the presence of the authors: Carmelo Baglivo, Emanuele Lo Giudice, Alessandro Melis, Franco Purini was followed by activities where students developed graphic and multimedia works on the following topics:

- *LEARNING FROM CITIES: The city and its history/problems as a model for investigations.*
- *ANALOG DRAWING AND THE CITY OF THE FUTURE: EXPERIMENTS AND SUGGESTIONS FOR THE DEBATE ON CITY TRANSFORMATIONS.*
- *DIGITAL DRAWING AND THE HISTORICAL CITY: EXPERIMENTAL ANALYSIS AND REPRESENTATION OF TRADITIONAL URBAN FABRIC.*
- *GENERATIVE DRAWING: REPRESENTATION AND ARTIFICIAL INTELLIGENCE NEW RESEARCH PERSPECTIVES.*

The ADD Doctoral Symposium became an opportunity to reflect on the possible interactions between educational research and profession, within the context of project-related disciplines, understood as inclusive and multifaceted spaces for experimentation and application of transversal knowledge. The objective was to map and reflect on how research methodologies in various disciplinary areas of architecture, planning, and design intersect with forms of inquiry experienced in broader fields of knowledge.

Finally, a Call for the BEST POSTER AWARD on the drawing was launched, where doctoral researchers and candidates presented posters describing their doctoral research since 2019, whether concluded or ongoing, related to the conference’s research areas, emphasizing cross-disciplinary themes. This event provided authors with the opportunity to present and discuss the main ideas of their thesis projects.

Giulia Pellegrì

The mark of man

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We are experiencing an unparalleled climate crisis manifested through geological and hydrogeological disasters, alongside the ongoing pandemic. This era, which humanity has entered without full awareness, necessitates adaptation to the new conditions of current and near-future life, after exploiting the planet's resources. Through its actions, humanity has left an indelible mark on the Earth's surface, transforming the landscape by creating cities and infrastructure to fulfill the concept of humans at the center of every need and satisfaction. We are now at a point where egocentric thinking has led us.

This mark has shaped human living spaces, ranging from the broad scale of urban planning choices, through the intermediate scale of architecture, to the smaller scale of interiors and design. At each of these scales, humanity has used design to represent its ideas and bring them to fruition. The current configuration of the territory and cities is characterized by the design that humans have given to the context of their lives. This design has brought about social, cultural, and economic revolutions, leading to the complete unsustainability of this lifestyle, development, and transformation of places and landscapes.

We need to ask ourselves how, through the signs left by humans for future generations, we can change the layout of the territory, cities, and architecture to improve the quality of life and reduce environmental impact, restoring balance between humans and nature through a shift to ecocentric thinking. Not all the marks and designs made by humans need to be erased, and not all of humanity's work needs to be demolished. However, courageous choices are certainly required—courage that has been lacking until now. This lack of courage has resulted in the planet's surface being layered with not always fortunate choices, often imposing constraints on their protection or otherwise.

Today, the territory, cities, and architectures, with their beauties or ugliness shaped by human design, are often considered untouchable and immutable, crystallized encrustations of an advanced society paying the consequences of wrong choices. Few realize the need for a cultural, social, and economic revolution based on dynamic rather than static principles. The static response to the layering of human-made signs has led

us to this perilous condition of life. In recent years, resilient communities have become places of value and growth outside of this staticity. However, resilience cannot justify inertia and the lack of courage to change the things that have happened and are happening around us.

Resilient communities share transversally the ability to adapt to the changes brought and being brought by human influence and concentrate the excellence of the human living experience within them. For this reason, they must be taken as models of development where the relationship between tradition and innovation is an indispensable value. We are at a crucial moment, standing at the crossroads between convenient choices and courageous choices. We are aware that convenient choices are dictated by the logic of linear thinking and staticity (resistance to change), while courageous choices are guided by the logic of associative thinking and dynamism (willingness to change).

It is in this final step that we find the difference between an egocentric and an ecocentric approach, where the responsibility of humans makes the distinction before leaving their mark. The mark, understood as design, already contains the entire evolutionary capacity of the human species and its awareness. We are in the era of eco-responsibility, but we have not fully realized it, even though the signals from our environment are clear and reaching out to us

Laerning from the future

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The question “how we will live together”, discussed in the Biennale 2021, was focused on the fact that we need a new spatial contract, and the responsibility of architects to imagine spaces in which we can generously live together. (Hashim Sarkis, Biennale Venezia 2021). As well as the importance to establish “Resilient Communities”: the curator of Padiglione Italia Alessandro Melis put main focus on the environmental crisis, which most relevant aspects are the social implications and the consequences on health.

But, what is well-being and what relationships should we establish with the environment in which we live?

Well-being has been defined as the combination of feeling good and functioning well. The experience of positive emotions such as happiness and the development of one’s potential, having some control over one’s life, gives a sense of purpose and experiencing positive relationships. This is a first sustainable condition that allows the individual or population to develop and thrive and, naturally, the term subjective well-being is synonymous with positive mental health. For this reason, we’ll live better and in harmony with the Earth that hosts us only if we’ll be able to rethink our paradigm to live the planet, with the awareness that everything is connected: we are part of nature and not predators. It is not coincidence that the next Convention (Dublin, Ireland, 8-11 November 2023) of the European Observatory on Health Systems and Policies, will focus on: “Our Food, Our Health, Our Earth : A Sustainable Future for Humanity”.

This means that we are called to build the landscape we inhabit, and not just us, with attention and responsibility, with conscience and creativity to make the heart of our planet, which is also ours, beat as best as possible. Also, the relationship between physical environment and social structure is a political fact, now mostly broken, and we can no longer ignore the responsibility we have towards future generations.

The INARCHITETTURA Award 2023 for the Triveneto area, received applications from 200 projects, and it was an interesting opportunity to understand the state of even minor architecture and the critical issues: on one hand the projects reflect good quality and creativity even from young professionals, although the presence of female professionals

remains poor; on the other hand, there is a lack of projects relating to public works, which indicates a significant immobility about social issues, which finds expression in services and public space, despite the awareness of having to achieve the goals of Agenda 2030 within the next 6 years.

I am convinced that we all humans must be limpid pessimists. It is our task to rethink cities and quality of life in a global different perspective, all together: we cannot expect to keep doing the same things and expect results (Lesley Lokko, Biennale Venezia, 2023). And the architects, in primis, must be first of all a builder of principles !

Drawing/Design, as an intention to change perspective through glances that can show us the way to outline new signs, is the tool for understanding what resources we have available, and how to use and amplify them, to develop the commons.

The academic world, the research and professionals can do a lot in this sense, can open up new experiments capable of anticipating the consequences of our actions: with courage and creativity, freedom of thought and, last but not least, adequate funding, we also need to future-train a new class of student researchers. The architects of the future will be able, better than us, to guarantee the intergenerational justice and drive the community towards a stunning places to live!

Students as Researchers: Creative Practice and University Education

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I am particularly pleased to contribute to this STUDENTS AS RESEARCHERS experience not only in my role as Organizer but also because it is the merit of the entire community participating in this event. The goal we pursued together, which was also the aim of the Italian Pavilion at the last Biennale of Architecture, was to create a project that would result from a meeting of the scientific community interested in the themes of the city, ecological transformation, and resilience in architecture, and, in general, the effects that this historical period, defined as the Anthropocene, is having on the global population.

We discussed the importance of the role of design in art, architecture, and as a pedagogical tool, participating in these events also as a representative of my institution along with Maria Perbellini, Dean of the School of Architecture and Design, New York Institute of Technology, who collaborated with us to advance this project.

I thank Giulia, Michela, and all colleagues at the University of Genoa. I am here also to make a proposal: to imagine that this collaboration initiated in 2020-2021 can consider this second event as a second stage of a journey that will continue, perhaps with the presentation of the book "The City of Relations" even in New York.

Another aspect I want to highlight is that, both in the past event and today, I have noticed the importance of sharing the idea of students as researchers. This is crucial because, as we have said many times, we educators can aspire to be Verrocchio, but we hope to encounter the Leonardos on the other side. It is a historical period in which the transfer of knowledge is important, but equally important is the ability of educators to stimulate creativity.

I am attached to the projects we carry out together because I believe that the main tool through which this process can occur is primarily drawing, understood in a broad sense, including design and landscape. So, thank you for this opportunity and for contributing to the possibility of seeing the new generations of students as true researchers. We need it a lot at this moment. The Collateral Events, approved by the Curator Lesley Lokko and officially recognized by the Biennale through the assignment of its logo, are promoted by

non-profit national and international entities and institutions. They take place in various venues in the city of Venice and offer a wide range of contributions and participations that enrich the diversity of perspectives present in the international exhibition.

The New York Institute of Technology, a renowned institution in the field of architecture and design in New York, is the organizer of the exhibition titled "Students as Researchers: Creative Practice and University Education," a collateral event of the Biennale 2023. The exhibition is held at the Venetian headquarters of the "Loggia del Temanza," located in the garden of Palazzo Zenobio (former Collegio Armeno Moorat Raphael), home of the Center for Studies and Documentation of Armenian Culture.

The aim of the exhibition was to explore how university education can be an opportunity to develop radical visions capable of challenging the conventions of market-oriented societies. It focuses mainly on young students, whose talent and freedom of thought can positively contribute to a necessary environmental revolution, transforming the old urban metabolism from an energy consumer to a generator, without compromising the well-being of future generations.

The presented multimedia installation, titled "Global Mass – Living Mass. Beyond Artificiality: Living Materials," brought together the works of students from participating universities and is divided into a physical part, which includes the collective production of the artifact and the creative process recorded in the section. This unique perspective connected research and design through practice, enriching the experience of the physical exhibition of the collateral event. University education offers the opportunity to develop innovative visions capable of challenging the conventions of market-oriented societies. The talent and freshness of students can make a positive contribution to the necessary environmental revolution, aiming to transform the old urban metabolism from an energy consumer to a producer, preserving the well-being of future generations. Through dialogue with students, teaching itself can become a research tool, promoting bidirectional teaching models in which the roles of teacher and learner can be interchangeable.

The origin of the Casa da Música: Koolhaase's Y2K House

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Abstract

The drawing of unrealized projects is part of the architectural heritage, that allow us to understand the authors' thinking evolution and identifying gaps in their work's timeline. This text investigates the specific case of the Y2K House designed by OMA, an unbuilt project that served as base for the Casa de la Música project.

In this residence, we can observe conceptual elements inherited from previous residential projects developed by OMA, the particularity is that this design was adapted to a larger scale. The genesis of this project was marked by a series of specific demands, driven by the client's obsession with the Y2K effect and their pursuit of spatial independence. Despite not being built, this work represents a turning point in Koolhaas's architectural thinking, particularly in terms of the design strategies we will discuss here.

The house's materialization we have carried out and its subsequent comparison with the auditorium project has been possible thanks to the application of BIM technology. This working system enables a comprehensive analysis of the buildings's complex geometry as a whole, thus enriching the information contained in the original drawings and plans, obtained from publications related to the residence and OMA's website.

Abstract

Il disegno dei progetti non realizzati fa parte del patrimonio dell'architettura e ci permette di comprendere l'evoluzione del pensiero dei loro autori, identificando lacune nella cronologia delle loro opere. Questo testo esplora il caso particolare della Y2K House progettata da OMA, un'opera che non è mai stata realizzata, ma che ha servito da base per il progetto della Casa della Musica.

Nell'abitazione, si possono osservare elementi concettuali ereditati da precedenti progetti residenziali sviluppati da OMA, con la particolarità che qui il suo design è stato adattato a una scala di maggior portata. La genesi di questo progetto è stata segnata da

una serie di richieste specifiche, motivate dall'ossessione del cliente per l'effetto 2000 e dalla sua ricerca di indipendenza spaziale. Quest'opera rappresenta un punto di svolta nel pensiero architettonico di Koolhaas, nonostante non sia stata realizzata, ma soprattutto per quanto riguarda le strategie seguite nel suo design, di cui tratteremo qui.

La realizzazione che abbiamo effettuato della casa e il successivo confronto con il progetto dell'auditorium sono stati resi possibili grazie all'applicazione della tecnologia BIM. Questo sistema di lavoro consente un'analisi approfondita della complessa geometria dell'edificio nel suo complesso, arricchendo così le informazioni contenute nei disegni e nei piani originali, che abbiamo ottenuto sia da pubblicazioni legate all'abitazione sia dal sito web di OMA.

Introduction

Absent architectures, those unbuilt or missing, are essential to understand the architect's professional career, like the one we address in this text, Rem Koolhaas. These projects, which are only preserved through drawing, can store information related to the architect's way of thinking, allowing us to better understand his work and generate links with his built works. The Y2K House is one of the unbuilt projects of OMA studio, and like others, such as the *Maison des Droits de l'homme* (1996) or the *Moma Charette* (1997), it was designed experimentally and reworked into larger projects.

The compilation of available information on this type of unfinished projects entails a search effort in archives that usually ends with a compilation of a few sketches and

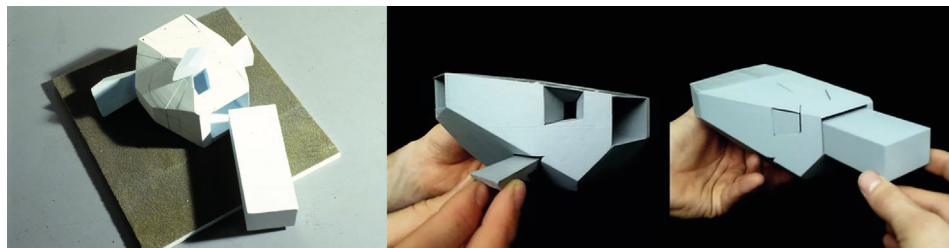


Figure 1. Working model of the Y2K house and the Casa da Musica house, where the similarities in both works can be seen. Taken from www.oma.com.

drawings. However, the rigorous study and cataloging of these drawings allows us to know their origin and history, integrate them into a timeline and better understand the architect's professional career through these missing links.

This text aims to explore the process in which OMA successfully transformed an unrealized single-family residential project, the Y2K house, into the famous built project of Casa da Musica in Porto (Fig. 1). The commission was made in 1998 to the Koolhaas studio through a singular client, as is often the case with many of the great projects in the history of architecture. Among other considerations of the future owner was his interest in the Y2K phenomenon⁽¹⁾, which would lead the architects to design it before the year 2000, even though it was not planned to inhabit it until after that date. Additionally, OMA used fax as a primary design tool, generating standardized documents that merged ideas from

(1) The Y2K phenomenon, also called the "Y2K problem", was a dilemma related to the representation of dates in computer systems. There were fears that the change to the year 2000 could cause failures in critical systems. However, extensive correction and testing before 2000 largely prevented serious problems.

ongoing projects in the studio. As a result, several lines of work were produced, ranging from conservative approaches to very innovative proposals, as we will see here.

Analyzing unbuilt works, methodology on graphic reconstitution

The case of the Y2K House is especially relevant in revealing the connection between Koolhaas's residential work and his larger projects. However, it is an incomplete project, with dispersed information, which requires graphic restitution to complete its architecture, analyze and compare it⁽²⁾. This procedure of architectural reconfiguration poses a dilemma as to how to reconstruct this object of study, which leads us to a deep exploration of the drawings, models and, in this case, even the conferences offered by Rem Koolhaas.

To do so, the graphical restitution of the housing project has been carried out using the BIM modeling tool and the subsequent rendering of the 3D model obtained. The complex geometry of the building has forced us to resort to all the existing documentation about the house, the photographs of the models made during the development phase of the project has been very useful. To get closer to the object of study, it has been necessary to examine the context that surrounded the project, including the time in which it was developed and the domestic works that preceded it. With this approach to OMA's trajectory, the understanding of the design process of the Y2K House and its evolution to Casa da Musica has revealed fundamental aspects to compare both projects, and understand the strategies followed by Rem Koolhaas' studio during the development of both. The main source to prepare this article was the text *Transformation Lecture* by Rem Koolhaas from June 1999⁽³⁾ was used as the main source, in which the Casa da Musica project is explained by the architect. Also, secondary sources, such as the talk between Mark Wigley and Rem Koolhaas in 2008⁽⁴⁾, publications from the OMA⁽⁵⁾ studio website or the *El Croquis* architecture magazine. Subsequently, the survey of the house was carried out through the records of its plans and models, achieving a 3D model to which we gave materiality and life using rendering software (Fig. 2).



Figure 2. *View of the interior of the Y2K House from the central empty space (made by author Diego Hidalgo).*

(2) N. Galván Desvaux, A. Álvaro Tordesillas, M. Alonso Rodríguez, El patrimonio de lo no construido: el valor del dibujo, en "El patrimonio gráfico. La gráfica del patrimonio: XVIII Congreso Internacional de Expresión Gráfica Arquitectónica Zaragoza", 2020, 397-400r.

(3) N. Yoshida, OMA@work.a+u, A+U Publishing, Tokio, 2000, 106-115.

(4) M. Wigley, R. Koolhaas, Casa Da Musica, Fundação Casa da Musica, Oporto, 2008.

(5) OMA, <https://www.oma.com>.

This way, we are given the opportunity to rescue a significant fragment of the graphic heritage of domestic architecture, which deserves to be recovered due to its relevance. Consequently, arises the urgent need to examine the reasons that led to the non-materialization of the Y2K House, as well as to understand its transformation into an auditorium- the *Casa da Musica* in Porto- ten times its size.

OMA and their domestic line of work.

In OMA's timeline, there is little assignment of residential orders⁽⁶⁾. A chronological analysis of their projects reveals a marked preference for larger-scale interventions. However, their designs show a recurring pattern, turning simple programs into projects of considerable complexity. Through them, we can analyze architectural aspects that later become the foundations of the Y2K House (Fig. 3).

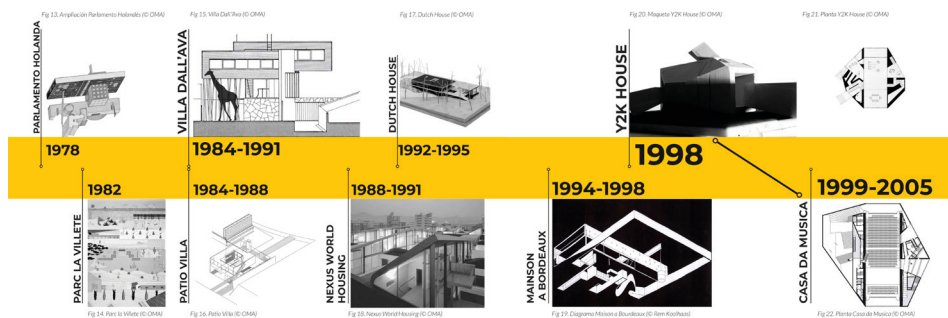


Figure 3. Chronological line of OMA's domestic projects between 1978 and 1999 (made by the author Diego Hidalgo).

The first built residential project was the *Patio Villa homes* (1988) in the city of Rotterdam. In this commission, the patio, an element of a public nature, serves as an articulating atrium within the house, acquiring significant importance, even giving the project's name. The configuration of the house is characterized by its simplicity, where a cubic volume is crossed by a luminous void that shapes the patio, while organizing the interior space.

After this first project, and throughout Rem Koolhaas's career, the box will become an element that he will not be able to do without, being found again in the *Nexus World Housing* (1991). This project of 24 homes in Fukuoka is distributed in two structures, characterized by a sober façade and the presence of a concrete perimeter wall, which causes disconnection with the surrounding environment. However, the architect introduces a variation in the box, breaking said element to give rise to a fluid and permeable space on the roof of the building, allowing a more direct relationship between interior and exterior.

Parallel to the concept of the box, Koolhaas expresses a deep interest in the interaction of the architectural project with the landscape. *Villa Dall'Ava* (1991) is an example of how the architect responds to the environment while attending to the program demanded by the client. Located on the hillside of the *Saint Cloud* residential neighborhood of Paris, the plot is defined as a large room with a decoration made of vegetation. Koolhaas takes advantage of this privileged location to design a glass pavilion, with two separate

(6) En el estudio de Koolhaas existe una tendencia a las intervenciones XL, como él lo denomina en su libro, Koolhaas, M. Bruce, S, M, L, XL: O.M.A., Monacelli Press, Nueva York, 1995.

apartments oriented in opposite directions, with the purpose of avoiding crossing views and giving a panoramic view of the Parisian city from the rooftop pool⁽⁷⁾.

The first built residential project was the *Patio Villa homes* (1988) in the city of Rotterdam. In this commission, the patio, an element of a public nature, serves as an articulating atrium within the house, acquiring significant importance, even giving the project's name. The configuration of the house is characterized by its simplicity, where a cubic volume is crossed by a luminous void that shapes the patio, while organizing the interior space. With this design he emphasizes the relationship with the land, something he also does in other projects such as the *Dutch House* (1995). The house arises from the adaptation to an irregular terrain, with a four meters height. It is made up of two volumes, one of them glazed and the other underground, illuminated by patios. Koolhaas also demonstrates a great effort to achieve a certain independence between plants, as occurs in the *Maison a Bourdeaux* (1998). In this home prior to the Y2K House, although each level is completely different, the relationship between them is established with the elevator piece. With this project he reinforces the fragmentation of the building, generating a void in the central floor that makes the couple's area independent from the children's area, and provides great privacy to the rooms.

The design process of the Y2K House

Therefore, it is evident that, in these domestic projects, Koolhaas shows a recurring tendency towards the use of specific strategies, such as the idea of the box, the relationship with the environment and the fragmentation and independence between the different floors. These ideas are consolidated in the Y2K House project, a work, as we will see, capable of modifying its scale to adapt to the complex program of an auditorium.

The Y2K House project begins in 1998, when the client acquired three adjacent plots of land for his family home with splendid panoramic views over Rotterdam. The first plot, characterized by an extensive garden, guaranteed a continuous view of approximately one kilometer in length. This unique client presented a series of requirements, which played a fundamental role in the housing design process. Among these specifications, it is worth highlighting his marked interest in the Y2K technological phenomenon, which led him to design the home before the year 2000, even though he did not plan to live in it until after that year⁽⁸⁾. Another requirement of the client was that the home had to incorporate areas for public use, intended for the interaction of all members of the family, as well as spaces with greater levels of privacy. OMA began the design process for the Y2K House using the fax as its primary tool. This mean of communication played a fundamental role in the creative vision of the project, as it required OMA members to generate standardized documents. This led to the accumulation of various ideas related to the projects that were being carried out in the studio at that time. As a result, several schemes were produced that reflected concepts from various sources, ranging from more conservative approaches to more innovative proposals (Fig. 4).

(7) R. Koolhaas, OMA, <https://www.oma.com>.

(8) "The client asked for three requirements of equal importance for the design. The first of all is that he hated disorder. Another requirement was his anxiety regarding the Y2K movement. He wanted to make OMA think about the house before the year 2000 even though they were not going to use the house until after the year 2000, until they were sure it was safe. The last requirement was that there should be a part of the house where they could all be together, but also another place where they could live with more privacy." "Transformations Lecture" 1999, N. Yoshida, OMA@work.a+u, A+U Publishing, Tokio, 2000, 106-115.

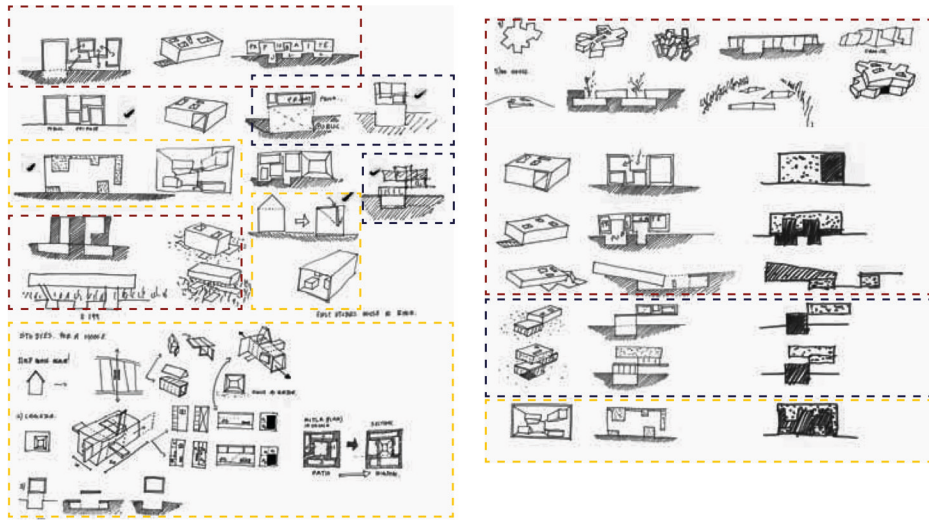


Figure 4. Drawings of the different variants of the Y2K House. In dark blue the usual line of OMA's previous domestic work, in red the buried version and in yellow the final version (www.oma.com).

Another corresponds to a proposal that experiments around the relationship with the terrain, with some versions completely buried, illuminated from above. In previous projects, such as the *Maison a Bordeaux* or the *Dutch House*, OMA designed part of the house buried or partially buried, allocating this space to house auxiliary uses. However, in the diagrams of this version of the Y2K House the buried element corresponds to the entire house, ignoring the wide views that the plot had, and, for this reason, this variant would also be abandoned. The last line of work corresponds to the diagrams that mark the final design of the Y2K House, characterized by the concept of a box with attached volumes (Fig. 6). Starting from a prismatic house with a gabled roof – a house shaped like a house – a series of geometric operations are carried out that produce a complete transformation of the space. First, the gabled cover is removed, resulting in an empty rectangular prism, a container devoid of contents. To this piece, considered the most public part of the house, small private programmatic elements are attached, as if it were a collage, forming the exterior volumetry of the building that is wrapped with a textile-like skin (Fig. 5).

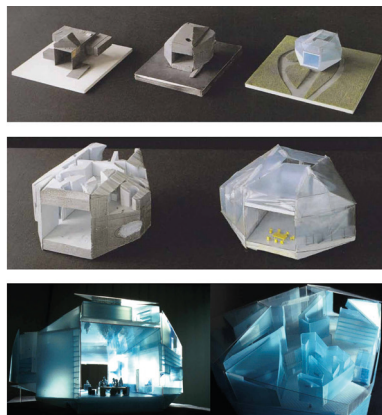


Figure 5. Y2K House design models (www.oma.com).

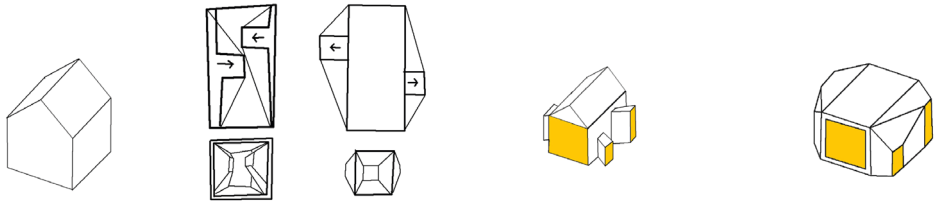


Figure 6. Diagrams on the design strategy of the definitive version of the Y2K House (made by the author Diego Hidalgo).

This idea represented the definitive solution for the house project (Fig. 7) and marked the breaking point in the project direction followed by OMA. The project highlights aspects such as the main access to the house, made from the ground floor through a staircase, which contrasts with the accessible access from the *House to Bourdeaux*. Once inside, the space is organized around the central void, generating different interstitial spaces between it and the façade of irregular geometry. This void houses the home's most public rooms, the living room and dining room, while the kitchen and toilet are on either side of it.

Two communication centers (one for the wife and the other for the husband) connect with the private rooms of the home located on the upper floor. Each staircase is located on one side of the living room, making the bedrooms independent for each member of the family. In total, the house has five bedrooms that are distributed with complex partitions generating a labyrinth on this floor. The basement, completely buried, is reserved exclusively as a garage, with its own independent core of communication.

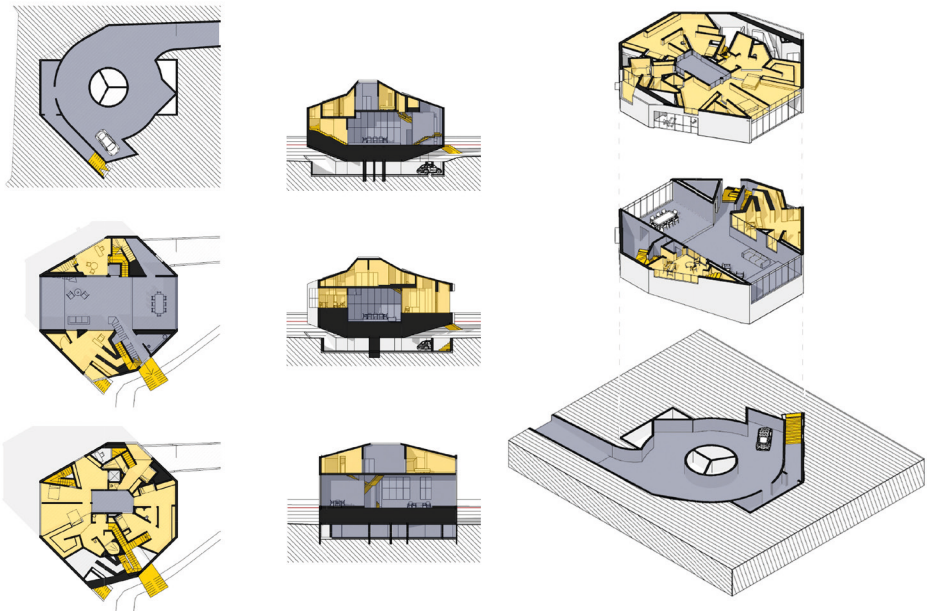


Figure 7. Planimetric restitution of the Y2K House (made by the author Diego Hidalgo).

The metamorphosis of the Y2K House into Casa da Música

In 2001, Porto, one of the two cultural capitals of Europe, would announce a restricted competition for a new concert center in the historic city, in the Rotunda da Boavista. With just under two weeks left until the submission deadline, Rem Koolhaas/OMA chose to review and adapt the original Y2K House proposal to create the Casa da Música project. This recycling approach reflects the junkspace or aesthetics of congestion, a current that would emerge from this moment in OMA's work and redefines the relationship between the concert hall and its environment.

The design of the Y2K was based on the concept of the “social machine”, arising from the client's interest in having a public space inside a private house. Thanks to this particularity, its subsequent evolution was possible, formalizing it in the concert hall of *Casa da Música* in Porto.

However, the study initially questioned the possibility of converting a program designed for a single-family home into an auditorium. Consequently, several versions were made with a different approach, avoiding similarities with Y2K housing, but without good results.

To understand the design process of *Casa da Música* it has been necessary to resort to the original drawings for the Y2K home, and we have used BIM tools to complete the existing information. However, it is worth highlighting the relevance of the work methodology used by OMA for this project. In particular, the creation of models has been of great help to us, as it has allowed us to obtain information about the complex formal geometry that was not available in the planimetry (Fig. 5). They show the relevance that Koolhaas gives to the void as a public element of the project, emphasizing the fragmentation of space, as in his previous domestic works, providing users with spaces with different levels of privacy.

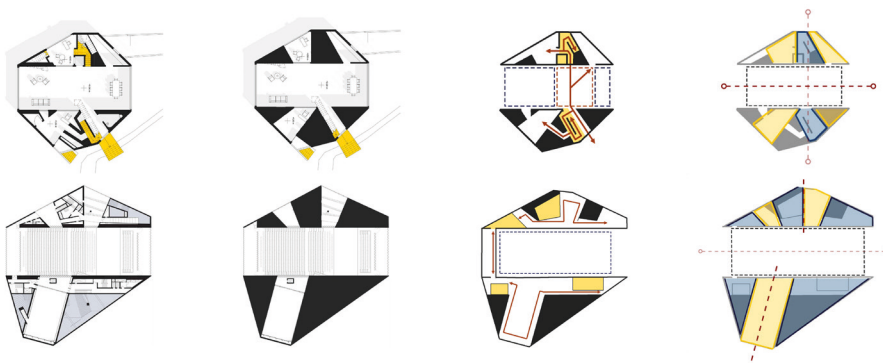


Figure 8. Analytical diagrams of the Y2K House (made by the author Diego Hidalgo).

After the graphic restitution of the project, the analytical comparison between the Y2K House and *Casa da Música* (Fig. 8) begins, as it could not be otherwise, in the large public space, since in both proposals there is a common dialogue between the full and empty spaces, related to the idea of *poché*⁽⁹⁾. Through this representation system, it can be seen how the diaphanous central rectangle becomes an ordering element, which generates visual continuity and establishes a symmetry axis that organizes the spaces in a

(9) N. Yoshida, OMA@work.a+u, A+U Publishing, Transformations Lecture, 1999, Tokio, 2000, 106-115.

balanced way in both the home and *Casa da Música*. Furthermore, this volume becomes a reference element in the space due to the hierarchy of its size, establishing itself as an organizing element to which the rest of the rooms are linked.

"In response to the client's particular demands, OMA proposed a scheme where everything that is necessary in a home (kitchen, bathroom, etc.) surrounds a single space. This space, with a design that resembles the appearance of a tunnel, would be where family members could be together whenever and whenever they want. Everything else in the home becomes an external element, an inverted body, where the organs are outside, and the skin is inside."

On the other hand, circulations differ due to the different uses that the vacuum acquires in each project. In the Y2K House, the communications system links the different rooms of the house, being a transit space that gives meaning to the private spaces of each family member. In the Casa da Música the central void becomes a living space, the concert hall, around which the different circulations are generated independently.

Another issue to compare would be the location of the projects. There is no information regarding the exact location of the Y2K House, which has posed a challenge in terms of documentation. However, thanks to the models and the regulations in force at the time, it is known that the house was built in the center of the plot, generating a fifty-meter route to the access to the building through a topography with a slight unevenness (Fig. 9). In this sense, the space is discovered in a linear way, starting with the visualization of the north elevation, which is oriented towards the entrance. The rest of the house remains hidden, revealing itself only once the interior of the plot is accessed.



Figure 9. Exterior view of the Y2K House and its surroundings (made by the author Diego Hidalgo).

In contrast, the location of *Casa da Música* is in an urban environment, on a plot resulting from the convergence of two streets and a roundabout that creates a space with considerable visibility from the public road. Approaching the building is possible from

various orientations since it is in a public square. This allows to experience the space differently depending on the point from which the visit is started.

In both projects Koolhaas will explore different materials and finishes (Fig. 10), which show a tendency towards translucent atmospheres. With this design he sought to provide the central space with the required importance, following a *Stealth*⁽¹⁰⁾ aesthetic and simulating a glass box. However, *Casa da Musica* culminates in a solid geometry, advised by the project engineers. It will not be until the construction of the Seattle library that Koolhaas will be able to develop a transparent façade that will show this idea of the box.

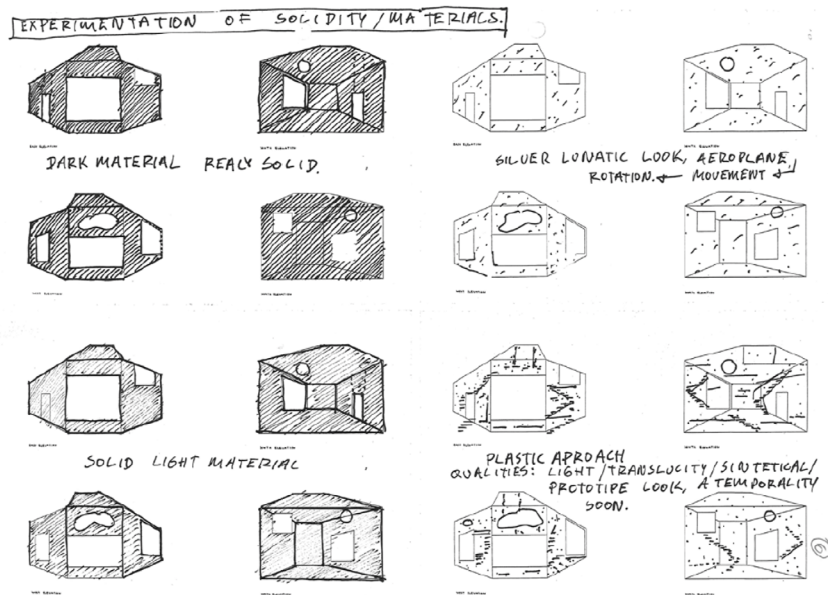


Figure 10. Fax sent by Fernando Romero to Koolhaas to discuss the material used for the Y2K project (taken from www.oma.com)

Conclusion

The Y2K House project generated a change in Koolhaas' line of work, exploring new ways of thinking about the interior space. The client's strict demands were the main reason for this transformation in his thinking, based on research into how to live in a 2000s home with public and private areas. The creative process lasted for more than a year, ending in its cancellation. It seems that in the first physical meeting between client and architect, they were unable to reach a consensus, and Koolhaas suggested "that, if he remained dissatisfied, perhaps it would be better to abandon the project. This was the final project that we showed him, with the family in the house. One can see the house's ability to be simultaneously a true dwelling, but also a collection of separate conditions. In a final iteration, we named the house Y2K. We were in a state of hyper-efficiency when we were invited to participate in a competition for the construction of a concert hall in Porto. The beauty of the whole story is that we presented this in Porto three weeks ago and it seems

(10) The Stealth aesthetic is a term used by Rem Koolhaas based on the F117 Stealth fighter aircraft. This name designates an aesthetic of articulated folds.

that this project will be selected, and that the strange form of research that this sequence of models represents is culminating in something that will be here.”⁽¹¹⁾

However, the project idea, the methodology followed during it and the study carried out on materials would be a link in the line of the study's projects, supporting the following ideas as we have seen in this text. For this reason, the analysis of unbuilt projects helps to understand the gaps in the architect's work, finding recurring elements that respond to the foundations of his later work. These aspects invite us to delve deeper into Koolhaas's thoughts and drawings, to give meaning to the Y2K House project.

It is at this point where the BIM technologies that are available today, allow us to understand this home comprehensively, completing the information not available in the original plans and drawings. Materializing the project through our ideas and achieving a greater approach to the object of study, by allowing the visualization of plan, elevation, section, and 3D simultaneously (Fig. 11).



Figure 11. Exterior view of the Y2K House in the surroundings (made by the author Diego Hidalgo).

Subsequently, using a rendering engine, the plot has been configured, equipped with numerous vegetation, which gives meaning and life to the house. In this phase it was decided to provide the façade with a solid component, following the same design as the Casa da Musica, leaving aside the translucent materials that Koolhaas proposed in some models.

On the other hand, the Y2K House manages to make sense of the possibility of adapting the architectural idea to two completely opposite orders. With the simple initial segregation of spaces into public and private, it is possible to reuse the design in the development of a home or an auditorium. This process, which could be somewhat difficult, becomes a simple task thanks to the concepts of fragmentation and independence of uses, so deeply rooted in OMA.

With this analysis, the importance of the ideation phase of the project is materialized,

(11) N. Yoshida, OMA@work.a+u, A+U Publishing, Transformations Lecture, 1999, Tokio, 2000, 106-115 citada anteriormente.

demonstrating the possibility of adapting ideas to buildings of different types. However, to do this we must be able to synthesize a complex program into simpler elements. In the case of the transformation of the Y2K house into the Casa da Música in Porto, the change with respect to its original project was the modification of the scale. This study gives rise to exploring design patterns that can result in different buildings with the modification of one of their aspects. As Koolhaas stated “*I want to make a very open and raw statement about how the architectural process worked, how it was a kind of permanent dialectical confrontation between, on the one hand, the search for form and, on the other hand, the process of adapting a program to this form. I also want to show some of the context and reveal some of the strange things that can trigger and inspire in architecture. It is a very strange process that combines psychology with a kind of scientific research and, of course, a lot of what I can only describe as opportunism.*”⁽¹²⁾

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(12) Ibidem.

Skin on the bone on the ground.
A multiscalar methodology for heritage parametric modeling under the
hood of nurbs

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Abstract

This work proposes a methodology for accurate and efficient digital reconstruction of a man-made landscape. The methodology comprises 6 steps, referred to as “skin on the bone on the ground,” which involves using various software and data sources to recreate the external skin and theoretical shape/volume of the castle, as well as the surrounding landscape. The aim is to optimize the management of environmental and logistical problems, which include scarcity of data and difficult accessibility of the heritage. The proposed model uses a living being as a symbol to represent the relationship between the reconstructed landscape and mother earth. The methodology is tested on a case study and involves the use of QGIS, Rhinoceros, and Metashape software, as well as digital terrain models obtained from different sources.

Abstract

Questo lavoro propone una metodologia per una ricostruzione digitale accurata ed efficiente di un paesaggio costruito dall'uomo. La metodologia comprende 6 fasi, definite “skin on the bone on the ground,” che prevedono l'utilizzo di diversi software e fonti di dati per ricreare la pelle esterna e la forma/volume teorico del castello, nonché il paesaggio circostante. L'obiettivo è ottimizzare la gestione dei problemi ambientali e logistici, tra cui la carenza di dati e la difficile accessibilità del patrimonio. Il modello proposto utilizza un essere vivente come simbolo per rappresentare la relazione tra il paesaggio ricostruito e la madre terra. La metodologia è stata testata su un caso di studio e prevede l'uso dei software QGIS, Rhinoceros e Metashape, nonché di modelli digitali del terreno ottenuti da fonti diverse.

Introduction

As required by many contemporary researches, digital modelling is an important part of the preservation project process. To conduct a survey of the assigned area of the keep of Arquata del Tronto, it was necessary to make the most accurate digital model of the castle and its surroundings. It is a paradigmatic place in Italy, because of difficult access, lack of data, in a morphologically significant landscape in the Apennines, and at the same time in front of monumental architecture. Therefore, this paper, starting from these difficult context conditions, will explain the process of digital modelling using different software such as Metashape, Rhinoceros, QGIS, and Grasshopper, where the procedure tries to avoid automatic solutions proposed by the software themselves, instead of structuring new relationships among them to reach a more precise and realistic result. In this research, an integrated digital modelling methodology has been developed, which allows to obtain, from the data acquired with various techniques, a three-dimensional representation as faithful as possible to reality. The complexity of the site, the difficulty of access and the extreme variability of the architectural remains have led us to combine

different survey techniques, such as terrestrial photogrammetry, laser scanning, direct survey and historical research. The integration of these techniques and the critical interpretation of the data have allowed to reconstruct the ruins of the fortress and the articulated system of paths, terraces and structures that characterize its surroundings. The digital model was then used both for the study and analysis of the architectural and spatial features of the fortress, and the development of informative materials, such as virtual reconstructions and interactive presentations. The digital model thus becomes an instrument of knowledge, dissemination, and enhancement of a complex architectural and landscape heritage. The decision to use a set of different digital techniques was dictated by the need to get a survey whose accuracy is consistent with the different scales of representation. The problem lies in the diversity of the anthropic and natural elements involved in the analysis. The keep needs a representation whose minimum precision is in the order of centimetres. The surrounding landscape needs accuracy in the order of meters, because of the width of the analysis area. The state-of-the-art of this type of artifact provides a Mesh representation for the rock, derived from a TLS (Terrestrial Laser Scanning) and photogrammetric survey. This representation must be converted into CAD to draft and manipulate the graphic designs. Regarding the landscape, it is common to use GIS databases that produce Meshes for the rendering of morphology. The innovation in the methodology that is the subject of this work is the use of NURBS technology for both the castle and the landscape. NURBS (Costantini, 2000; Mazure, 2016; Piegl, 1991) allow for optimized multi-scalar management of geometric data because of the mathematical nature of the digital ecosystem. The representation of the landscape made of NURBS (Zhong et al., 2008) has unfairly remained at the margins of scientific debate, but has considerable advantages, especially in terms of accuracy and optimisation (D'Uva & Eugeni, 2021). The survey of the keep was carried out solely by photogrammetric techniques. The combination of NURBS and photogrammetry has been used successfully (Galasso et al., 2021; Pepe et al., 2020), but the necessity of relying on Meshes is a common feature in the background of these works. The possibility of working exclusively with NURBS, which is the subject of this work, makes it possible to synergistically control both the landscape and the keep, increasing the accuracy of the

representation, as shown in the following sections.

Methodology

The methodology in figure 1 explained below was schematized into 6 steps applied to the case study to achieve the intended result. An expression was also codified to condense the whole process into a single figurative scheme, meant as a living being, therefore the steps follow a sequence called “skin on the bone on the ground”:

- 1) Recreating the Metashape model of the external skin of the castle, based on photos provided by photographers and drones (skin);
- 2) Using Rhinoceros to create the theoretical shape/volume of the castle based on plans and sections provided by surveyors (bone);
- 3) Applying Metashape Mesh model on Rhino model to obtain the most accurate and realistic result (skin on the bone);
- 4) Using QGIS to obtain topography data and model of the surrounding landscape, with the aid of the Grasshopper software;
- 5) Adjusting the created topography referencing to QGIS topography model, Google maps, and photos taken on the site.

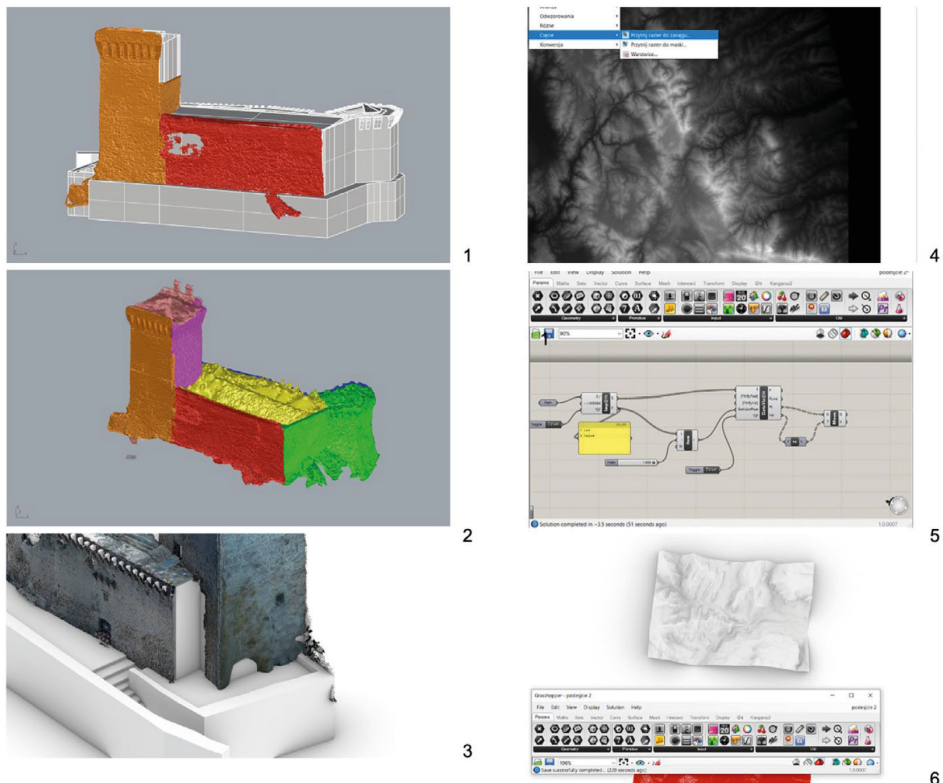


Figure 1. Step 1: Mesh from Agisoft Metashape fits the 3D model made in Rhino – Step 2: Complete 3D model, Mesh + NURBS Polysurfaces – Step 3: Textured Mesh on the bone 3D mode – Step 4: Digital Terrain Model (DTM) in QGIS before vectorization – Step 5: Visual scripting language used in Grasshopper to handle the open-data – Step 6: Algorithmic 3D model.

In these steps, priority is given to accuracy, flexibility, and efficiency, achieved by a wide range of data sources, choice of model-making software, and multitask group cooperation. The proposed method comprises several steps that fit into the main strategy of this work. The aim is the faithful reconstruction of a man-made landscape through a digital ecosystem that allows efficient management of environmental and logistical problems. These are the scarcity of data at the different scales of representation, from the architectural to the spatial level, as well as the difficult accessibility of the monumental heritage. Although Ground Laser Scanning is widely spread within heritage survey (Bolognesi et al, 2023, Bolognesi et al, 2021), and higher in details in comparison with photogrammetry, this last technique has been preferred because of site acclivity.

It is therefore necessary to structure a system that makes the different scales dialogue and interact from a quantitative point of view. The model proposed to optimize this strategy has been symbolized as the material relationship between a living being and mother earth: skin on the bone on the ground.

(1) The skin of the living organism is represented by the outer shell of the fortress, the material with which the facades of the fortress and tower are built. The management of these elements was entrusted to a photographic survey carried out on the ground and in the air with a drone, the results of which were reconstructed using a software for photogrammetry, Metashape. This allowed a reconstruction of the model in Mesh format based on reprocessed photographic data. (Bianchi et al, 2021)

(2) The consistency of the fortress comprises a series of highly compromised masonry, therefore it was necessary to proceed with a digital reconstruction of the theoretical shape/volume, based on the plans and sections integrated with the surveys carried out. The reconstruction process was managed with NURBS software, Rhinoceros. This model makes up the bones of the organism.

(3) Skin was then applied to the bones, trying to achieve the most accurate result possible. Mesh skin was applied to the NURBS framework using Rhino software to achieve this.

(4) For the creation of the three-dimensional terrain model (ground), it is essential, in the first instance, to find the necessary information. Specifically, the required ones are geospatial data (shapefiles) representing the territory under study available on official national and regional portals at different levels of detail. Digital terrain models (DTMs) are used to represent the territory without considering anthropogenic and vegetation elements. To test the methodology, in the first instance, 3 different digital terrain models with correspondent resolutions are used:

- DTM 20m pitch (source: Geoportal OpenData Regione Marche)
- DTM 10m pitch (source: INGV, Tin Italy)
- DTM 1m pitch (source: Ministry of Environment)

It is considered useful to mention that for the retrieval of the 1m pitch DTM, a specific request was made to the Ministry of Environment of the

Italian Government as the survey is not directly accessible from the institutional online portals and does not cover the entire national territory. This survey was conducted at the regional level based on specific locally determined analysis needs. The first step is to import the DTMs into a GIS environment (in this case, the reference software is the open-source QGIS) where the case study area is visualized and cropped. Figure ² shows the cartography representing the territorial portion surrounding the historic centre of Arquata

Del Tronto. The latter was made entirely in QGIS by taking advantage of the software's analysis capabilities. By processing the GeoTIFF, its hillshade (a GIS technique for visualizing terrain determined by a light source and the slope and aspect of the elevation surface) and ambient occlusion channels were realized in such a way as to give more three-dimensionality to the elaborate. Hillshades (superimposed on the cartography) are also calculated, and categorized according to their elevation in ascending order, to which, at the chromatic level, a spectral color scale (from blue to red) has been assigned. This processing was carried out using the DTM with a 1-meter pitch. Since the Open Data portal of the Marche Region does not make available geodata concerning anthropogenic elements such as roads and buildings, georeferenced data extracted from Open Street Maps (again in a GIS environment) were used to represent them.

The use of DTMs, however, does not end with pure cartographic representation. The data contained within it are fundamental to the creation of the three-dimensional spatial model. The three DTMs listed above are vectorized as points using a GRASS algorithm (r.to.vect) in a GIS environment. The result is a square grid of points equidistant from each other; the distance between them is equal to the pitch of the DTM itself, respectively 20 meters, 10 meters and 1 meter. It is intuitive that, as the resolution increases, the number of points generated for the same portion of terrain increases proportionally (D'Uva, Eugeni, 2021). In this regard, it is considered useful, in the case of the DTM with a 1-meter pitch, to reduce the portion of the terrain analyzed. The resulting three-dimensional model represents, in this case, only the area related to the Rock (Fig. 3). The grid of points obtained because of the vectorization of the DTM, given its nature as a shapefile, refers to an attribute table in which, for each point, the relevant x, y and z coordinates are given. At this point, it is necessary to exit the GIS environment by exporting points to a three-dimensional NURBS modeler that allows the management of geospatial data. In this case, the software used is Rhinoceros in combination with the Grasshopper plug-in.

The latter extends its potential by enabling the user to use a visual programming language (VPL) capable of correlating different operations algorithmically in succession. It is considered useful to follow this procedure because it allows exploiting the ability of the aforementioned software to handle large masses of data (three-dimensional grids contain several points, and thus related tabular information, in the millions). Once the grid points are imported, thanks to VPL, into Grasshopper they are shifted in the vertical direction each by its altitude z relative to sea level. The result is a point cloud representing the portion of the territory under study. It is now necessary to generate a surface from this point cloud. To do this, considering the ordered grid of points as a matrix of currently unknown dimensions, the points are ordered in the x- and y-direction.

To generate a surface by interpolating the points thus arranged in three-dimensional space, one must calculate the size of the matrix on the x-axis, then the number of columns, to infer the parameter u (representing the surface's intrinsic coordinates in the x-direction). The resulting surface from this series of operations is of the NURBS type. It should be noted that the described procedure is valid for all the DTMs used and for all those available in the world, regardless of the geographical area of study, if they are processed in a GIS environment as explained above. Next, a three-dimensional Mesh model representing the same portion of the territory was made, again in VPL using a component that performs a Delaunay triangulation between the points considered, to test

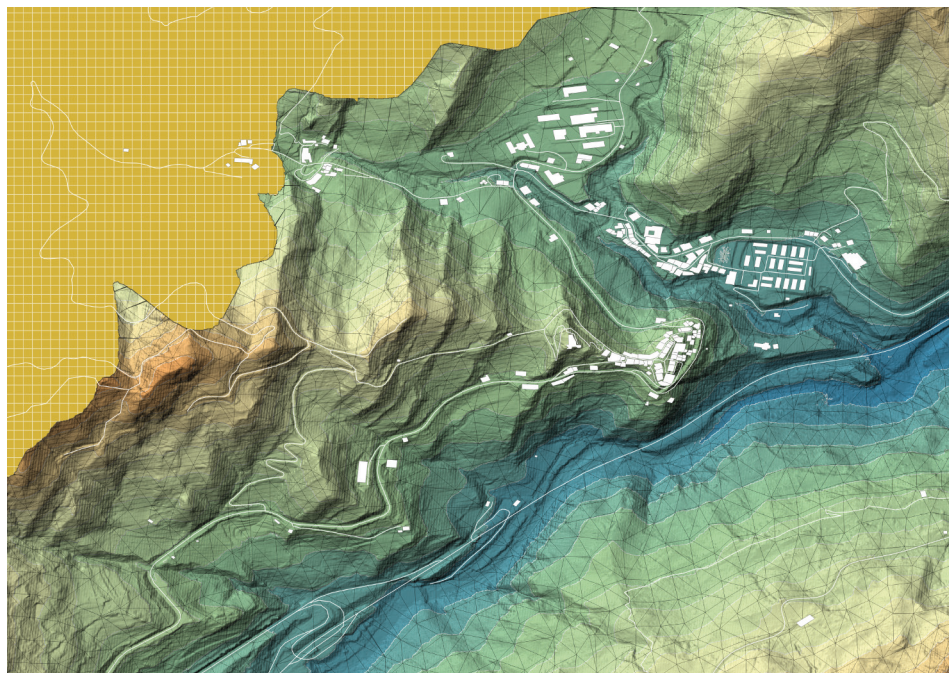


Figure 2. Cartography of the territorial portion surrounding Arquata Del Tronto's historic centre.

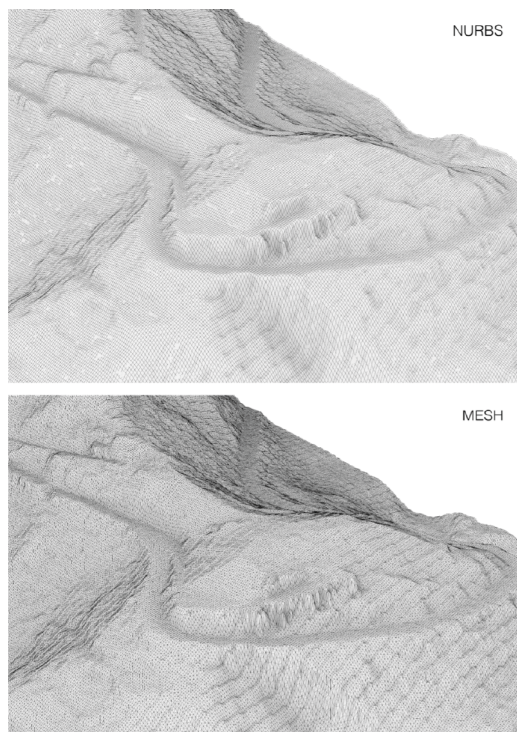


Figure 3. Comparison of the NURBS and the MESH models

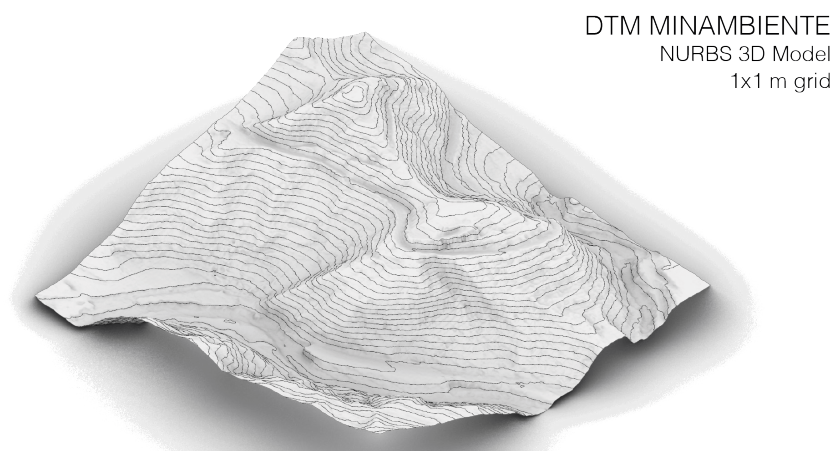
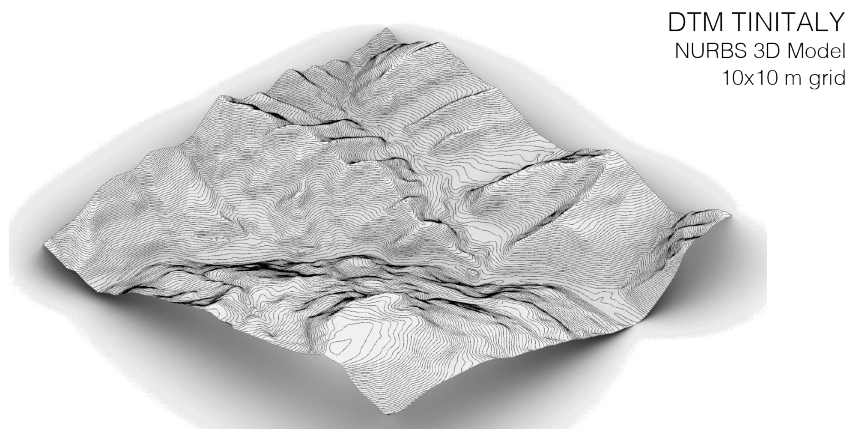
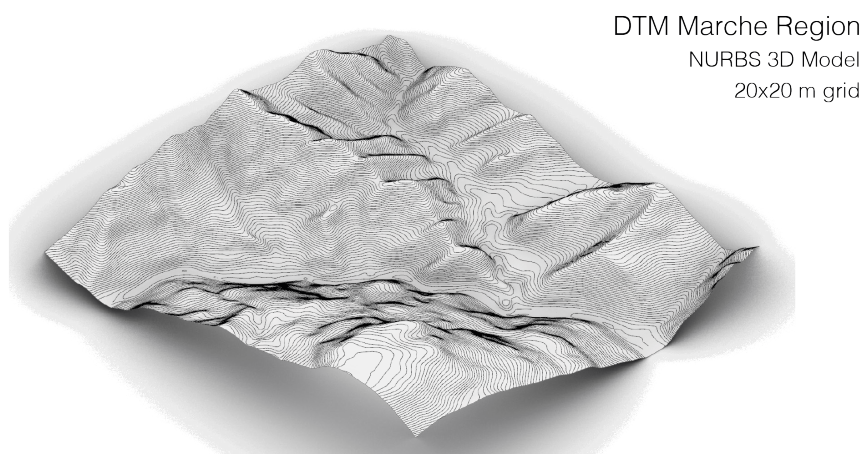


Figure 4. Comparison of the three 3D models obtained with different DTMs

the differences between the two and verify their accuracy (Fig. 3). Figure 4, instead, depicts the 3 three-dimensional models obtained from the respective DTMs previously mentioned of which the progressive increase in definition can be appreciated.

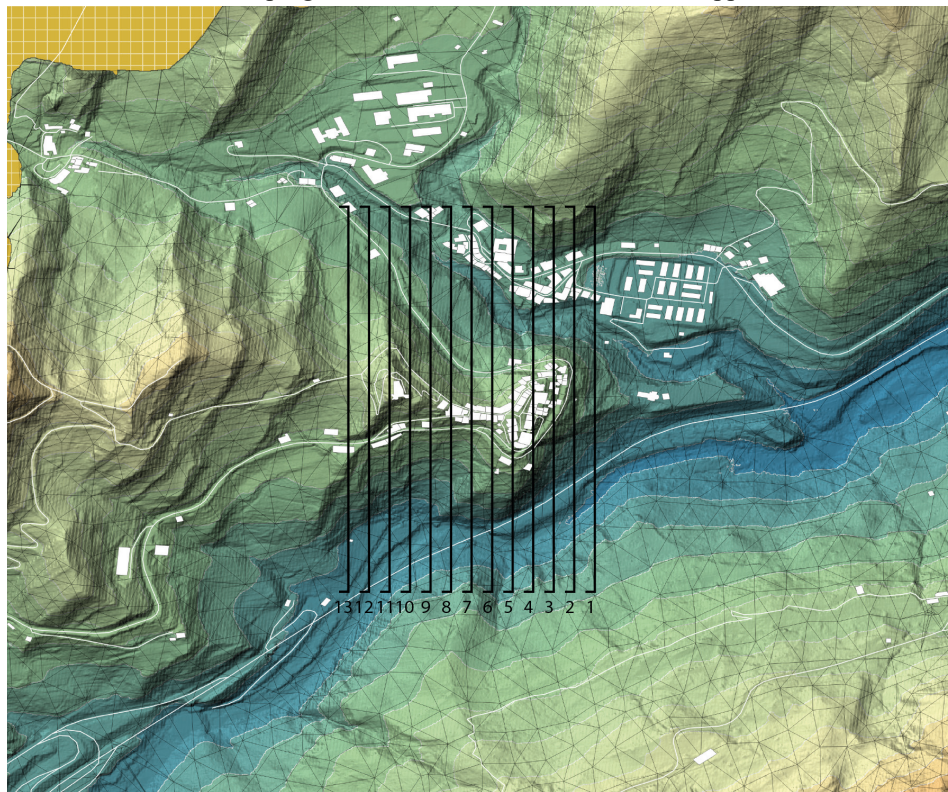


Figure 5. *Cross sections cartography.*

In this regard, cross-sections (Fig. 5) were generated for both models (reference is now made only to the three-dimensional models, NURBS and Mesh obtained from the DTM with 1-meter pitch), which were compared to each other using a simple superposition (Figg. 6 - 7).

(5) The process continues with an increase in the precision of the ground, where surveyed models are put in contact with the landscape. Adjusting the created topography referencing to QGIS topography model, Google Maps, and photos taken on the site is a crucial process to ensure the accuracy of the landscape model. These three references provide a detailed representation of the terrain, which can be compared with the created topography to identify any discrepancies. By adjusting the created topography to match the references, the accuracy of the topography is ensured, which is essential. These references help in achieving an accurate representation of the terrain, which ensures that the project is completed efficiently and effectively.

(6) The last step in the process, called skin on the bone on the ground, involves the final assembly of all process components. The result is a single model made of all other components assimilated using NURBS technology that ensures a level of detail

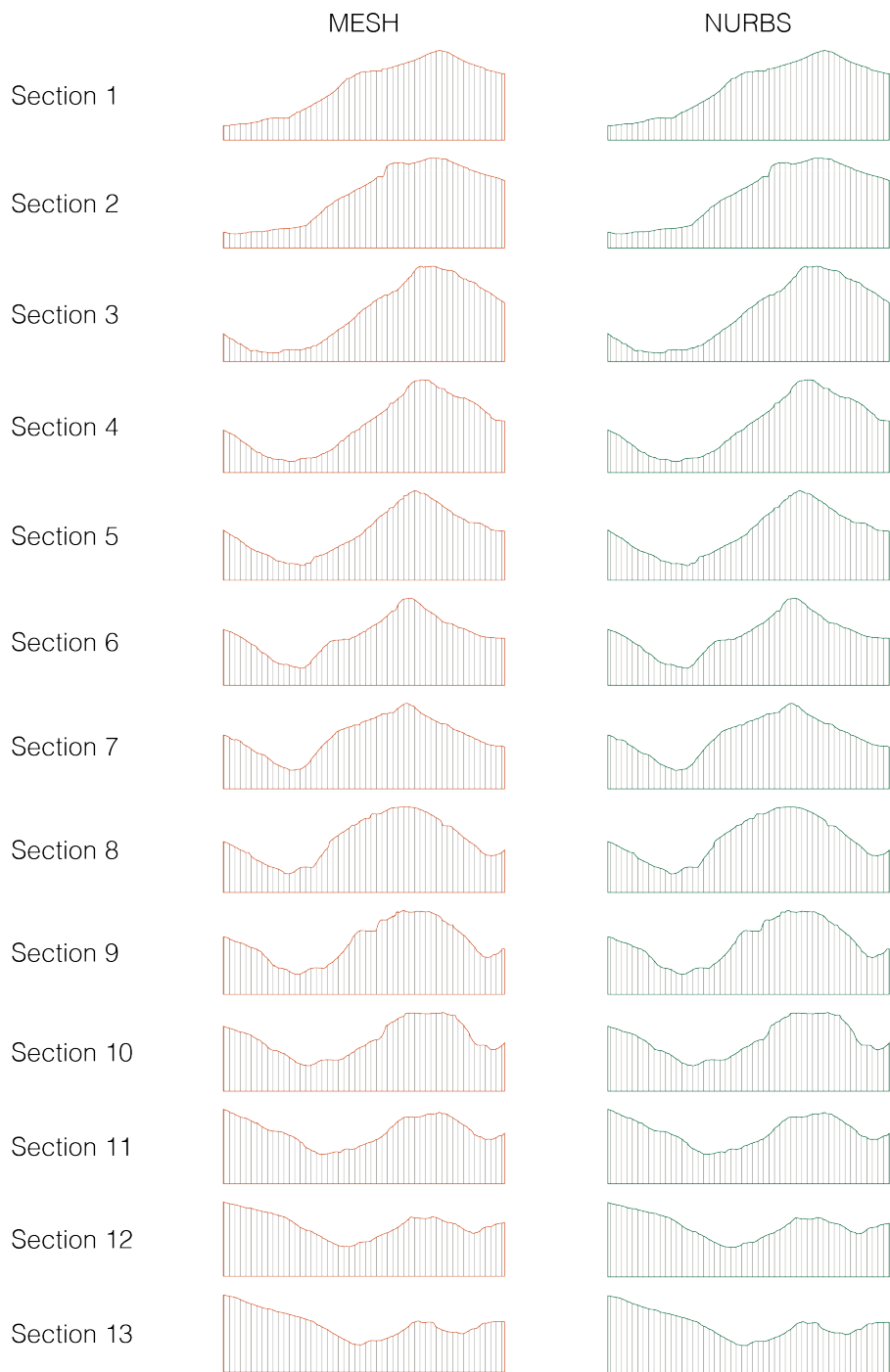


Figure 6. Automatically generated cross-sections

appropriate to the scale of representation while optimizing machine resources without losing the required accuracy.

Results

The architectural survey is the result of different software and techniques, from the modelling of the vast territory to that of the nearby landscape rich in vegetation, to the architecture to be preserved, from the wall structure to the surface skin with its states of degradation. The use of NURBS technology allows the flexibility that the traditional GIS to Mesh workflow does not allow, from scale to spatial.

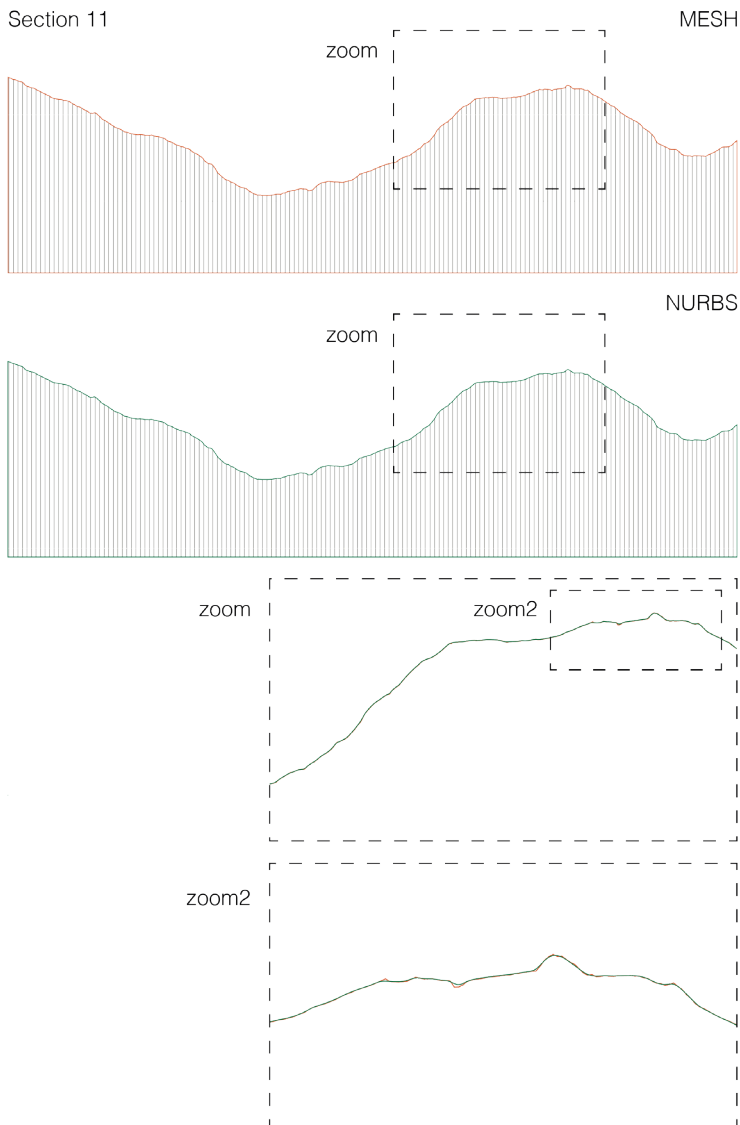


Figure 7. Comparison between sections obtained by NURBS and MESH 3D model

The result of this analysis faces a contemporary issue relating to conservation activities, where the obstacles to the survey (vegetation, steep slopes, stones, and other elements) become a pretext for inventing a strategic methodology to invent a good project basis.

The way is open for the creation of a new manual process suitable for the contemporary management of the science of restoration, where 3D modelling and digital procedures they can help professionals in their decisions, sort of continuous interactivity between survey and project, back and forth, along the path of project and execution. The methodology covered in this paper has produced a result that shows the validity of the procedure in a broad set of design ecosystems. The first and most important advantage of using this methodology is the flexibility in the relationship between the building and the land. Treating these two entities with computer tools based on homogeneous NURBS-type procedures results in sedimentation of the ultimate result. This homogeneity produces even more relevant results considering the multiscale of design interventions in their relationship with the context. This methodology also produces accurate three-dimensional models of the territory from the freely available geo-referenced data alone. Intuitively, the accuracy of the model becomes intuitively higher as the accuracy of the available data increases.

Conclusion

In spite of the image that wants it closely linked to an urban dimension, Italy is scattered with “marginal territories”: from the complex system of Alpine valleys and mountains to the varied territories of the Apennine ridge, and gradually descending the peninsula, up to meeting all those areas that classic southernism had indicated as «the bone» to be contrasted with «the pulp», and reaching the perched areas of the two large Mediterranean islands. They are the spaces in which human settlement has experienced old and new contractions; where the housing stock is affected by increasing abandonment phenomena; where the exercise of citizenship is more difficult, where inequalities and hardships are most concentrated. Adding them all up, these areas - “internal”, “fragile”, “shrinking”, “margin” - amount to almost a quarter of the total population, and more than two thirds of the entire Italian territory. Enough to make it the subject of a major «national question» (De Rossi, 2018). The picture of general decline of internal Italian territories, exacerbated by the effects of long-lasting processes (demographic contraction and catastrophic events such as earthquakes) and territorial visions unable to grasp the context differentials and to re-orient the action on the basis of the current trends, is given as a condition for reflecting on new perspectives for these contexts with the aim of stimulating greater awareness of poorly managed transformations, incisive on the quality of the landscape and on the socio-economic structure, and thus reflecting on future scenarios oriented towards a different growth starting from the resources and materials available in the area (Annese and others, 2023).

The territorial and architectural survey for the knowledge of the contexts then becomes fundamental in the structuring of the planning strategies of fragile territories, through an effective integration of data from GIS to BIM, from the structure of the building (bone) to the conservation of surfaces (skin) to the maintenance of the characteristics of the anthropized landscape (ground) or not. It is increasingly necessary to discuss strategic development problems starting from the material knowledge of the contexts, without

indulging in sterile dissertations based on general theories that may not be pertinent to specific territorial data.

This is why we believe that the conclusions of this essay are also the incipit for the design choices, the basis for the discussion of every good practice, including the reconstruction of Arquata del Tronto, which from «the bone» can become «the pulp» as in past eras.

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The design project from idea to cardboard fabrication: a collaborative experience between students and innovative start-ups

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Abstract

Circular economy and sustainability are at the center of the international debate. In this context, the choice of materials, which significantly influence architecture and design projects, is crucial. Cardboard is a versatile and sustainable material throughout its life cycle. In this article, its many applications, from product design to architecture, are explored in the context of university education. The goal is to improve students' skills and promote innovative thinking through the integration of digital fabrication tools in design education.

The research presents some results of a collaborative workshop within the Automatic and Executive Design course of the University of Perugia's Bachelor of Design program, in collaboration with start-up Materieunite. Combining design, innovation and education, students were asked to reinterpret iconic design projects using cardboard and digital fabrication.

Using numerically controlled cutting machines, the redesigned objects were prototyped, allowing students to interface with the different stages of the digital fabrication process aimed at the physical realization of their prototypes. The resulting exhibition thus shows projects that combine sustainable materials and digital technology, highlighting the innovative potential of design thinking.

Abstract

L'economia circolare e la sostenibilità sono al centro del dibattito internazionale. In tale contesto, la scelta dei materiali, che influenzano in modo significativo i progetti di architettura e design, è fondamentale. Il cartone è un materiale versatile e sostenibile lungo tutto il suo ciclo di vita. In questo articolo vengono esplorate nell'ambito della didattica universitaria le sue molteplici applicazioni, dal design di prodotto all'architettura. L'obiettivo è quello di migliorare le competenze degli studenti e promuovere il pensiero innovativo attraverso l'integrazione degli strumenti di fabbricazione digitale nell'educazione al design.

La ricerca presenta alcuni risultati di un workshop collaborativo all'interno del corso di

Disegno Automatico ed Esecutivo del Corso di Laurea in Design dell'Università degli Studi di Perugia, in collaborazione con la start-up Materieunite. Combinando design, innovazione e formazione, agli studenti è stato chiesto di reinterpretare progetti iconici di design utilizzando il cartone e la fabbricazione digitale.

Tramite macchine di taglio a controllo numerico gli oggetti riprogettati sono stati prototipati, permettendo agli studenti di interfacciarsi con le diverse fasi del processo di fabbricazione digitale finalizzato alla realizzazione fisica dei loro prototipi. La mostra che ne è scaturita si configura quindi come un'esibizione di progetti che uniscono materiali sostenibili e tecnologia digitale, evidenziando il potenziale innovativo del pensiero progettuale.

Introduction G.P.

Circular economy and sustainability are increasingly becoming necessary requirements for architecture and design projects. This is particularly relevant for product design since the product must be able to withstand multiple uses and remain adaptable for a long duration. Considering the life cycle is also essential, including sourcing, manufacturing, distributing, usage, and disposal. Therefore, when designing a product, the creation of a circular system able to provide more lives for its materials is crucial⁽¹⁾. Moreover, such an approach aims to create a regenerative system in which resources, waste, emissions, and energy losses are minimized⁽²⁾. Considering such needs, one of the most attractive materials for various industries and applications is cardboard. Circular and short production chains are activated in designing and manufacturing sustainable, low-impact objects at competitive costs using environmentally conscious cardboard. These objects prioritize functional and participatory value over the authority of the project. Cardboard serves as a symbol of sustainability, fostering environmental and social responsibility by raising awareness of its use⁽³⁾. Popular in both furniture making and packaging, people have come to widely accept and appreciate cardboard objects for their attractive appearance, familiarity and ease of use⁽⁴⁾. Its wide use is due to lightweight, recyclable properties, and cost-effectiveness. Recycling of cardboard waste is a widespread practice in Europe, where it reaches about 60% of the volume consumed⁽⁵⁾. Such cardboard waste can be used for various applications, for example as a material for insulation. Additionally, the production process for cardboard uses fewer natural resources and generates less pollution compared to other materials. These factors make cardboard an attractive material choice for various industries and applications to several fields⁽⁶⁾. Among such areas of applications, architecture has a recent tradition in the reuse of cardboard. The first relevant architectural project dates 1944, which consisted on an experimental shelter for emergency situations using paperboard panel system, while the interest for such applications

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in architecture started growing from the 1990s⁽⁷⁾. Japanese architect Shigeru Ban, in particular, started to use cardboard as construction material⁽⁸⁾. However, its use is also documented for several design applications like the Wiggle chair by Frank Gehry or the office interior by Ro Koster and Ad Kil⁽⁹⁾.

For each kind of cardboard applications, the relationships among modelling, machines, and materials need to be considered. The overall fabrication process needs generative design systems to build geometries through digital fabrication devices⁽¹⁰⁾. Through the advancements in software interfaces and custom plug-ins, programmable machines, like industrial robots, have become more accessible to architects and designers, who gain more control over materiality and can extend digital design into the production phase, facilitating an experimental approach to architectural materialization⁽¹¹⁾. Digital representation is increasingly characterized by hybridization between reality and virtual. For example, the digital form-finding approach can link the morphological aspects of the project to the necessity of satisfying certain energy or structural performances⁽¹²⁾. Simulations define what will become physically real architecture, as stated by Fabio Gramazio: “As opposed to the exuberant experiments in the early days of digitalisation, the focus is no longer on form and virtuality. Rather it is on the physical enrichment of the discipline. Paradoxically, with pervasive digitalization, the “materialization of the digital” becomes the focal point”⁽¹³⁾.

Digital fabrication tools are increasingly integrated into architecture and design, and they are therefore increasingly being used in educational environments. These tools are particularly employed in design education to instruct students in prototyping and problem-solving skills⁽¹⁴⁾. Furthermore, through the design thinking practice, students can achieve a general understanding of the creative and complex process through which artifacts can be made using digital fabrication. This pedagogical approach cultivates a unique mindset and action-oriented approach, tailored to specific contexts and objectives in the development of new objects, potentially enhancing and facilitating the digital fabrication process⁽¹⁵⁾. Innovation, on the other hand, means reshaping the existing order and forging a new one, driven by the need to adapt to a market governed by selection and competition⁽¹⁶⁾. Innovation necessarily embraces experimentation, relinquishing established certainties, and challenging preconceived notions. Through technology advancements the necessary tools and resources can be developed to achieve new ideas and solutions⁽¹⁷⁾.

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Moreover, technology has the direct potential to influence design choices⁽¹⁸⁾, as highlighted by co-design approaches⁽¹⁹⁾, which encompass both aesthetic values and the articulation of meanings rather than mere signs⁽²⁰⁾. In this context, digital innovation related to computational aspects can thus help make visible the intangible relations that synthesize in form, to support in a process of awareness through the transdisciplinary value of representation, open to all knowledge.

Bridging Design, Innovation, and Education: the workshop [F.B.]

The workshop project proposed to the students of the Design course of the Department of Civil and Environmental Engineering of the University of Perugia is the final step of a collaboration with Materieunite, which set the goal of bringing the world of work closer to the world of research. The exhibition brings together the results of a partnership between research, innovation, and education in design. For university students, the reinterpretation of design icons offered an opportunity to address the issues inherent in the realization of an idea, while for Materieunite, the discussion with students was a stimulus for innovation and research (Fig. 1).



Figure 1. *The students working on their design projects through digital modelling.*

The training request, focused on the themes of representation, was developed in a sequence of activities, which can be recounted in three steps. In the first step, the students

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(19) Lars Bo Andersen et al., “Participation as a Matter of Concern in Participatory Design,” *CoDesign*, 2015, doi:10.1080/15710882.2015.1081246.

(20) Fabio Bianconi, Ambra Ciarapica, and Marco Filippucci, “Paesaggio, Territorio, Conoscenza. Dall’Atlante Degli Obiettivi Della Regione Umbria Ai Contratti Di Paesaggio Del Lago Trasimeno,” in *Proceedings of the 16th CIRIAF National Congress. Sustainable Development, Human Health and Environmental Protection*, vol. 1 (Proceedings of the 16th CIRIAF National Congress, 2016); Fabio Bianconi, Marco Filippucci, and Stefano Andreani, “La Partecipazione per La Riconnessione Fra Campagna e Città. Il Ridisegno Delle Relazioni Attraverso Il Contratto Di Paesaggio e La Strategia Territoriale Del Cibo,” in *La Prossima Città*, ed. Giuseppe Franco Ferrari, vol. 1 (Milano: Mimesis, 2017), 651–670.

addressed the issue of going from idea to executive design. This process concerned the translation of the sketches and 3D modeled geometries into a real object, considering the production process and the materials involved. This first step occurred during the 2021-2022 Automatic and Executive Drawing course held by professors Fabio Bianconi and Marco Filippucci, with the collaboration of Materieunite co-founder Alessandro Buffi. During the first meeting Materieunite was invited to present its activity and the necessary workflow for the realization of cardboard products, illustrating techniques and possible declinations of materials. These issues supported the critical reading of iconic objects of design of the last century, studied through drawing to be understood in the multiple issues inherent in the form, an analysis guided by the tendentiousness of the project of reinterpretation with cardboard, which led to the result of an executive drawing of the conceived form (Fig. 2).



Figure 2. *The Wiggle Side Chair by Frank Gehry fabricated during the workshop.*

The second step concerned the digital fabrication process. Such a phase occurred at Materieunite's headquarters in a workshop involving selected students. During this activity, the young designers were able to touch closely on the multiple stages of production, evaluating the different forms of material and the processing techniques inherent in Materieunite's specific production processes (Fig. 3). Initially, the workshop day activity focused on the optimization of the executive drawings developed for academic purposes, refined in detail in an accompanying course offered by Materieunite's staff. The activity subsequently involved transcribing the drawings into numerical codes that led to the cutting of materials. Digital fabrication then led to breaking down the whole into parts that were then manually assembled on the same day (Fig. 4). In the third step, the students were asked to design the Exhibit. The prototypes made during the workshop were intended to be designed, exposed, and shared at the Engineering Hub of Perugia. The exhibit was designed by faculty and students together with Materieunite. The realization of the exhibit represents a further design theme in the conception of the narrative path, in the definition of space and flow, in the design of the display elements that are also design objects, in the enhancement of the products on display, and in the issues inherent in the

assembly and set-up (Figg. 5, 6). Three among the best presented works have been selected and presented in this paper in the following paragraphs.



Figure 3. *The Students assembling their cardboard prototypes.*



Figure 4. *The numerical control cutting machines used during the workshop.*



Figure 5. *The exhibition set up at the Department of Civil and Environmental Engineering, University of Perugia.*



Figure 6. Close-up view of the exhibition.

Lunario High Table by Cini Boeri [S.C.]

The project proposed by the students Emma Bartoli and Francesca De Nigris is a reinterpretation of table by Cini Boeri for Knoll. In the original table, the oval top is made in transparent tempered glass with a chromed steel plate as fixing base. The fastening is invisible, and the base has a counterweight to give stability to the table. Lunario is characterized by its elegant and off-center shape, where weights and volumes fit together in a perfectly balanced geometry. The students chose to reproduce such object using FSC certified corrugated cardboard with 3.5 mm thickness through the interlocking of multiple horizontal and vertical panels that discretize the original shape (Fig. 7).

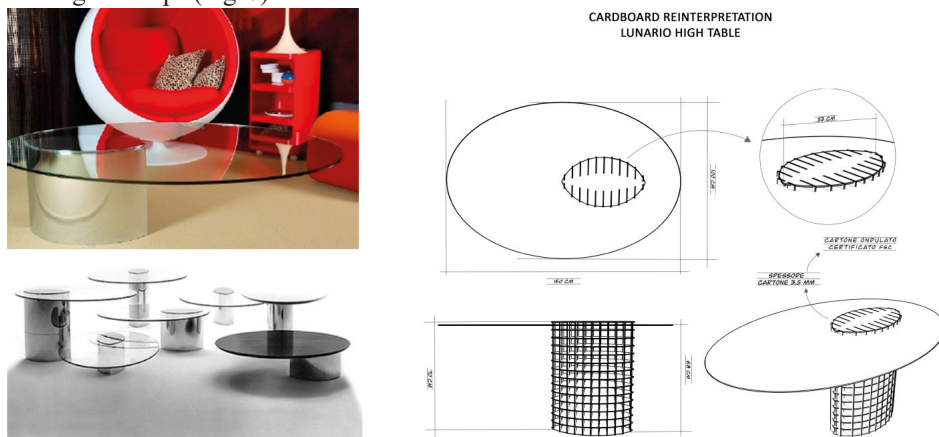


Figure 7. *The reinterpretation of the Lunario High Table by Emma Bartoli and Francesca De Nigris.*

Passiflora by Superstudio [S.C.]

Passiflora was investigated by the students Alice Castello, Davide Franceschelli, and Manuela Papa. The original Passiflora lamp originates from a cardboard prototype painted for the exhibition “Superarchitecture” (1966), a manifesto of Radical Design. The cardboard was then replaced by a transparent material, transforming Passiflora into a luminous column trunk: a column whose deformed silhouette oscillates between the natural and the artificial, in a play

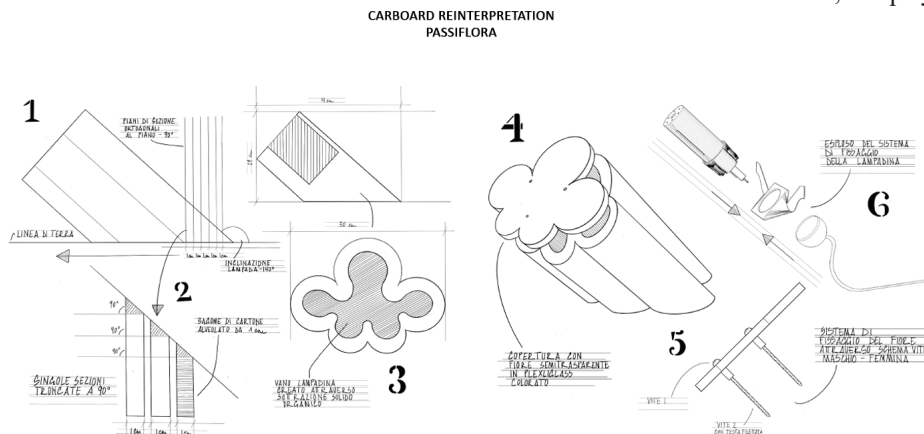


Figure 8. *The reinterpretation of the Passiflora by Alice Castello, Davide Franceschelli and Manuela Papa.*

of allusions and ambiguity, corresponding to Superstudio's statement of intent, summarized in the text *Design of Invention and Design of Evasion*. The cardboard reinterpretation of the students was created through multiple cross sections joined by rods and screws. Last, a power cable was added for the light bulb (Fig. 8).

Bookchair by Sou Fujimoto [F.C.]

The students Monica Di Pilato, Chiara Lollini, Alessia Milletti, and Simona Storsillo chose to reinterpret the Bookchair by Sou Fujimoto. Drawing inspiration from the relationship between architectural space and the human body, the Japanese architect designs a compact and essential bookcase from which a chair can be pulled out. A real object within an object that highlights the relationship between man and book: after choosing a book, the reader can take the chair, sit down, and read. The very simple and clean composition of the bookcase is enhanced by the softer and more sinuous lines of the seat, which, depending on the use, can either be included in the space of the bookcase, or free in the space of the house. The piece of furniture thus relates with the environment in which and is inserted, not in a static, but actively and always changing.

The students chose to redesign the object using poliplat (also known as carton plume or sandwich cardboard), which is a lightweight polyurethane foam panel enclosed between two layers of white cardboard. Such properties allow the creation of strong but at the same time light structures. Poliplat sheets with a thickness of 3 mm were used (Fig. 9)

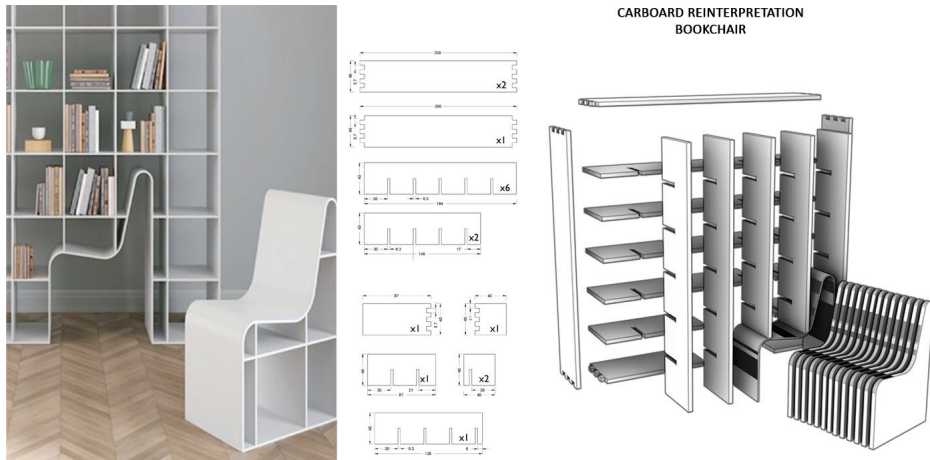


Figure 9. The reinterpretation of the Bookchair by Monica Di Pilato, Chiara Lollini, Alessia Milletti and Simona Storsillo.

Conclusion [F.C.]

More and more materials in architecture and design need to be able to withstand multiple uses and being adaptable and sustainable. Cardboard, due to its low-impact production processes, has gained prominence in various industries. Its lightweight, recyclable properties, and cost-effectiveness make it an attractive choice. Through such material, the students were taught how to integrate digital fabrication tools into architectural and design projects, allowing them to develop essential skills in prototyping and problem-solving. The workshop conducted in

collaboration with Materieunite represents the culmination of a partnership between research, innovation, and education in design. It aimed to bridge the gap between academic learning and real-world applications. This transdisciplinary approach enhances design awareness and prepares students to move from study and design to physical fabrication of the project.

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Special acknowledgements to the whole team of Materieunite and especially to Alessandro Buffi for guiding the students during the teaching and fabrication steps.

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TANGORÀM: conceiving new playful spaces

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Abstract

TANGORÀM is a project that aims to investigate the terms of perception of public space according to children in middle childhood. The problem within modern city is the lack of playful spaces inclusive for all. Nowadays there is a surplus of playgrounds and public services dedicated to preschool children, but no such spaces for kids from age 8 to 13.

Conceiving territories that exclude a huge part of its society is the opposite to an inclusive city and could affect the developing of future adults. Plus, playgrounds are standard sizes and shapes, which affects deeply the creativity and sense of adventure of children, as result of modern urbanism, in which every person should have a dedicated space that follows some standard, easy principles.

The aim of the project is to propose areas that conceive public space lived through games that could be enjoyed both from a child and an adult perspective. This project takes place in the ninth municipality of Milan, in the districts of Bovisa and Dergano, an area characterized by its contrasts. Bovisa is known as the rising district of innovation, while Dergano is a residential neighborhood focused on community. The work analyzed the area through a territorial perspective, and followed a social analysis involving directly kids and parents living in both districts.

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Methodology [C.S.D.R.]

Does interaction with public space from childhood make us better citizens?

Interaction with public space is the foundation of what makes us citizens. Specifically, if this interaction takes place in childhood, it will certainly play a beneficial role in the formation of those who, even though they are citizens today, are marginalized and too often considered as ‘future adults’ or ‘future citizens’ and not as actual inhabitants of the city.

A good city, sustainable in lifestyle and welcoming, must allow a high level of interpersonal exchange and guarantee safety for its inhabitants. It is precisely the concept of safety that most concerns a parent, who is led to make a series of choices that have consequences in experiencing public space as a child.

Children absorb everything that permeates them, so the narrative we offer them about a given place will have a radical impact on their conception and potential use of it. Since the main influences a child receives come from the family unit and the school, if, as an adult, one has a negative imaginary referring to a given place, by implication this imaginary will be transferred and absorbed by children.

So, through our experience of urban places, we shape the way we conceive of a livable city. Although an image can be created from a mediated narrative, it is much easier to associate a judgement with a personally lived experience, which brings us closer to an ideal of an appropriate urban space calibrated to our own experiences. However, we do not consider, that the perception of a given space is variable depending on the subject. There are in fact several inherent differences between the perception of space during adulthood and childhood.

Perception of space: inherent differences between childhood and adulthood

In childhood, one does not focus on an end, one does not go from point A with the goal of reaching a point B; rather, the path itself will be studded with elements and stimuli. Children do not live experiences aiming at a destination, since the experience itself starts from the route needed to reach the point of arrival.

The adult’s vision, on the other hand, tends to be functional; one tries to shorten routes, preferring straight paths, aiming for the quickest and safest way to get to the point of arrival. Especially as a parent, permeated by a sense of concern for the safety of their children; the adult will try to impose even more his or her idea of shortening the time to drastically reduce the time of exposure to a potential risk. It is evident that these two visions are highly contradictory and imply two opposing views of time. One must not overlook the importance of travel times, as a kid, of any distance that are significantly longer than what an adult might perceive. In the

eyes of a child, spaces are much larger, each experience is slower and more protracted.

Other substantial differences between the perception of the world in children's eyes and that of adults are height and vision. When approaching a space, the child will have a much lower ground line than the adult and will therefore give more weight to what is happening at his or her feet. Parked cars, occupying a greater percentage of the field of vision, will have a dominant impact compared to the adult's vision and pavements will be perceived much wider than roads. The same applies to vertical elements such as facades, trees, cars, fences, shrubs... that occupy a lot of the child's view and look less permeable than they really are. Also, the sky appears much wider to children's eyes than we adults perceive it to be. [Radaelli R. Salerno G. Villani V. Piga B. Morello E. 2011].

The same reasoning can be applied to morphology: what may seem a small difference in height to us, represents a peak to climb for a child, who will be much more sensitive to every small change in altitude. All these represent crucial elements to be considered when designing a functional space with and for the youngest citizens.

Sense of purpose

Another major difference is that most adults have ingrained in themselves a sense of purpose, to the point of losing connection with the free flow of events, preventing activities from becoming objectives in themselves. Everything must aim at a goal; every activity must aspire to become a potential method of gain. This principle is incomprehensible in the eyes of the youngest, who see in playing the beauty of the act itself.

Adult games have evolved with them: they are broadly structured, have long rules, complex material, and visual aids, but above all, they have a very specific purpose: victory, a prize or an incentive.

They are competitive and organized games, now regarded as productive and purposeful activities, which are limited to certain spaces and time intervals. Moreover, they cause, as an unintended effect, an increase in violent and discriminatory attitudes among children themselves [Codello F. 2018]. Such activities are a brake on free self-expression and creativity, which is not perceived in the games invented by children. When left to their own devices, they propose more peaceful and inclusive activities among themselves, guided by a simplicity and a desire to play with a single purpose: the game itself.

Playgrounds

Reconnecting with the theme of play, we can begin an analysis of what turns out to be one of the main issues in adult impositions on children: playgrounds. In the current conception of the city, children are granted a predetermined and fenced space, seen as an extension of their room. This function is associated with both separation and protection: the former because children are often seen as disturbing elements to adult activities, the latter because it is thought that by granting a clearly delimited and recognizable space one can impose greater control over them, simplifying the role of the carer.

The truth is that contemporary city planning hardly accepts the existence of hybrid spaces with mixed users. Planning means regulating, arranging, and consequently allocating each citizen his or her own square meters of space with that specific function. But children's playing is intrinsically opposed to planning, it is an activity that involves both construction

and destruction, that does not necessarily need a predetermined and recognizable area because children can find the resources and possibility of play in any context. [Pecoriello A. 2006]

The playground, as conceived today, originated in the early 20th century in the United States, precisely in order to create areas for children that were away from the streets and that consequently eliminated the form of self-education associated with them. At the same time, in Scandinavia, playgrounds were conceived, which were seen with great success as they made it possible to dedicate special spaces to those who had always been considered weak and invisible users in the city. Moreover, where several routes converged, they could act as rest areas, facilitating relations between children, supervised by adults.

Unfortunately, over time these areas became standardized, and were gradually relegated to the various urban voids resulting from zoning plans. The principles that a playground currently follows are horizontality, safety, minimal maintenance. [Pecoriello A. 2006] Such features allow for greater control, avoiding the potential creation of nooks and crannies and sheltered places, and everything that adults consider potentially problematic, but which for children represent refuges and stimuli for discovering the unknown. Furthermore, to cut costs and comply with stringent performance standards, certain materials have been imposed that require minimal subsequent intervention, giving the playgrounds an unchangeable and uncreative appearance.

So, what do children want?

Starting from the assumptions listed, we can already imagine that, however seemingly obvious, this answer is often misinterpreted by adults, who apply their memories and desires experienced during their childhood, but which are altered either by cognitive notions acquired later, or by previous experiences that inevitably lead them to perceive the surrounding reality through a filter far removed from that of the child.

In 1994, a document was drawn up entitled 'The Manifesto for the Reconquest of the City, approved by the National Congress of Children and Young People', in which a series of needs for a more child-friendly use of cities are listed by points, which can be summarized as follows (Bologna 23-25 aprile 1994):

- Increase in meeting places of a varied and flexible nature
- Greater richness and variety of urban greenery, with mobile elements and modular games.
- Greater road safety implemented through: comprehensible signage, separation from vehicular traffic, more public transport and dedicated soft mobility routes.
- Greater consideration in decisions concerning one's own city

Especially regarding the last point, the manifesto ends with an exclamation:

"WE WANT TO BE ABLE TO DECIDE ON WHAT AFFECTS US!!!"

A clear sign of how children do not feel involved in city life, and that this sense of exclusion undermines their security and the possibility of feeling a real sense of belonging to a place; can the city as it is lived today really belong to children if their opinion is not considered in their own homes?

Invisible children

Browsing the website of the Milan municipality, among the interactive maps and documents

present, the item ‘Services for children 0–6 years’ is evident, which presents an overabundance of dedicated facilities, and whose playgrounds themselves are designed in total safety precisely for younger users. Further investigation shows the presence of a service called CAG (Centri di aggregazione giovanile) an educational support service for children between the ages of 11 and 14.

It is evident that a group of citizens characterized by the age of seven to ten is completely forgotten. In fact, the 8-13 age group is defined by Thomas Lang as ‘the age of gangs’ [Lang T. 1998], in which the dimension of playing is related to exploration and adventure and spontaneous games are not bound by a specific space. This age group is also the one that is involved to a lesser extent in the design of spaces, as it is considered too turbulent and demanding compared to younger children. [Pecoriello A.2006].

This data is significant, since implicitly the Milan municipality has decided that from the age of seven onwards one is no longer classifiable, that one is no longer part of childhood, nor of pre-adolescence. Yet, in Italy these citizens are not considered autonomous enough to be able to make a simple journey such as going from home to school independently, because according to law 591 of the penal code on child neglect, it is the responsibility of schools to ‘supervise’ children up to the age of 14 until they are ‘handed over’ to their parents. Only recently with Article 19a of Law 172/2017 institutions have been released from this responsibility. This shows how we live in a country of strong contradictions, where if one is between the ages of 7 and 13 one is considered not young enough to have dedicated services, but not old enough to be autonomous in daily movements; where children are dependent on the same adults who do not take their opinion into account; thus generating a trend contrary to the rest of Europe [Shaw B. 2015].

It is striking how the protagonists of children’s fiction always fall within the age group of 10–11 years old. It is clear that these tales aim at greater identification on the part of the reader, talking precisely about normal children like themselves. But is it not a contradiction to invite the not-so-little ones to read about their peers who save entire villages, meet extraordinary animals, fall in love for the first time, venture into enchanted forests... But then they are in no way allowed to experience any of these adventures, precisely because they are considered invisible children, now too old but never old enough?

This work followed an applied phase in the Bovisa and Dergano neighborhoods of the ninth municipality in the city of Milan, in which a series of participatory design workshops were held with the invisible children of the two neighborhoods, in order to give them the right space to freely express their opinions about their neighborhood and what their perceived criticalities and positive points were in the eyes of the youngest citizens.

Social - perceptive analysis: methodology

The social-perceptive analysis is based on the users living in the area themselves, who, by voicing their opinions on life in the neighborhood, have helped in the development of a project that truly considers the perspective of those who inhabit the area daily. This approach is necessary and complementary to the territorial analysis, as they are both keys to understanding the area. It is unthinkable to make a project proposal that does not take both aspects into account, that disconnects people from the territory. The method used is empirical in nature, based on a qualitative survey born of direct comparison between the operators and an unfiltered rendering of their experiences of the two neighborhoods.

The actors involved belong to two distinct but mutually supportive strands, for which different activities were prepared. A first phase involved children between the ages of 7 and 12 who lived or studied in the two neighborhoods; in a second phase, the interviewees' families were also involved.

The experimental phase needed a quiet space with tables and areas in which to carry out workshop activities, which could provide support during the summer and holidays, and which could bring together many children, but also parents ready for dialogue, so schools, associations and the neighborhood oratory were excluded. Two commercial activities located in Via Bernardo Davanzati were selected as locations: the Scamamù bookshop and the Mamusca bar, reference points for the study area, with a calendar full of events and a varied clientele.

The activities followed two parallel tracks, designed for the different types of users. As for the children, an A3 map of the neighborhood was prepared (from the Bovisa Politecnico Station in the west to Viale Enrico Fermi in the east).

The main landmarks of the neighborhood known to the children were marked on the map: the main toponymy, the main infrastructures, the primary schools, the green areas with Playground, the St. Nicola Oratory in Dergano, the sports fields and the two meeting places for workshop activities. The indication on the map read 'Draw three O's in three places in your neighborhood that you like and then explain why' and 'Draw three X's in three places in your neighborhood that you don't like and then explain why'. Part of the A3 sheet was also left blank and marked 'Draw an activity you like doing in your neighborhood'.

The purpose of this workshop activity was therefore to obtain a qualitative assessment linked to the places in the study area, defining the main motivations for liking or disliking a given place, and the activities most frequently performed in public spaces.

As for the parents, the modality was much less formal, based mainly on a semi-structured fixed-track interview.

This mode made it possible to start from a starting point and then give the interviewees total freedom to express their opinions. In addition to the same questions asked of the children, the questions asked of the family members included issues relating to the perception of safety in the neighborhood, what are the main problems in the neighborhood and the presence of reference points where people could be together without restraint.

As far as meetings are concerned, Scamamù's calendar has fixed appointments, which consequently lead to a repetition on certain dates, as they are considered more appropriate or more appreciated by a certain target group. It was therefore essential, in this experimental phase, to vary as much as possible not only the locations (the bar and the bookshop offer two very different situations) but also the days of the week. This was necessary to broaden the spectrum of respondents as much as possible, providing variety at the analytical level, giving voice to children of different ages and nationalities, belonging to the same households, or to the same class.

Social - perceptive analysis: the results

The graphic representation of the results required the inclusion of a series of reported data that considered:

- Type of users (distinguished by family members or children, differentiated by two different colour gradations)



Figure 1. Social-perceptive analysis – a sheet filled by one of the interviewees.

- Qualitative evaluation of the users (distinguished by family members or children, differentiated by two different colours) divided into linear or areal elements (if easily identifiable they were represented as areal elements, if the opinion was generally spread along a whole street and not strictly located, linear elements were introduced)
- Intensity (figure related to the number of times a particular place was mentioned, which brought out the actual appreciation of a place more than any other element). This data turned out to be the most difficult to represent but certainly also the most incisive, since from the reported cartography it appears to be the information that stands out the most.

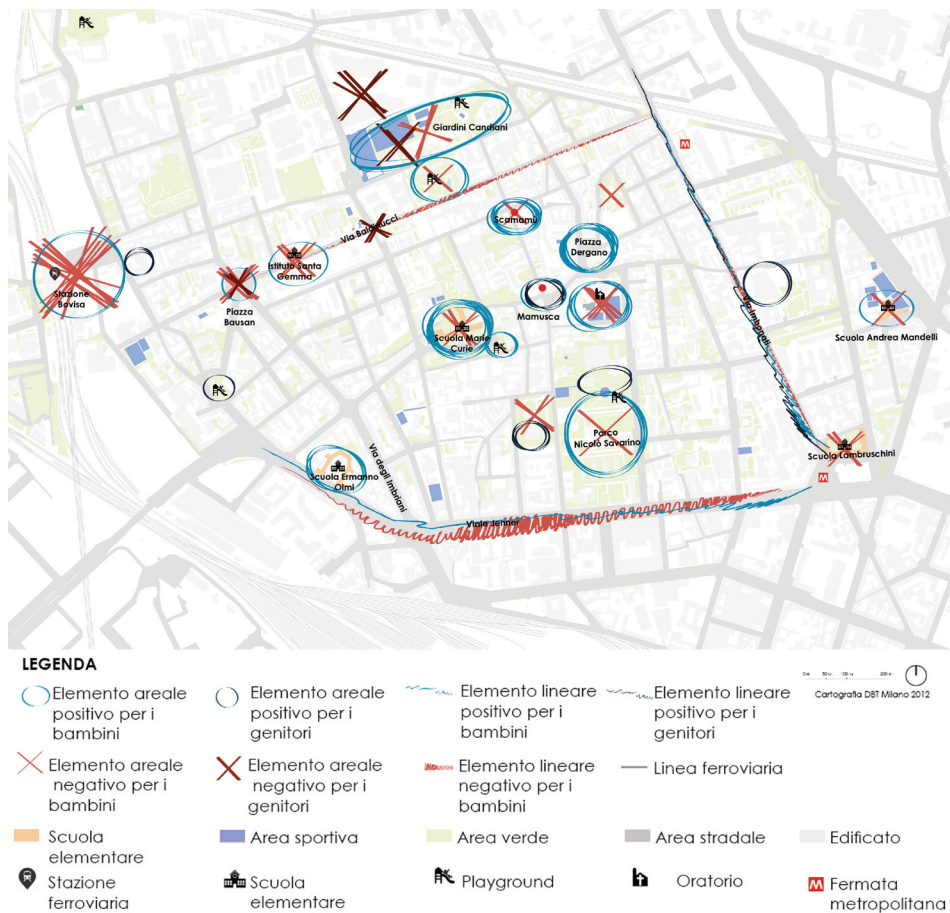


Figure 2. *The results on social-perceptive analysis.*

The re-elaboration phase of the results brought out some points for reflection related to the following themes:

Schools

The judgements reported on schools are to be considered in a partial way, since as they are meeting places to which the social experiences of the interviewees are linked and which in

any case represent the spaces most experienced within the neighborhood, the judgement regarding them is often positive, precisely in the light of these factors. The validity of the data is only partial in the light of this very strong sense of belonging attributed to the individual establishments.

Security

Another significant finding was the sense of security, expressed mainly by parents. There was only feedback on this specific element in the older children, who are now in middle school and approach the neighborhood unmediated by the adult figure. In younger children, safety has never been an issue, given precisely by the constant presence of the parent, who will favor certain routes over others, making a choice that will have consequences for the usability of certain spaces.

Forgotten places

When the map was drawn up, some basic elements were marked to facilitate orientation within the neighborhood. A significant and unexpected finding was that of all the places represented on the map and never mentioned in the workshop phase. The choice of indicating only a few of these places certainly conveyed the results, perhaps compromising more truthful feedback if the children had other unmarked places on which they wanted to express an opinion, but which for lack of precise reference points they decided to omit. This choice was necessary precisely to better guide the children in the workshop phase, not leaving them totally bewildered in front of a completely empty map or, on the contrary, full of elements that would have compromised the clarity of the work.

Most of the places that emerged were among those I had previously selected, but although they were marked, many places were not mentioned. Several 'forgotten places' that do not belong to the daily life of the interviewees were highlighted, a peculiar finding as it ran counter to an expectation related to the study area.

The involvement of fathers

During the meeting days, the exchange was fruitful with many mothers, and in some cases even with older sisters. One feedback that was almost completely absent was that of the male parental figure. A type of user thus emerged, made up of people who live in the neighbourhood, who have chosen it for its quiet and residential nature, with its very rich community lifestyle, but who do not actually live it, they merely consider it a dormitory. These figures are interesting precisely because they contrast with the children and mothers who are very active in the area.

At the end of the social-perceptive analysis phase, a direct correspondence emerged between this one and the territorial analysis, presenting a complete context characterized by a series of needs. The neighborhoods of Dergano and Bovisa are virtuous in many respects, but as confirmed by the initial premises, the figure of the child is marginalized, and the spaces present in the two neighborhoods are often conceived as not very inclusive.

TANGORÀM – The design

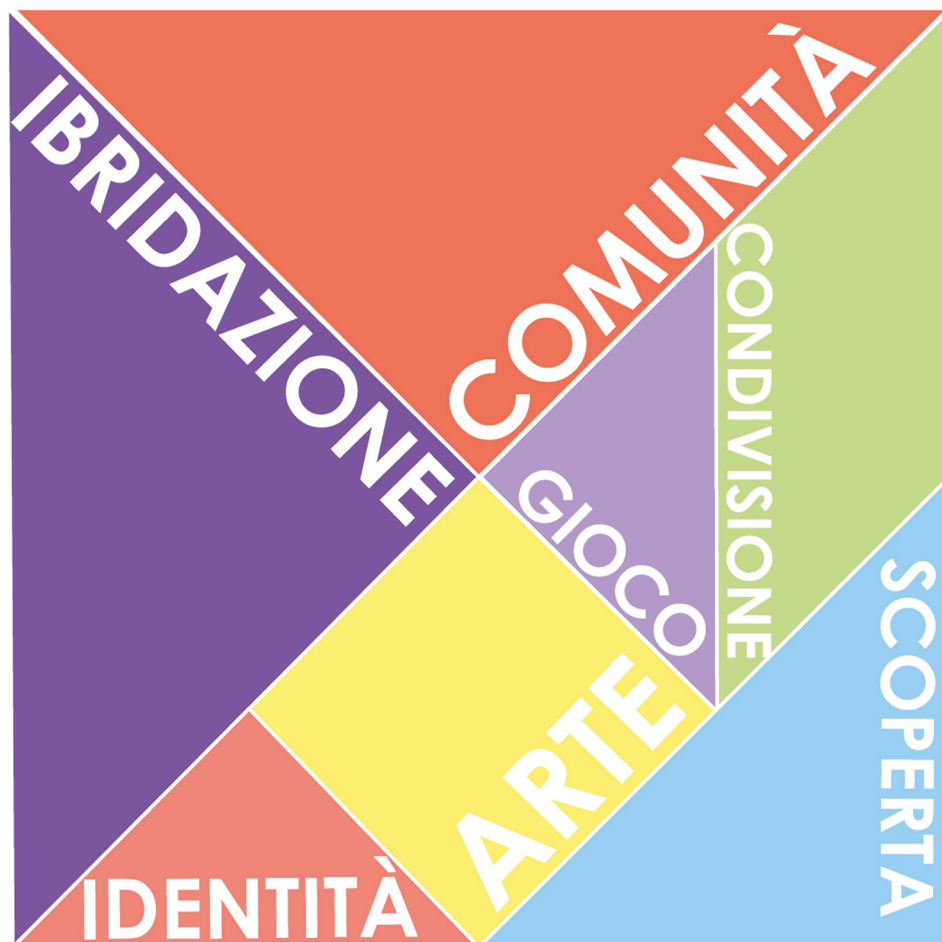


Figure 3. TANGORÀM: The logo.

From the premises made so far, Tangoràm was born. The title of the project comes from a play on words between ‘TANGRAM’ AND ‘AGORA’.

The tangram is a game that started out as a puzzle, consisting of seven boards of different shapes which, when arranged in their original conformation, form a square. The tangram game is based precisely on starting from this initial square shape and twisting it, generating as many shapes as possible without overlapping the pieces, embodying the very principle of flexibility. Agora, the Greek word for square, is the epitome of public space par excellence.

Tangoràm is based on the principles of user hybridization, community, play, sharing, identity, art, and discovery. All themes that have been addressed so far and perhaps already existed in the neighborhood, but in embryonic form. The purpose of this project, on the other hand, is precisely to push these themes to the maximum, to work simultaneously on a series of elements that are already present but need to be enhanced, using the tools of art and play aimed at discovering public spaces and sharing them, implementing a

sense of community, and reinforcing the identity of certain elements that are currently marginalized.

Specifically, the design proposal placed the dimension of playing at the center, basing itself on the development of the TANGRAM areas: seven thematic areas, each characterized by the element of a specific game, which dictated its compositional principles, structure, and main functions. The TANGRAM areas are intended to give the two neighborhoods a unified character, linked by the play component that is the main feature, but whose entity was not conceived for the exclusive use of third-children, but rather for the entire population of residents and daily users, who will be able to experience the public space in the same way that children experience it in their daily lives.

There are seven areas like the pieces of the tangram, and each area has been defined with a precise theme, aimed at helping everyone rediscover the playful nature behind public spaces.

The type of game chosen and associated with each area led to the definition of its spaces, the interaction suggested for each space (a suggestion, not an imposition!), the choice of plant species follows the macro-theme of each area. Furthermore, each TANGRAM area will be characterized by a dominant color, integrated both in the flooring and in the choice of plant species.



Figure 4. Tangram Area: The juggler – Axonometry.



Figure 5. Tangram Area: The juggler - View.



Figure 6. Tangram Area: Leaf battle – Axonometry.



Figure 7. Tangram Area: Leaf battle – View.

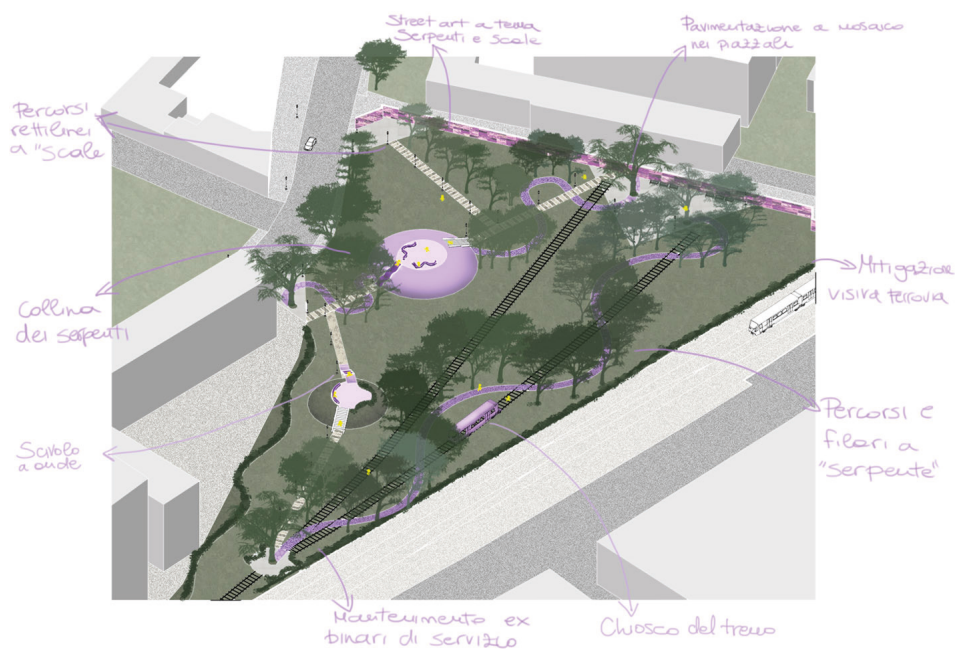


Figure 8. Tangram Area: Snakes and ladders - Axonometry.



Figure 9. Tangram Area Snakes and ladders - View.

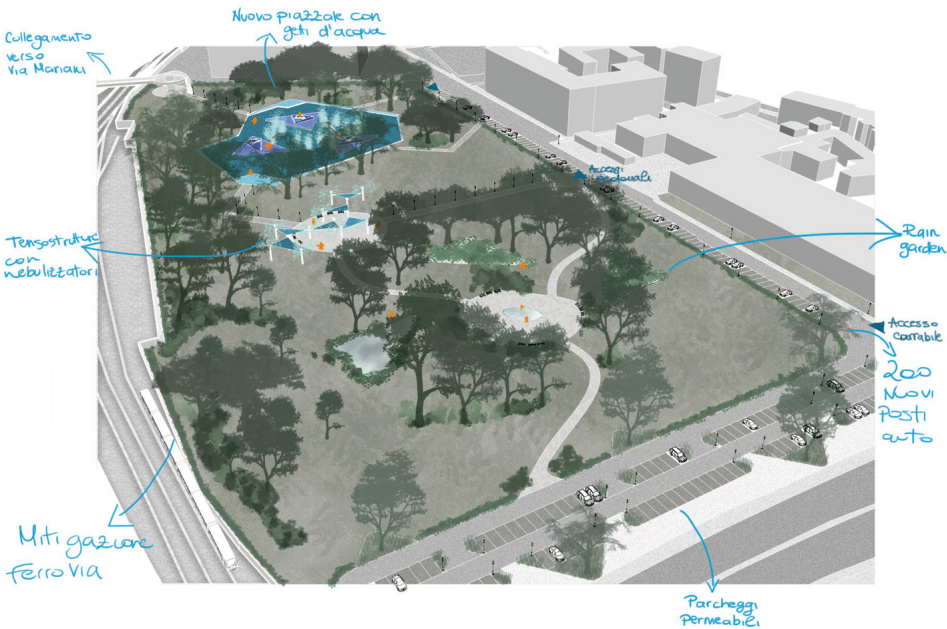


Figure 10. Tangram Area: Water games - Axonometry.

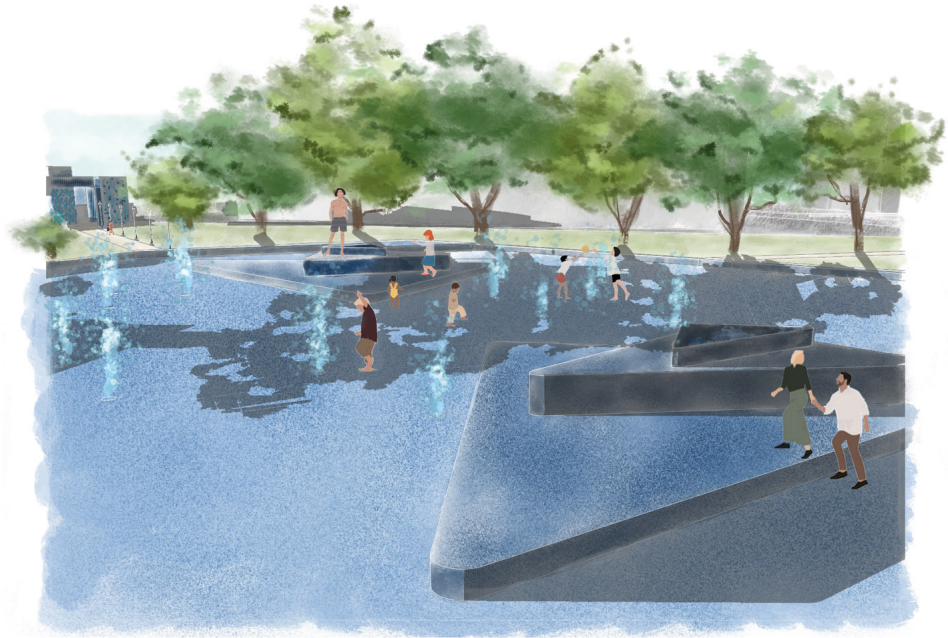


Figure 11. *Tangram Area: Water games - View.*

Conclusion [P.B.]

TANGORÂM represents only one of the potential ways in which the topic of user hybridization can be investigated. The goal of the project was to create spaces so marked by the playful element as to push anyone to evaluate their potential use in accordance with the rules of the game. It is probable that the expected result will be more satisfying on the part of children, who have a natural tendency to experience all spaces as if they were play areas, precisely because play is their form of expression. The response of adults to the challenge of looking at a public space as they lived it as children will not be taken for granted.

The invention of games with an unconventional character compared to a generalized standardization, derived from the reinterpretation of traditional customs, or born from a suggestion proposed by the place where they arise, makes them surprisingly newer than the repetitiveness proposed very frequently by public bodies. This new approach to play areas has positive elements such as originality, the use of creativity for the designer, but also unfavorable ones including not using standard products does not guarantee the future functioning of the play objects, for the availability of spare parts, the ISO certifications required in public furniture, ...

From this study an innovative product is a new stimulus for the development of creativity and imagination of the child, but also of the adult. The search for an unusual image is an element of attraction for a wider audience; this should stimulate reasoning ability, criticizing the space in which you play, highlighting its affinities with respect to

your character or not. Obviously, it is not certain that the response to interaction with a public space, which has such clear and explicit functions, can be experienced in the exact way in which the designer envisioned it. A possible framework for future research could be based on studying the way in which adults, confronted with play areas, but which are not conventional play areas, can interact with them, just as it is not certain that the children's response the proposals appear to be perfectly in agreement with what was hypothesized.

Returning to the initial premise: "Does interaction with public space from childhood make us better citizens?" We can say with certainty that the answer is positive, but that to date the Municipality of Milano, like many other realities, do not offer children this possibility of interaction through public space.

The purpose of TANGORAM was to find a way to ensure that public spaces adapt to children and not children who have to adapt to public spaces.

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How exterior yacht design relates to the environment through colour

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Abstract

The boat is a means of transport which, by definition, moves between two fluids: water and air. This means that, unlike houses which can relate to a fairly constant urban and/or natural landscape, boats are immersed in an ever-changing natural world. The interface that allows direct contact between nature and the boat is certainly exterior yacht design, where the colour of the hull and superstructure plays a fundamental role. Unlike small boats, where designers experiment with the most varied uses of colour, the majority of large yachts are traditionally associated with a very rigid colour scheme, which has remained unchanged for decades. However, the 21st century has opened up new scenarios in yachting, with research into colour in exterior yacht design that has seen unprecedented applications. Today, large, colourful yachts are increasingly in demand; we have gone from sporadic cases to an increasingly widespread reality. Colour in exterior yacht design is often used as an element of recognition (for example, of the owner or the brand), but how do boat colours relate to the surrounding landscape?

The proposed study aims to investigate the relationships between the colour of the exteriors of large pleasure boats (motor and sailing) and the environment

Abstract

La barca è un mezzo di trasporto che, per definizione, si muove tra due fluidi, l'acqua e l'aria. Questo comporta che, a differenza delle case che possono relazionarsi con un paesaggio urbano e/o naturale abbastanza costante, le barche sono immerse in una natura sempre mutevole. L'interfaccia che consente un contatto diretto tra la natura e la barca è sicuramente l'esterior yacht design dove il colore di scafo e sovrastruttura gioca un ruolo fondamentale. A differenza dei natanti e delle imbarcazioni da diporto dove ci sono le più svariate sperimentazioni sull'utilizzo del colore, la maggior parte degli yacht di grandi dimensioni è associata, tradizionalmente, a uno schema cromatico molto rigido, rimasto invariato per decenni. Il XXI secolo ha però aperto nuovi scenari nello yachting, con una ricerca sul colore

dell'exterior yacht design che ha visto applicazioni inedite. Oggi gli yacht di grandi dimensioni colorati sono sempre più richiesti si è passati da casi sporadici a una realtà sempre più diffusa. Spesso il colore nell'exterior yacht design viene utilizzato come elemento di riconoscibilità (ad esempio, dell'armatore o del brand). Ma come si relazionano le barche colorate con il paesaggio circostante?

Lo studio proposto vuole indagare quali sono le relazioni tra il colore degli esterni delle grandi barche da diporto (a motore e a vela) e l'ambiente.

Introduction

Yachting is a sector closely tied to tradition: when you think of boats, it is very likely linked to scenarios of beautiful sailing ships and magnificent motor yachts elegantly sailing the waves. The conceptual image of traditional elegance resulted in the creation of an always-recognisable nautical scenario rooted in time; this led to a much slower stylistic and morphological evolution compared to other sectors, such as car design and interior design of residential properties, to name but a few that are now very close to yacht design.

Thus, boats that are immediately recognisable by the brown wood, total white or the variant of the black or navy-blue hull, have dominated the nautical sector scene for decades. The consolidated colour scheme of the exteriors matched that of the interiors: white and blue for the fabrics, brown for the furnishing elements and bulkheads, white for the ceilings and brass yellow for the handles and accent details. All this contributed to recreating the scenario of what we today call 'Old Navy Style'⁽¹⁾. All the colours of the interiors symbolically evoked the natural elements that surround the boat itself, i.e. the earth, sky, sea and air, allowing a close chromatic link between the yacht and the environment.

The exteriors contributed to inserting the boat into the environment in various ways, but always in a visually low-impact manner, leaving the natural environment the protagonist role. Although traditional colours are still widely used today, especially in projects that aim to recall the nautical world of yesteryear, we are starting to see increasingly colourful large yachts in our ports and seas. How do they fit into the environment?

Colour and environment in the nautical tradition

What could possibly be more elegant than a white boat? As in Claude Monet's famous paintings, including "Regate ad Argenteuil" from 1872 (Fig.1) and "Voilier au Petit-Gennevilliers" from 1874, a white boat has a close relationship with the environment since it manages to take on the colours of natural light, becoming one with the environment.

Most pleasure boats are, in fact, white in colour. There are several practical reasons for this: traditionally in exterior yacht design white and creamy white are used because they attract less sun and heat⁽²⁾ and, as a result, this colour needs less maintenance. Thus, when pleasure boats were not left in their natural wood colour they were generally painted white. Another functional reason is linked to the use of fibreglass, especially for small and medium-sized boats. The transition from traditional constructions to pleasure boats in the contemporary sense

(1) M. Campolongo, House and Yacht: the Aesthetics of the Interior as a Link between Different Sectors, in "The Design Journal, 20:sup1, S209-S218, 2017 DOI:10.1080/14606925.2017.1352760.

(2) Campolongo web

can be identified at the turn of the 1960s⁽³⁾: this marked the start of mass production where the main material would be fibreglass⁽⁴⁾ and the colour white would dominate. Aesthetically, a white boat integrates perfectly into the environment, standing out without appearing too flashy. Since the boat is always in motion and never surrounded by a single landscape, the colour white has the effect of a painter's clean canvas, in which the colour is not created by the artist's paint but by natural light. White is not the absence of colour, but the essence of colours, not only from a symbolic, magical and philosophical point of view, but also in the scientific field, in mathematics and physics⁽⁵⁾. While white is highly typical of painted wooden boats and fiberglass boats, it is also a common feature of large yachts which, especially from 40 metres onwards, are built with a steel hull and aluminium superstructure.



Figure 1. Claude Monet, “Regate ad Argenteuil”, 1872, Musée d'Orsay, Parigi. (Public domain, via Wikimedia Commons)

The total white of large pleasure yachts evokes the naval sector. Transatlantic liners built after the Second World War also introduced the colour white for the hull, as well as for the superstructure, thus creating a less austere effect⁽⁶⁾. Before total white, the hull of ships was black, a colour which in turn had been introduced into the naval sector following the use of new construction techniques brought by the industrial revolution: metal structures and plating replaced wood, which had characterised the previous centuries, thus starting a new era⁽⁷⁾. Corrosion and rust phenomena for metal in contact with water require a specific treatment, generally characterised by the colour red. However, the dark colour of the hulls was used to re-propose the tones of iron: in naval vessels the decorative

(3) F. Lanz in M. Gregori Grgic, F. Lanz, Interior Yacht Design, Franco Angeli, Milano, 2009; p. 13

(4) M. Musio-Sale, Yacht design dal concept alla rappresentazione, Tecniche Nuove, Milano, 2009; p.87

(5) S. Botti, M. Caiazzo, Abitare i colori, Vallardi Editore, Milano, 2021; pag. 85

(6) M. Eliseo, P. Piccione, Transatlantici. Storia delle grandi navi passeggeri italiane, Banca Carige, Genova, 2001

(7) G. V. Galliani, P. Pescarini, La didattica del costruire nell'800. I politecnici di Torino Milano e la regia Scuola Superiore Navale di Genova, Sagep, Genova, 1985

apparatus (which had characterised the fleets of the medieval era and the large galleons) almost completely disappeared to make room for criteria of greater functionality⁽⁸⁾. The grandeur of the hulls thus characterizes large ships, merchant ships, war ships, and even transatlantic ships, which contrast with the white superstructure⁽⁹⁾.

Today in large pleasure ships (mega yachts and giga yachts) black is still widely used and recalls naval tradition, as well as giving seriousness and elegance to the yacht. However, boats with black hulls are still a minority. Take, for example, the renowned Dutch luxury boat yard Feadship, founded in 1949: in a fleet of hundreds of models, only about ten have a black hull⁽¹⁰⁾. In nautical tradition, a variant of the black hull is navy blue: a less austere solution that integrates perfectly with the colour of the environment surrounding a boat. Blue is the colour of the sea, but also that of preciousness and timeless elegance. Some shipyards have made it a distinctive feature: from the easily-recognisable blue sailing boats of the Perini Navi shipyards (Fig. 2)⁽¹¹⁾ to that of motorboats from the Baglietto shipyards (Fig. 3)⁽¹²⁾ which, specifically, made a branding choice for this colour with the creation of “The Blueness”⁽¹³⁾, a concept that identifies different aspects of the construction site. The strong link between the boat and colour of the exterior has, in some cases, also influenced the name of the boat, as in the ‘Blue Scorpion’ project (now ‘Mischief’), a mega yacht of 52.45 metres in overall length, built by the Baglietto shipyards in ²⁰⁰⁶ and designed by Francesco Paszkowski.



Figure 2. (on the left) Perini Navi 38m SY Dahlak, Courtesy of Perini Navi ©Perini Navi G. Sargentini.

Figure 3. (on the right) Baglietto 43 M Fast MY Pachamama, 2015. Courtesy of Baglietto Yachts.

(8) M. E. Ruggiero, The colour of the ships: communication an identity, in “Cultura e Scienza del Colore - Color Culture and Science Journal”, 2018; pag. 13

(9) M. E. Ruggiero, The colour of the ships: communication an identity, in “Cultura e Scienza del Colore - Color Culture and Science Journal”, 2018; pag. 13

(10) For further information: www.feadship.nl/fleet

(11) Perini Navi is an Italian shipyard specialises in the construction of sailing boat. It was founded in 1983 in Viareggio (Italy). For further information: www.perininavi.it/sailing-yachts-en/fleet/

(12) Boat builder Baglietto specialises in the construction of new planing aluminium yachts and steel-aluminium displacement and semi-displacement mega-yachts ranging between 35 and 65 metres in length. Baglietto is an Italian shipyard founded in Varazze in 1854; it can currently rely on two production sites, in La Spezia (headquarters) and Carrara (operating site).

(13) For further information: www.baglietto.com/blueness-it/

There is, however, one colour that is traditionally avoided in sailing: green. It must be said that historically, for sailors of any geographical origin, having to deal with the unpredictability of meteorological factors has made them very superstitious. The colour green at sea is absolutely intolerable for sailors. Green was believed to bring bad luck on boats because it was the colour of mould or oxide that could form on the wood or metal of ships. Moreover, in the past, naval officers who died were blindfolded and taken home only after a long time, thus assuming the typical greenish colour of corpses ⁽¹⁴⁾. Only the recent disappearance of this superstition has opened the way to new possibilities, heralding the arrival of greenery in yacht interior design.

Boat and environment in close contact, thanks to colour

In addition to white and navy blue which, as previously described, puts the boat in close relationship with the environment in a very natural way, there are other colour variations that today allow perfect integration of the boat with the surrounding nature. For several years now, the grey hull and superstructure have allowed the boat to relate in an elegant and delicate way to its surrounding environment without overpowering it. This solution is still decidedly current, as can be seen from the latest proposals presented by various brands at the Cannes Yachting Festival 2023, such as the very recent Riva 82' Diva motor yachts or the Pershing GTX116 (Fig. 4).



Figure 4. *Pershing GTX116, 2023. Courtesy of Pershing | Ferretti Group.*

Then there are solutions that pursue the same intent by bringing other colours into the nautical sector. At the 2023 Venice Boat Show, the Wally shipyard (a Ferretti Group brand) presented the wallywhy150 motor yacht (Fig. 5). The characteristic of the exterior is precisely the ‘power grey’ colour of the hull and superstructure livery, which manages

⁽¹⁴⁾ Cultura Marinara. Le superstizioni dei marinai, in “Cultura Marinara”, 2023. Available from: www.culturamarinara.com/le-superstizioni-dei-marinai/.

to change nuance based on the sun's rays and generate incredible reflections with the sea waves⁽¹⁵⁾. The particular colour had already been experimented by the shipyard⁽¹⁶⁾ on the ¹¹⁸wallypower yacht in ²⁰⁰³, a boat that marked Wally's debut in the world of motoring. The 'power grey' allows a yacht to change and 'mimic' the surrounding nature. A very similar solution was used on the hull of the Magellano 25 metres (Fig. 6) from the Azimut Yachts shipyard, presented in Portofino in September 2020. Once the green has been cleared, the hull has an interesting dark green colour which takes on the colour of the sea seen from the surface. This particular colour, in addition to the white of the superstructure, allows the 25-metre Magellano to blend in with the surrounding environment.

In the cases mentioned above, the designers' intent is to insert the boat into the natural context, trying to simulate the colours of nature as closely as possible. One visionary solution to allow the boat to enter into harmony with the environment was presented by Jozeph Forakis with the Pegasus 88m concept (Fig. 7). More than a colour, Forakis proposes the absence of colours. The exteriors were designed to be invisible, blending perfectly into the environment. Just like Pegasus, the famous winged horse of Greek mythology, the Pegasus superyacht also has two 'wings' along the multi-level superstructure, equipped with mirrored glass that reflects the sky, clouds and the surrounding environment. The glass of the superstructure also incorporates transparent solar panels. The idea for the Pegasus superyacht was born on a beach on the island of Koufonissi, Greece. "I was inspired to design a yacht as close as possible to the sea and nature, made of clouds floating above the waterline," says Forakis, "I wanted to honour nature by merging with it, becoming practically invisible"⁽¹⁷⁾. By doing so, the yacht would become part of nature: at the moment Pegasus ⁸⁸m is in the concept phase; the designer's desire is to create the yacht with a 3D-printed reticular structure, also visible from the outside of the yacht. An unusual language in yacht design which, however, is reminiscent of product design such as Jonathan Ive's 1996 iMac project for Apple Computers.



Figure 5. *wallywhy150*, 2023. Credits: Gilles Martin-Raget. Courtesy of Wally Yachts | Ferretti Group.

(15) M. Campolongo, A Venezia a bordo del nuovo wallywhy150, un progetto che guarda al futuro, in "Elle Décor Italia", 08/06/2023. Available from: www.elledecor.com/it/barche-motori/barche/a44109410/salone-venezia-nuovo-yacht-wallywhy-150/

(16) Azimut Yachts is an Italian shipyard founded in Avigliana (Torino, Italy) in 1969. It offers the most comprehensive range of models in the 34 to 120-foot (10 to 35 metres) category.

(17) For further information: www.elledecor.com/it/barche-motori/barche/a43192270/pegasus-88m-primo-superyacht-stampato-in-3d-naviga-in-elettrico/



Figure 6. *Azimut Magellano 25 m, 2020. Credits: Alessandro Guerrieri. Courtesy of Azimut Yachts.*



Figure 7. *Pegasus 88M, concept 2023. Credits: Jozeph Forakis.*

Full colour: when the yacht stands out from the environment

While, on one hand, in large pleasure boats we find the widespread desire not to dominate the surrounding environment, by using neutral colours or colours very similar to nature, on the other hand we can find various projects - especially in recent years - in which the boat is made to stand out from the environment with the use of colours previously unseen in yachting. The use of colour has taken on ever greater importance in recent years: it is the main element that stimulates sight, the sense that allows us to acquire the greatest amount of information, the most powerful in man⁽¹⁸⁾.

In 2008, Cantieri Navali Rizzardi presented Guilty, a 35-metre motor yacht with interior and exterior design by Ivana Porfiri – Porfiristudio (assistant Paola Gorla) and

⁽¹⁸⁾ L. Bandini Buti, M. Bisson, C. Boeri, G. Gellini, S. Zingale, Progetto & multisensorialità. Come gli oggetti sono e come ci appaiono, Franco Angeli, Milano, 2010

exterior camouflage design by Jeff Koons. The use of camouflaging military ships, typical during the First World War, was revived for purposes that only apparently seemed decorative⁽¹⁹⁾. What Porfiri herself appreciated about Koons' graphic camouflage is that it contributed to denying traditional naval models, creating something "other" and therefore unexpected compared to the marine context⁽²⁰⁾. It becomes, as Porfiri herself claims: "The sign of liberation from the shape of the line". The colours of *Guilty*'s exterior are easily recognisable and it stands out from the surrounding environment, also thanks to the use of yellow, a complementary colour to the blue of the sky and sea.

Another example of a highly recognizable boat that stands out from the environment is *RC* (now *Ability*) (Fig.8) built by the Baglietto shipyard. The 41-metre motor superyacht designed by Tommaso Spadolini has gone down in the annals of boating not only for having had the designer Roberto Cavalli as its first owner but also for its changing colours, from purple to green, depending on the light and how it is hit from the sun's rays⁽²¹⁾.

Among the new colours used in large luxury yachts, red is definitely high on the list. This colour is not new in boating: it is widely used, for example, to liven up small vessels such as gozzis, or for work boats, such as fishing boats, to make them visible or in nautical competitions. In 1990, Riva presented the Riva Ferrari 32 in collaboration with Ferrari. This highly recognisable boat was identified by its colour, a true Testarossa of the seas.

It is more difficult to find such bright nuances in large luxury boats. The Hot Lab design studio and the Mondomarine shipyard presented *Ipanema* in 2016, a 49.2-metre aluminium yacht with an instantly recognisable red hull.



Figure 8. *Baglietto RC*, 2004. *Courtesy of Baglietto Yachts.*

In June 2023, Rossinavi presented *Akula* (Fig. 9), the shipyard's first expedition yacht. The new 59m luxury vessel is a unique project with exteriors by Gian Paolo Nari and features interior design by FM Architettura. *Akula* is an Ice Class yacht, built to fulfil the owner's dream of world exploration. The 59m *Akula* was also developed to support

(19) D. Dardi, M. Paperini, *Interior yacht design. Abitare tra cielo e mare*, Electa Architettura, Mialno, 2009; p. 201

(20) D. Dardi, M. Paperini, *Interior yacht design. Abitare tra cielo e mare*, Electa Architettura, Mialno, 2009; p. 201

(21) M. Campolongo, *L'ultima tendenza della nautica? Lo yacht colorato (e il blu navy non è contemplato)*, in "Elle Décor Italia", 11/06/2018. Available from: www.elledecor.com/it/lifestyle/g21238755/tendenza-nautica-yacht-colorato/

marine research activities and philanthropic projects, and boasts a large open area capable of stowing a variety of accessories, including two custom nine-metre-long tenders and various diving equipment. Since an expedition yacht can navigate challenging seas and adverse weather situations, the colour is not only decorative but can help visually identify the yacht even from afar.



Figure 9. *M/Y Akula by Rossinavi shipyard, 2023. Courtesy of Rossinavi.*

In the 21st century, the lowering of the average age of owners has contributed to bringing a variety of colours into exterior yacht design which allow the boat to dominate the environment. The Palmer Johnson shipyard presented the 48-metre superyacht *Khalilah* entirely built in carbon in 2014. The golden painting of the body and superstructure makes the boat even more precious and helps to highlight the muscular shapes of the exterior. The *History Supreme* motor yacht designed by Stuart Hughes always features gold paint, even if only for the hull. This colour choice helps to make the boat stand out and give it a precious allure, as if it were a sailing jewel (it is estimated that, although the boat is small in size, the special requests raised its cost to as much as four billion dollars)⁽²²⁾.



Figure 10. *M/Y Khalilah* by Palmer Johnson shipyard, 2014. Courtesy of Palmer Johnson.

Having legitimised the colour green, the Dutch Vitters shipyards presented the 33-metre cruiser racer ‘*Inoui*’ (Fig. 11) designed by Philippe Briand in 2012. The name in French means ‘surprising’: in fact, a bright green boat that stood out like this against the environment had never been seen before⁽²³⁾.



Figure 11. *S/Y Inoui* by Vitters shipyard, 2012. Courtesy of Vitters shipyard.

(22) For further information: www.ellededecor.com/it/barche-motori/barche/a41210142/history-supreme-lo-yacht-tutto-oro-e-diamanti-con-ossa-di-dinosauro-e-resti-di-meteoriti/

(23) For further information: www.vitters.com/yachts/inoui/

Traditional colours, such as blue, can be combined with particular shades to give the yacht an unusual aesthetic. This is the case of the mega yacht *Madame Gu* (Fig. 12), built by the Dutch Feadship shipyards. The selected shade of blue makes the boat very particular, even if not as bold as previously reported.

In 2023, Vision F presented a version of the VisionF⁸⁰ catamaran (Fig.13) in totally pink. Presented at the Cannes Yachting Festival 2023, the multihull was the boat that stood out the most among the other boats, thanks to its colour. VisionF 80 occupied a prominent position within the context, albeit very varied like that of a nautical kermesse.



Figures 12,13. *M/Y Madame Gu* by Feadship shipyard. Courtesy of Feadship.; *VisionF 80* by VisionF shipyard. Courtesy of VisionF Yachts.

Despite the more varied colours, total black is another way to make a boat stand out from the environment. In 2008, ‘Main’ was launched, the 65-metre yacht created by Codecasa for fashion designer Giorgio Armani. The total black (or almost) gives the yacht an innate elegance and makes it recognisable without overpowering the environment. The choice of total black exteriors is more common on small and medium-sized boats, such as the 17-metre motor yacht *Zeelander 6* and the 11.5-metre *Brabus Shadow 900 Black Ops Signature Edition*, the result of a collaboration between Brabus, a German luxury mobility brand, and Axopar Boats, a Finnish boat manufacturer.

Conclusion

Exterior yacht design and the environment relate through the colour of the yacht in three different ways: putting the natural environment in the foreground, treating the boat and the environment on the same level, or enhancing the boat over the environment.

The use of white and transparencies leaves the environment as the protagonist, allowing the boat to take on the shades of nature. Navy blue, dark green and gray paints, especially if iridescent, used for the hull allow designers to merge the natural environment with the boat, recreating a perfect harmony.

The use of total black makes the boat the protagonist, but always in a sober and discreet way. Colours of all kinds for the hull and superstructure allow the boat to be

immediately recognisable and identifiable; however, they can also divert attention from the surrounding nature, which is often the most beautiful part of going to sea.

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Horti in a room.
Iconographic and geometric comparison of some fragments
of garden painting in Rome in the II-II styles

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Abstract

The origin of garden painting has roots that go back as far as Sumerian and Egyptian art, but it has its heyday during Roman times and in particular between the first century B.C. and the first century A.D. In imperial Rome the fashion for creating *horti* and gardens to embellish dwellings blazed among the upper classes, such was the influence that several treatises were written on *Ars Topiaria* and the care of greenery.

Painting itself undergoes this fashion by seeing the inclusion of plant elements in representations, at first subordinated to architectural geometries until they become the main subject of representations. Flora becomes the protagonist in decorations and is often depicted within *nymphaeum* or *triclinium* perhaps because, these, were places in which much of convivial life, private and public, took place and were often placed outside in close connection with water and nature. We find two outstanding examples of this decorative genre inside the *nymphaeum* of the Auditorium of Maecenas, on the Esquiline Hill in Rome, and in that of the Villa of Livia at Prima Porta. The two cases were selected because of their location in the Roman area, their belonging to the same historical period, and the close relationship between Livia and Maecenas. A geometric, representational and iconographic analysis will then be conducted between these two decorations bringing to light different compositional variants

Abstract

L'origine della pittura a giardino ha radici che risalgono già nell'arte sumera ed egiziana ma ha il suo momento di massimo splendore durante l'epoca romana ed in particolare tra il I secolo a.C. e il I secolo d.C. Nella Roma imperiale divampa, tra le alte classi sociali, la moda di realizzare *horti* e giardini che impreziosissero le dimore, tale è l'influenza che vengono redatti diversi trattati sull'*Ars Topiaria* e la cura del verde.

La pittura stessa subisce questa moda vedendo l'inserimento di elementi vegetali nelle rappresentazioni, dapprima subordinati alle geometrie architettoniche fino a diventare il

soggetto principale delle rappresentazioni. La flora diventa protagonista nelle decorazioni e spesso viene raffigurata all'intero dei ninfei o nei triclini forse perché, questi, erano luoghi nei quali si svolgeva gran parte della vita conviviale, private e pubblica, e spesso erano posti all'esterno in stretto legame con l'acqua e la natura. Troviamo due eccezionali esempi di questo genere decorativo all'interno dei ninfei dell'Auditorium di Mecenate, sul colle dell'Esquilino a Roma, e in quello della Villa di Livia a Prima Porta. I due casi sono stati selezionati per la loro collocazione in area romana, per l'appartenenza al medesimo periodo storico e per gli stretti rapporti tra Livia e Mecenate. Verrà quindi condotta un'analisi geometrica, rappresentativa ed iconografica fra queste due decorazioni portando alla luce diverse varianti compositive.

Introduction

The origin of Roman garden painting most probably derives from a pre-existing pictorial genre that was inspired by the transformations that *Roman horti* underwent over the years. During the 2nd century B.C., Rome, and in particular Pompeii, went through a period of flourishing development also thanks to the increase in trade relations with Ancient Greece. The latter's influence led to a progressive change in the typical layout of *Roman domus*, modelled on the Greek ones, and there was a transformation of the *Roman hortus* into a *peristylum*, characteristic of the Hellenistic tradition. In Greek dwellings, the peristyle was a paved courtyard that was the heart of the dwelling and served as a link between the different rooms; it was the Romans who reinvented this space by using it as a portico encircling the garden or courtyard inside the house. It was precisely the peristyle used as a hortus that in time underwent a transition from a cultivated vegetable garden to a garden with a purely aesthetic function. The latter began to be embellished with ponds, fountains, flowers, fruit trees, triclinia, temples and statues in order to recreate the refined beauty of the great republican parks within the luxurious Roman residences, with the aim of delighting the owners and astonishing the spectator (Settis 2008).

The emergence of garden-themed painting, while not attributable to the Roman period, certainly finds vigour in this period from the pleasure people took in linking the magnificence of these outdoor areas with the interior of dwellings. The transposition of the luxuriant vegetation from the outdoor environment to the interior rooms was also used to dilate the space and boundaries dictated by the walls, creating an illusory perspective of pristine reality. These evocatively painted rooms were often used as triclinium, a convivial place used to entertain guests so that they could enjoy the beauty of nature and its intrinsic *locus amoenus*, even in adverse weather conditions or during the harshest periods. Starting in the second half of the 1st century B.C. in Rome, with the advent of the empire, the borders began to expand with the consequent dislocation of political and social areas; the Esquiline area attracted more attention from buyers and it was in this area that the *Horti Maecenatis* were built. In the Roman taste and fashion of the imperial age, the ornamental garden was designed in such a way that the architectural and natural components were in continuous dialogue with each other. The study of the type of plant species most suitable for one's *horti* is described in various treatises of the time: among the best known are those of Virgil, Varro and Pliny the Elder, who also describes in painstaking detail the practice of the *ars topiaria*. This 'fashion' also aroused the interest of Emperor Augustus, who believed that owning a green plot of land around Rome guaranteed full control over the city, its accesses and aqueducts. It was precisely this close relationship between the *horti* and the water component that created an indissoluble

link between environments such as the *nymphaeum* and private baths with garden-themed depictions. Indeed, water played a fundamental role in the Roman domus, representing the strength and power of the owners, which was also enhanced by the natural-themed background of the painted garden.

Within the third style of Pompeian wall painting, 25-35 A.D., the garden painting genre finds its place. It developed mainly in this context thanks to the use of illusory characters that help the viewer define the spatial depth typical of the previous style (80 BC - end of 1st century BC). The second style, in fact, had extensively used and experimented with decoration by means of architectural elements such as friezes, mouldings, cornices that were often made of stucco to further render the idea of the third dimension through the *trompe l'œil* technique.

However, the study of paintings with garden motifs is not so easy to interpret due to the scarce presence of documents and their fragmentary nature; only within the Archaeological Park of Pompeii, and in the specific case of the Villa of Livia at Prima Porta, do we encounter insights of greater magnitude despite the fact that this is a subject confined to a very limited territory and of a specific nature. Already within the Second Style, plant shoots begin to be inserted, either with a purely ornamental function or subordinate to architectural elements, an emblematic example being the frescoes of the House of the Farnesina from the 1st century BC. In this case, vine shoots are inserted within the slender architectural frames as an ornamental motif in the form of a vividly coloured garland that produces a remarkable contrast with the black background of the room; plant references are also present in the vertical decorative elements such as the cups that punctuate the composition and support human figures.



Figure 1. Fragments of the frescoes of triclinic C, details of the plant inserts with ornamental function, Villa della Farnesina, Museo di Palazzo Massimo alle Terme, Rome. (Photographs by the author).

Pine and ivy shoots, oak and vine garlands begin to play an increasingly central role in the composition until they occupy entire frames or, as in the case of the frescoes of the Villa of Livia at Prima Porta, become the main subject of representation. In this emblematic case,

pristine vegetation covers the entire portion of the walls, from the plinth to the impost of the vault, as if to delude the spectator into thinking he is in the middle of the countryside. This genre was so popular that it continued to be fashionable in the Fourth Pompeian style and during the post-Pompeian period, especially in the Roman area (Salvadori 2017).



Figure 2. Garden-themed frescoes from the Villa of Livia at Prima Porta in Rome, Museo di Palazzo Massimo alle Terme, Rome. (Photographs by the author).

Methodology

Villa di Livia a prima Porta and Auditorium Maecenatis on the Esquiline: differences and similarities

Comparing the different fragments of garden paintings that have come down to us today, several compositional variants can be identified; these may concern the portions of the wall in which the paintings are placed, which may involve precise frames or entire portions of the wall; the main subject depicted such as trees, flowers, bushes etc.; the colour of the background, from more naturalistic ones such as blue or light blue to more contrasting ones such as black, yellow or red; the presence or absence of furniture, which in turn can be more or less luxurious, and finally the representation or absence of small fauna. It was decided to carry out a geometric, representational and iconographic comparison between the garden-themed paintings of the nymphaeum of the Villa of Livia and those of the *Maecenatis Auditorium*. The choice of these case studies was dictated by different reasons: the location in the Roman area, the similar historical period, the close relationships between the owners and the intended use of the two buildings of a private nature used mostly for *otium*.

Livia's villa was a villa located in the Roman countryside of Prima Porta, close to the strategic commercial crossroads between the Via Flaminia and the Via Tiberina. This complex, which belonged to Livia Drusilla Claudia, can be dated to the beginning of the 1st century A.D. and was brought back to prominence thanks to the discovery in 1863 of the garden paintings in the underground *nymphaeum* and the statue of *Augustus Loricus*.

The *Maecenati Auditorium*, on the other hand, was an entire architectural building used as a *nymphaeum* within the architectural complex of the villa located in the *Horti Maecenatis* on the Esquiline Hill, today a central area of Rome but at the time considered an area of expansion on the periphery of the political-social area. It can be dated to around the end of the 1st century BC (probably 30 BC) and belonged to Gaius Cilnius Maecenas; it was rediscovered with the archaeological excavation campaign of 1874 that covered the entire area of the hill.

The first consideration concerns the relationship between Livia and Maecenas, who should be considered acquaintances, if not friends; Maecenas, in fact, was a trusted advisor and minister of culture within the imperial policy of Augustus, Livia's husband. Writings from the period also report that the two frequented each other's homes as they were linked by a relationship of rank, friendship and power; it is therefore possible to assert that both had visited each other's residences, perhaps influencing each other and exchanging advice on painting genres and labour

Urbanistically, the two complexes are located outside the political, cultural and social centre of the city of Rome and were built for purely leisure purposes by the two owners. In both, in fact, one senses that atmosphere of tranquillity and peace typical of the *otium* that was customary for personalities of a high social rank. If Livia's villa was located on a hill surrounded by the Roman countryside, Maecenas's auditorium was also located on a hill, but in a reclaimed suburban area on which the private gardens known as the *Horti Maecenatis* were built. In the former the surrounding nature is spontaneous and unspoilt, while in the latter the vegetation around it is the result of human intervention; this circumstance may perhaps have influenced the specific decorative wall interventions in the two dwellings. Livia's villa covered an area of approximately fourteen thousand square metres but, most probably, the limits of the property in which it was located, including the remains of other residences in the Prima Porta district, make it difficult to determine its true dimensions precisely. The *Horti Maecenatis* also extended over a considerable area and included the area of the ancient Porta Esquilina up to the Servian wall.



Figure 3a. Messineo Gaetano (2004) *La Villa di Livia a Prima Porta*. In: *New Series. Itineraries of the museums, galleries, excavations and monuments of Italy*. N. 69. Istituto poligrafico e zecca dello Stato, Rome.

Figure 3b. *Horti Maecenatis in the area of the Pighini vineyard (detail from FUR, pl. 23 by R. Lanciani).*

Going down to the architectural scale, the spaces that are affected by the garden paintings are in both cases two rooms that were probably used as *nymphaeum* or *trilcinium*, i.e. places that were often provided with basins and plants in which banquets and moments of *otium* could be enjoyed.

In Livia's villa the room was located below the ground floor of the dwelling, in a room that was damp, and without windows except for the probable skylight located in one of the lunettes on the short side of the room (Messineo 2001). This rectangular room, measuring 5.90x11.70m, was covered by a barrel vault and had no architectural interruptions such as columns or elements placed in the centre; access was through an arched opening in the middle of one of the two long sides of the room.

The Auditorium, on the other hand, appeared as a building detached from the rest of the villa and developed in a semi-basement manner in relation to it. It was designed with a rectangular shape, measuring 24.10x10.60m, which was accessed through a door on one of the short sides. On the opposite side of the entrance, the room had an apse from which a staircase of seven narrow concentric steps developed, possibly recalling the semicircular architectural form of the Roman theatre. The long sides respectively housed 6 niches of discrete depth, located slightly less than a metre over the floor, above which was the frescoed portion of the wall, which ran along all the walls, in which, once the apse was encountered, another 5 niches of more modest height and depth than those on the ground floor were located.



Figure 4a. Archaeological site of the nymphaeum room of the Villa of Livia at Prima Porta, Rome. (Photograph by the author)

Figure 4b. Archaeological site inside the Maecenatis Auditorium in Rome (Photograph retrieved from <https://romainfinita.com/auditorium-de-mecenas/> accessed on 18th of September 2023).

It should be noted that the comparative analysis of the two representations is carried out on a precise portion of the original wall paintings of the Villa of Livia, now in the Roman National Museum of Palazzo Massimo alle Terme in Rome, and on the 19th-century drawings of the painted representations of the Auditorium of Maecenas, made in 1874 during the archaeological excavations conducted by Rodolfo Lanciani, as the

paintings were in an advanced state of decay.

Analysing and comparing the Livia and Maecenas frescoes, the first macro difference can be found in the location and conservation of the paintings themselves; in fact, the former are in an excellent state of preservation and have been built at full height from the floor up to the impost of the vaulted ceiling of the room without interruption; while the second one, on the other hand, are very degraded and fragmentary and have the plant component only within the upper and lower niches of which only a few small traces remain.



Figure 5a. Portion of wall painting on one of the two short sides of the Villa di Livia at Prima Porta, Rome. (Photograph by the author)

Figure 5b. Portion of wall painting in the niche of the Maecenatis Auditorium in Rome (Photograph retrieved from <https://romainfinita.com/auditorium-de-mecenas/> consulted on 18th of September 2023).

What is noticeable is that in both depictions the garden is painted almost on a 1:1 scale and between them the representations are of similar size despite being in two different architectural spaces. Perceptually, this different positioning of the painting makes the two depictions seemingly of dissimilar proportions; in Livia's villa, in fact, the continuous garden, which runs uninterruptedly along all the walls, engages the viewer, who appears to be in a place of open countryside; on the contrary, in the *Auditorium*, the positioning of the garden painting within the niches means that the viewer is presented with nature as if looking out of the window. This choice may perhaps be dictated by the natural environment that actually surrounded the two buildings. Livia's villa was immersed in the open countryside and from the rooms, located above ground level, it was possible to enjoy a three hundred and sixty degree view of the wilderness, something that was not possible in the underground *nymphaeum*; one may therefore venture that this continuous representation was dictated not only by a purely aesthetic taste, but also perhaps to recall the connection of this room with those located above. The *Auditorium*, on the other hand, was located within a park with carefully planned gardens, both from a planimetric point

of view and in terms of the choice of flora; this artificiality, and control over nature, may have influenced the choice of the positioning of the paintings by placing them only within the niches, which appear to overlook the man-made exterior, as also betrayed by the presence of small fountains with basins.

In Roman wall painting, it was usual to divide the wall by horizontally scanning the area into three bands: plinth, body and crowning. This clear-cut scansion would seem to be repeated in the four Roman styles and in the different epochs perhaps because it was useful in the realisation of the decorations in distinct horizontal “*pontata*” (Pappalardo 2009). This practice can also be found in the garden paintings that have come down to us; in the two cases taken as an example, in fact, the pictorial subject can be divided into three parts with a horizontal geometric organisation; from bottom to top one encounters: the plinth band, identifiable with the area occupied by the fences; the central band occupied by the dense vegetation and the foreground plant element; and finally the crowning, which houses the background and some small fauna.

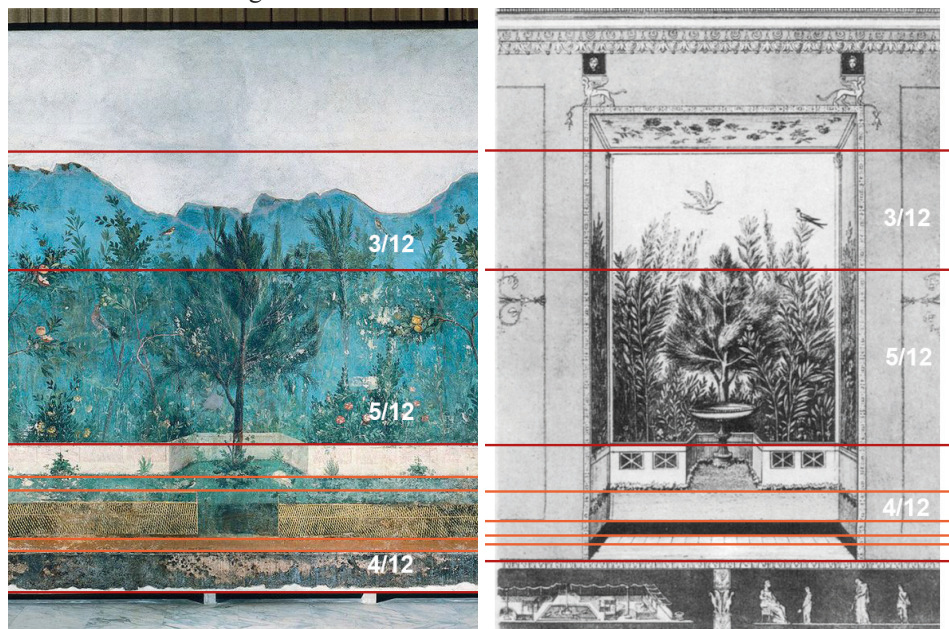


Figure 6a. Study of the compositional bands of the wall painting of the Villa of Livia at Prima Porta, Rome. (Author's elaboration)

Figure 6b. Study of the compositional bands of the wall painting of the Maecenas Auditorium in Rome (Author's elaboration).

Analysing the plinth band of the frescoes, it can be observed that it occupies about 4/12 of the entire composition in both cases. In Livia's frescoes it is divided with two solid bands above which a first lattice fence is set, separating the theoretical boundary between the living space and the first garden, kept as a lawn, which extends until it meets a second solid fence. In the frescoes of Maecenas, the plinth, excluding the portion painted outside the niche, has three bands that would seem to symbolise three thresholds: the first is light-coloured, the middle emulates a kind of regular paving and the third is dark-coloured; above these, as in the previous case, a lawn garden extends until it meets the solid fence. In both, there is therefore a recurring turf that makes the transition between

the living unit and the spontaneous vegetation gradual; this turf in the case of Livia's villa is green in colour and has elements that animate it, making it more truthful, according to the author, such as the growth of small spontaneous shrubs, a few tufts of grass and some birds intent on pecking; In the *Auditorium*, on the other hand, the turf, represented with a yellow ochre colouring, is rigorous and has no spontaneous elements except for the continuous and rigid growth of blades of grass close to the solid fence, easily visible in the 19th-century drawing and less clearly in the remaining fragments. Another similarity can be seen in the solid fence, which in both cases is represented with a light colour and a geometric chiselling in the "*guise of a gate*" that marks the rhythm; in the Prima Porta frescoes the geometric rhythm is also present in the exedra and foreshortened portions, while in the Esquiline frescoes the geometric motif is represented only in the portion parallel to the viewer, leaving the solid masonry in the portions concerning the exedra and foreshortened portions. The dimensions of the exedra for clear perceptual and proportional reasons has a different depth and size in the two depictions; wider and more airy it is in fact in Livia's villa, as it is placed on an entire wall; more foreshortened and reduced it is instead in the Auditorium to better fit the space within the architectural niche.

The vegetation that forms the backdrop to the band defined as the body of the wall painting, which occupies approximately 5/12 of the composition, is in both cases depicted in a very meticulous manner and with the expedient of diminishing the details as the vegetation moves away from the viewer's eyes; this technique is clearly visible in Livia's *nymphaeum* somewhat less so in Maecenas', due to the poor state of conservation of the paintings. The practice of gradual blurring of details gives a sense of depth to the wall painting and at the same time enlivens it through the moving representation of leaves. In Livia's villa, the small shrubs are the elements that graft themselves directly onto the fence and their apparently haphazard representation gives the composition a sense of spontaneity; the background composed of trees of different species (fruit trees, evergreens, deciduous, etc.) is also rather dense, leaving no room for splashes of sky. There are no small shrubs in the *Auditorium*, but the background vegetation is mostly made up of trees and bushes of a larger size and smaller variety than those in Livia; here too, the flora is depicted as slightly agitated by the wind, which, unlike in the other painting, allows portions of the sky to be glimpsed between the foliage.

The main subject in the two wall paintings is clearly the tree, in both of which the species of domestic pine is depicted, a variety that was already very common at the time as it was present in the Mediterranean maquis; furthermore, it had a rather complex symbolic meaning in Hellenic-Roman mythology linked, according to Ovid, to the myth of generation. In Livia's villa the pine is the undisputed protagonist, it is depicted in the centre of the exedra inside the fence, thus making it still part of the flora controlled by man; in the *Auditorium* the pine is instead still in the middle of the composition, but this time it shares the scene with an elaborate fountain with a basin that reaches up to halfway up the trunk; the latter, in fact, is depicted in the foreground inside the exedra, while the pine is positioned outside the fence. The first difference that can therefore be noted is that while in Livia's villa, despite having an untamed and rather spontaneous nature, the tree in the composition is still represented in the portion defined as domestic, one may consider that, perhaps, this expedient creates a more gradual connection between what is man-made and what is untamed. In the *nymphaeum* of Maecenas, on the other hand, there is a clear division between what is domestic and what is outdoors, the fountain placed in

the centre of the exedra within the enclosure creates a clear boundary between the man-made turf and the untamed outdoor vegetation.

The band defined as the crowning occupies approximately 3/12 of the composition; in both cases the tops of the trees slightly bent by the wind are represented. The scene is further enlivened by the presence of birds that are represented in flight or perched on the branches. The sky is an intense blue colour, typical of a clear day that leaves no room for clouds. The decorative score at the end of the composition is quite different between the two case studies; in Livia's villa it sees the depiction of a band of more or less constant height with a stalactite motif; while in the *Auditorium* it is delineated by a frame, with an apparently geometric pattern, created around the void of the architectural niche.

Conclusion

The wall paintings of the Villa of Livia and the Auditorium of Maecenas are part of the garden painting genre, codified in the 2nd-3rd Pompeian style, which was particularly in vogue during the late 1st century BC and the beginning of the following century in the Roman area among the most prominent personalities of the imperial era. The paintings show remarkable similarities on an iconographic and geometric level while differing in quality, proportions, spatial placement and level of detail. Such similarities and differences may be dictated by several factors, such as the relationship between the two owners, the influence of the tastes of the time and the craftsmen employed.

In the Roman fashion of the imperial age, the ornamental garden, or *horti* more generally, were designed so that architecture and nature would be in continuous dialogue with each other; thanks to treatises of the time, evidence has come down to us of studies on the type of flora, its arrangement, its medical or aesthetic uses, and the study of the correct design of the *horti* themselves in relation to the architecture. It is therefore not surprising that people chose to have wall paintings with garden motifs inside their dwellings; the idea arose, perhaps, not only out of a mere aesthetic taste to decorate the interior, especially the *nymphaeums*, but perhaps also to emphasise a certain intellectual taste typical of the Roman patrician class.



Figure 7. Detail of the pomegranate tree in the wall painting of the Villa of Livia at Prima Porta, Rome. (Photograph by the author)

Usually Roman garden paintings were decorated on a 1:1 scale, often inserted within architectural frames, as in the case of Maecenas, or occupying portions of a wall, the hypothesis of occupying the entire wall was only found in the villa of Livia. The vegetation appears spontaneous, but analysing the two case studies the spontaneity is not as random as it seems. In Livia's case, in fact, the refinement and infinite minuteness of the details makes the composition unique of its kind. In the Auditorium, on the other hand, perhaps due to a lesser accuracy of detail, the spontaneity of the vegetation appears more rigid and less random, thus betraying the idea of unspoilt nature. In any case, both depictions are of particular cultural value and refined aesthetic taste, conveying a precise artistic genre of which only a few fragments remain.

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Lawrence Halprin: the signs of movement in landscape design

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Abstract

Representing the evolution, displacement, and dynamism of a body within an architectural project has always piqued the interest of numerous landscape masters, to the extent that it drives them to dedicate studies, books, experiments, and sketches, all with the aim of shaping, through the stroke on paper, a faithful manifestation of their kinetic vision. Everything stems from the intrinsic relationship between body and project, between man and landscape, between function and form. Every designed space claims its occupancy, its physicality: here, bodies, be they human, plant, or animal, move, collide, encounter. *Bodies move or reside in certain places; bodies cannot do without places.* [...] (Remotti, 1993, p. 31).

Abstract

Rappresentare l'evoluzione, lo spostamento e il dinamismo di un corpo all'interno di un progetto architettonico ha da sempre catturato l'interesse di numerosi maestri del paesaggio, al punto da spingerli a dedicare studi, libri, sperimentazioni e bozzetti, con l'obiettivo di plasmare, attraverso il tratto sulla carta, una fedele manifestazione della loro visione cinetica. Tutto nasce dalla relazione intrinseca tra corpo e progetto, tra uomo e paesaggio, tra funzione e forma. Ogni spazio progettato rivendica una sua occupazione, una sua fisicità: qui, i corpi, sia umani che vegetali o animali si muovono, si scontrano, si incontrano. *I corpi si muovono o risiedono in certi luoghi; i corpi non possono fare a meno dei luoghi.* [...] (Remotti, 1993, p. 31).



Figure 1. *Piazza san Marco in Venice, the flight of pigeons creates movement in the city, 1972. Sketch by L. Halprin (Halprin, 1972 p.210).*

Introduction

In the 1940s, Lawrence Halprin, together with his wife Anna Schuman, began to explore body movement through drawing, recognizing the crucial role that movement plays in space. After they moved to New York in 1941 on a fellowship in urban planning and landscape at Harvard University, Halprin and his wife began attending art and design classes taught by the Bauhaus masters in exile. (Aguilar Alejandro, 2020). Until then, Halprin had approached artistic disciplines as separate fields, but this experience revolutionized his approach, internalizing it as an integrated discipline with different branches of a unified matrix that complement and interconnect with each other.

From this emerged the fusion of dance and architecture, narrated and experimented within the Experiments in the Environment workshops. These were conducted in the summers of 1966 and 1968, in collaboration with his wife Anna and Paul Baum. They spanned twenty-four days of collective creative process carried out in diverse landscapes such as the urban center of San Francisco, the Kentfield forest, and the untamed beach of Sea Ranch. During these month-long workshops, young creatives from a wide range of disciplines including dance, architecture, psychology, urban and environmental planning took part in a unique experience. The central aim was to explore the quality and significance of relationships between humans and nature through cutting-edge experimental methodologies. Lessons and activities took place outdoors, physically engaging participants with the landscape under analysis. This direct and collective experience helped develop techniques and processes that Lawrence Halprin

would later apply in his landscape architecture projects.

To map and organize the workshop days, detailed tables were conceived, each dedicated to a specific day and enriched with annotations regarding participants and activities. As we will see later on, for every diagram created, Halprin devised scores specific annotations that aided the designer in rationalizing sequences of activities and facilitating the pre-programming of participant actions. The days involved a series of sequential and progressive events, never overlapping so that students could participate together in the same activities (Fig.2).

[illegible]

Figure 2. *Scheme Calendar, 1969. Sketch by L. Halprin (Halprin, 1969 p.51).*

Halprin's scheme functioned as a calendar, enriched by the specific duration of each individual event and the identification of locations where activities took place. The creation of cards also allowed for a comprehensive overview of the schedule. Events organized in this manner could be easily examined before, during, and after their execution, ensuring a continuous flow of feedback. The interplay between activities and groups of people thus appeared simple yet profound (Halprin, 1969). In his 1963 publication *Cities*, Halprin recounts the necessity of finding new forms of representation for landscape design, deeming the existing systems of conceptualization and symbolization as limited. The challenge lay in moving beyond the representation of static objects.

“As we have developed techniques to show buildings and objects and delineate the spaces bounded by them, we design by means of architectural symbols, projected by conventional methods, on paper. We use the plan and elevation, isometric projection and sometimes a model. But all these accepted systems of architectural language describe only the fixed environment, the structures and spaces they enclose.” (Halprin, 1973)

For Halprin, the real challenge was not just representing movement but designing it:

“Because movement and the complex interrelationships it generates are an essential part of a city’s life, urban design should have the choice to start with movement as the core, essential

element of the plan. Only after planning for movement and expressing it graphically should one design the environment, an envelope within which movement takes place.” (Halprin, 1973)

Metodology

Among the earliest significant influences on the representation of movement emerges that of Rudolf Laban, an Austro-Hungarian choreographer and dancer who in 1928 theorized a graphic system for body movements called Labanotation. This system made it possible to record in symbolic and detailed form the movements of the human body in space and time.

The Labanotation diagram consists of two parallel vertical bands where the three vertical lines symbolize the human body, the vertical columns then are used to map the different parts of the body. Labanotation also uses a series of symbols, lines, and graphs to represent body actions, joint movements, and spatial relationships; each diagram has its own symbol legend for easy reading. This system allows choreography to be documented in detail, facilitating faithful reproduction of movements in different situations and contexts. In this way, sequences of movements are graphed in a linear fashion, allowing the order and interconnectedness of movements to be visualized.

Analysis of similar experiences internationally, combined with close collaboration with his wife Anna, who had always been committed to exploring innovative methodologies that fused art, architecture, and dance, enabled Halprin to develop a range of approaches to the representation of movement. The structured organization of these experiences through scores (scores) was the foundation of what Halprin called Motation. Indeed, as with Labanotation, in the systems Halprin created, movements were represented with specific symbols within horizontal sections, and in turn the specific location of the symbols within the horizontal section indicated the direction of movement in space. Each pattern was useful for recording sequences of movements in a linear fashion, allowing the order and interconnectedness of movements to be visualized (Fig.3). As a result, Motations can be defined as diagrammatic representations of movement at a specific place and time. Similar to musical scores, Motations choreographed the movement of elements in urban parks, plazas and cultural centers.

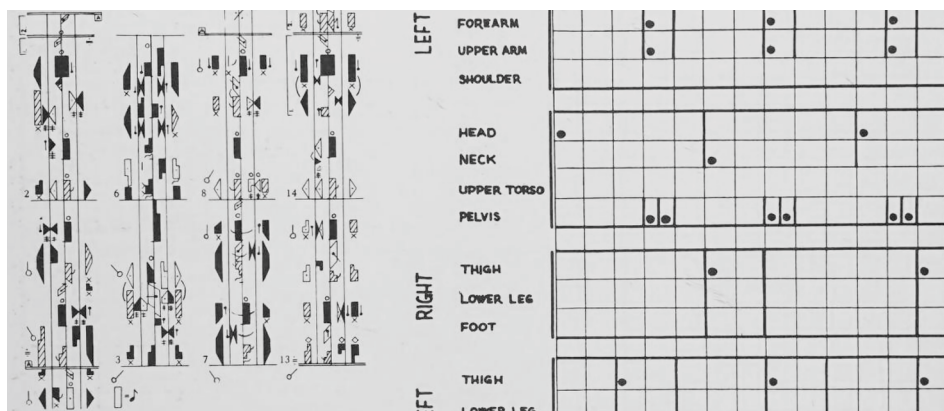


Figure 3. Scheme Calendar, 1969. Sketch by L. Halprin (Halprin, 1969 p.51).

Halprin diligently documented with sketches, drawings and detailed annotations

his constant search for new ways to represent and interpret the landscape. These experiences were regularly transcribed into books, providing a rich source of learning and thoughtfulness. To name a few, *Cities* published in 1963, *New York New York* in 1968, *The RSVP Cycles: Creative Processes in the Human Environment* in 1969 (Burns, 1982). Within these texts we find some examples of movement representation ranging from large landscapes, public gardens to the meticulous design of water features. In *The RSVP Cycles: Creative Processes in the Human Environment*, Halprin tells of his method of choreographing movement:

"I saw the scores as a way to describe all these processes in all the arts, to make the process visible and then to design with the process through the scores. I also saw scores as a way to communicate these processes across time and space to other people, in other places and at other times, and as a vehicle to allow many people to enter into the act of creation together, allowing for participation, feedback and communication."

To get to the heart of these new forms of representing we will discuss some typologies detected within his texts. The first example to mention is found in *Cities* where within chapter *Choreography* we find a double-page diagram where the architect recounts his elaborate method of mapping movement.

The movement notation diagram, at first glance is reminiscent of a sheet of music, but dwelling carefully on the various sections, Halprin's graphing tells of different dimensions and ways of representing movement (Fig.4).

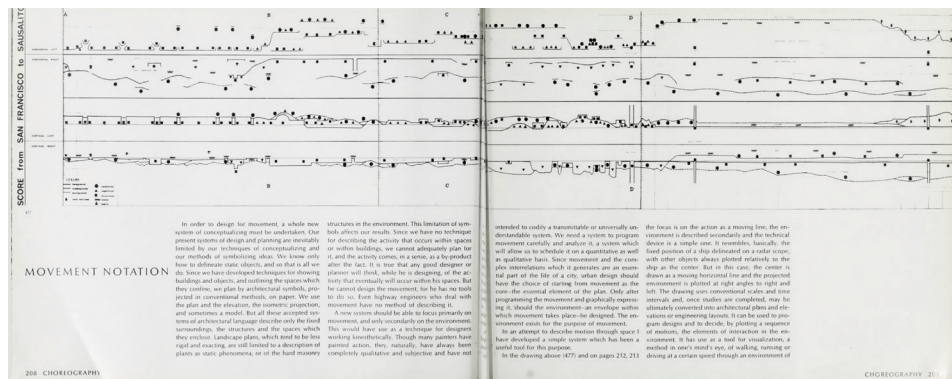


Figure 4. Movement notation scheme. Sketch by L. Halprin (Halprin, 1972 pp.208-209).

The elements that make up this pattern are lines and symbols. The legend on the lower left shows the individual items divided between structuring elements such as structures, vegetation, water, terrain conformation (symbols) and the planes of the horizon (lines).

All diagrams must have certain unavoidable reference measurements: travel time (seconds) and distances traveled (expressed in feet). Beginning this hypothetical journey in the left side of the sheet, as the first element we find a segmented vertical line that identifies the distance between elements (Fig.5). The first section at the top should be read as a plot of movement in the plan, where the observer is positioned on the horizontal center line. Halprin describes this pattern as a naval radar, where the ship (the observer) is the center of the pattern around which landscape elements are mapped, changing apparent position based on the observer's movement.

The second section shows the same layout seen as a perspective view, with the observer always positioned in the center line and in succession the elements that follow one another along the path.

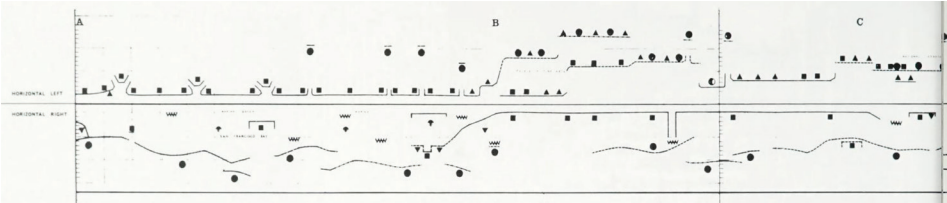


Figure 5. Movement notation scheme zoom 1. Sketch by L. Halprin (Halprin, 1972 pp.208-209).

Unlike the first tracing here the modulation of heights is emphasized (Fig.6). A second depiction of movement, this time focusing on the creation of the fountain for the Seattle Center made with sculptor Jacques Overhoff, is found in *The RSVP Cycles: Creative Processes in the Human Environment* (pp. 54-57). In this case there are several diagrams used to structure the movement and programming of water features. At the top left we find a floor plan followed at the bottom by the legend of symbols that will later be shown in the different transects. The first band at the top is the union of all movements, while the next three are the different levels (central jet, ring, outer ring).

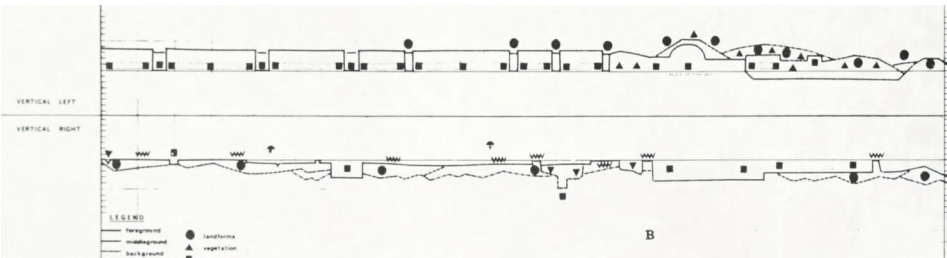


Figure 6. Movement notation scheme zoom 2. Sketch by L. Halprin (Halprin, 1972 pp.208-209).

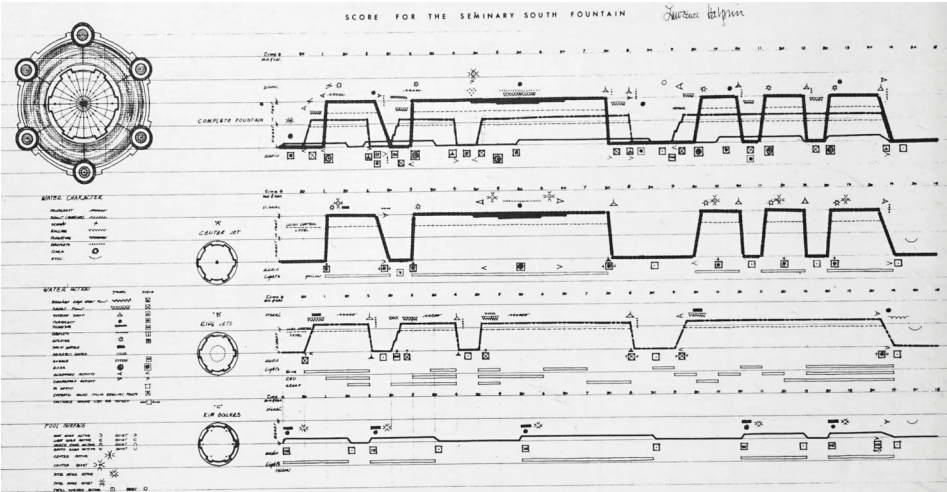


Figure 7. Fountain movement scheme. Sketch by L. Halprin (Halprin, 1969 p.54).

All the transects show the successions of materials, sounds, lighting, and water jets

that follow one another in the time interval established at the top for each scheme (Fig.7). Here Halprin attempts to design a multisensory experience through predetermined sequences, thus having more control over the overall choreography of the work.

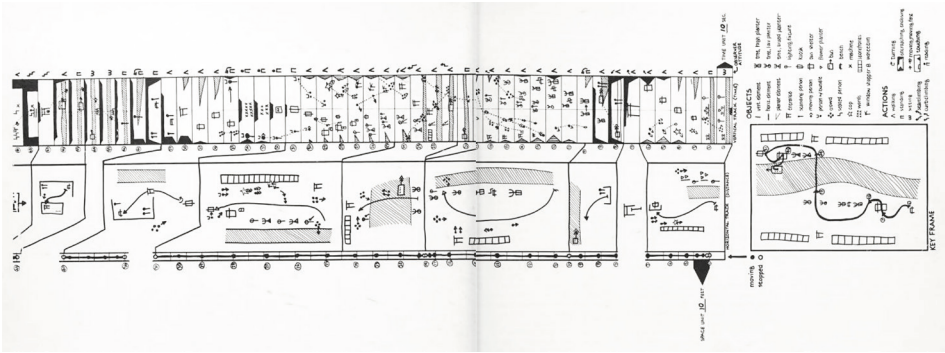


Figure 8. Motation study. Sketch by L. Halprin (Halprin, 1969 pp.68-69).

A final example is the diagram made for Motation Study - Nicolett Mall Between 6th and 7th STS. To simplify its reading, this motation should be read by rotating the sheet 90 degrees to the right. The first element to look at in order to understand the succession of motions is the summary map of the layout (key frame) with a legend on the side with all the elements that will be encountered along the way. Above the map begins the breakdown of movements organized by zoom (Fig.8).

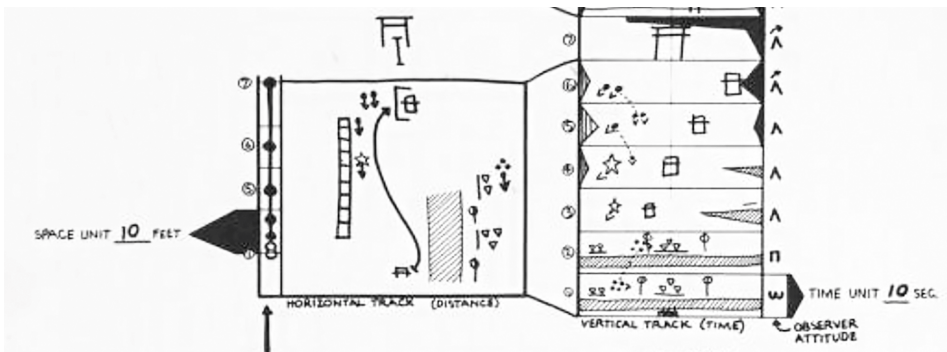


Figure 9. Motation study zoom. Sketch by L. Halprin (Halprin, 1969 pp.68-69).

Starting from the first frame (the path starts from the bottom), on the left side (Fig.9), we find a segmented line in intervals of 10 feet that indicates the distance and unit of measurement. Immediately to the right, there is a more detailed floor plan of the key frame, summarizing the elements encountered. As the last element on the right side, the sequence of elements is presented, with a 10-second interval, referred to as the vertical track. These are perspective views that distribute the walk as if they were frames.

For Halprin, the real challenge was not so much to represent movement per se but to harmoniously design the interaction between landscape and people by creating a true choreography of movement. In the same years that Halprin was experimenting with this new approach to representation, several practitioners approached design that included movement, such as Kevin Lynch, Gordon Cullen, and Philip Thiel (Wasserman 2012) and Bernard Tschumi.

Like Halprin, Tschumi also developed different strategies to represent the complexity

and interaction of his projects with society. To do so he used the combination of different perspectives, photographs, diagrams again organized in bands that required the viewer to constantly change his point of view. Through his elaborations he established that form was generated by use, involving activity, movement and events that might occur within a given project. For Tschumi, architecture was also opening up to elaborate new languages of representation, and within *The Manhattan Transcripts* he attached great importance to the kinaesthetic experience of architecture (Charitonidou, 2020). that might occur within a given project. For Tschumi, architecture was also opening up to elaborate new languages of representation, and within *The Manhattan Transcripts* he attached great importance to the kinaesthetic experience of architecture (Fig.10) (Charitonidou, 2020).

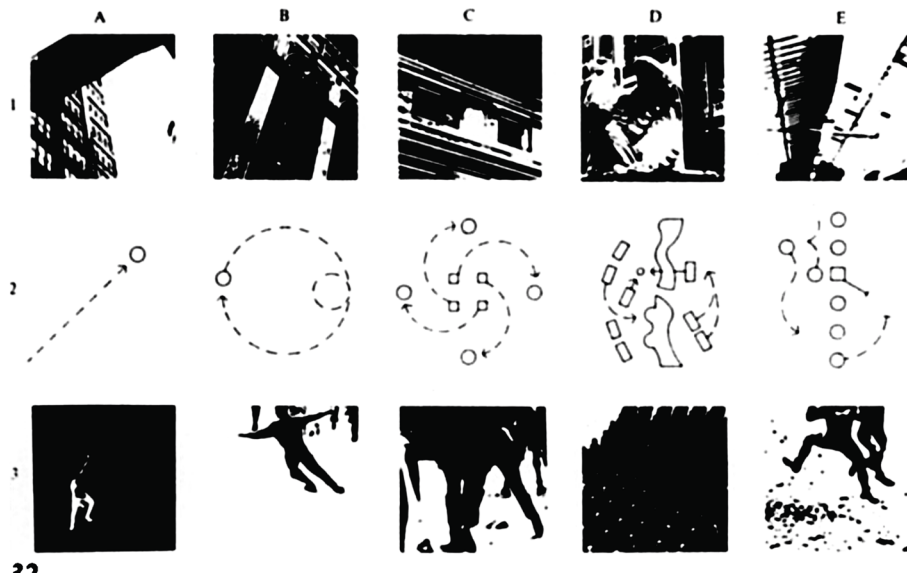


Figure 10. *Scheme of movement. By Tschumi, 1994. p. 73.*

Conclusion

Both Bernard Tschumi and Lawrence Halprin have used scores as a tool that offers them a way of interpreting space, both perceived and created, but not as a universal language to be adopted by standard procedures. Both recognized the crucial importance of their studies on the use of these new methods of representation in shaping their work. Tschumi stated that projects such as La Villette and Le Fresnoy could not have existed without these methods included in the graphic documentation (Aguilar Alejandro, 2020). This consideration also applies to Lawrence Halprin, whose work on movement in Anna's studies is treated with equal importance to the architectural projects within his monographs. This underscores how much this element helped define their creative practice. In conclusion, it clearly emerges that the representation of movement is not merely a matter of visual aesthetics, but rather a fundamental approach to designing spaces that accommodate, interact with, and adapt to human and environmental dynamics.

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**Generative-identity city.
AI experiments for a generative identity of the
contemporary city**

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Abstract

The article aims to investigate the generative method for visual communication of the contemporary city as a means capable of expressing concepts of complexity and dynamism, that characterize this context. In fact, the city, as is well known, especially in its contemporaneity, is characterized by a layered, complex, and dynamic identity. So, in the perspective of wanting to bring out such aspects -often latent in most identity projects for cities- we want to investigate the generative theme as a resource and as an opportunity to adopt an alternative and more conscious gaze toward the narrative of place identity.

An initial aspect to be considered, which is particularly complex, is the process of generative image formation, investigating text-to-image AI systems which function through description to generate images in ways that are always novel. With a view to using these systems to design the visual identity of a city, it seems interesting to experiment with some representations through already trained programs available on web platforms. Through the experimentation of some programs, the results obtained denote a sufficient understanding of the terms submitted by the various artificial intelligences, although in a consistent manner; however, the need to build a studied database on the specific place emerges. The experimentation was done on the city of Genova, an emblematic case because of its territorial conformation, between sea and mountains and urban complexity.

Abstract

L'articolo si propone come indagine sul metodo generativo per la comunicazione visiva della città contemporanea come mezzo capace di esprimere i concetti di complessità e dinamicità che caratterizzano questo contesto. La città, infatti, come è noto, soprattutto nella sua contemporaneità, è caratterizzata da un'identità stratificata, complessa e dinamica. Nella prospettiva di voler far emergere tali aspetti - spesso latenti nella maggior parte dei progetti identitari per le città – si vuole quindi indagare sul tema generativo come risorsa e

come opportunità per adottare uno sguardo alternativo e più consapevole verso la narrazione dell'identità dei luoghi.

Un primo aspetto da considerare, particolarmente complesso, è il processo di formazione dell'immagine generativa, sperimentando i sistemi di AI text-to-image che lavorano attraverso un testo descrittivo per generare immagini in modo sempre nuovo. Nell'ottica di utilizzare questi sistemi per progettare l'identità visiva di una città, sembra interessante sperimentare alcune rappresentazioni attraverso programmi già addestrati disponibili su piattaforme web. Attraverso la sperimentazione di alcuni programmi, i risultati ottenuti denotano una sufficiente comprensione dei termini presentati dalle varie intelligenze artificiali, anche se a volte in modo poco coerente; tuttavia, emerge la necessità di costruire un database studiato sul luogo da rappresentare. La sperimentazione è stata fatta sulla città di Genova, caso emblematico per la sua conformazione territoriale, tra mare e monti e complessità urbana.

Introduction

Increasingly, there is a growing demand from agencies and administrations to restore a digital face to the city to assert its identity and culture. However, on the design level, it remains complex to express its identity through visual communication, considering its complexity and dynamism, so much so that indeed from communication projects emerges a difficulty in expressing the complexity of the place (Sinni, 2018). Therefore, an exploration is proposed on design processes that can contribute to a different look at the topic, responding to the need to consider a broadening of gaze on an inclusive representation of complexity, instead of being overly simplifying and sometimes reductive (Anholt, 2013).

The generative process, in this sense, corresponds to the idea of an evolving identity, constantly updating, capable of producing multiple representations of place in an identifying but always different way. Taking advantage of recent technologies to initiate a conscious and appropriate design process with respect to the complexity of the city theme would seem to be an interesting goal, certainly to be explored. The concept of “dynamic identity” -understood as the flexibility of the sign in communicating a certain theme (Felsing, 2010)- would become even more profound, becoming an identity that is released from premeditated signs, always free and variable. Obviously, with respect to a generative content there must be a consistent visual code, allowing for a recognizability and homogeneity of language, becoming the constant of a particular visual identity communication of a place.

As a first exploratory step, some of the most popular generative programs of the “text-to-image” type available on the web were asked to generate images by asking to represent a specific city according to a certain point of view. The results are interesting but imprecise and offer an opportunity for reflection on the topic for further development toward more conscious and goal-centered design.

Methodology

This investigation consists of testing the behavior of generative programs with respect to the request to generate images belonging to a given context and telling it with respect to a specific theme. Specifically, the programs Adobe Firefly, Microsoft Bing, and Dall-e were chosen to be used. The experimentation is geared toward exploring how words are interpreted to make images using three generative programs already trained and available on the web to have a

comparison. The texts entered to trigger a certain type of image were chosen according to three objectives: the interpretation of abstract terms such as “identity” and “atmosphere,” the ability to adopt a certain point of view, and the interpretation of a connotative adjective.

The first prompt “the identity of Genova” is geared toward researching the interpretation of the term “identity” itself. The word “identity”, normally associated with the values of stability, coherence, and unity (Remotti, 2010), is a particularly labile concept when it comes to representation, especially if the meaning to be portrayed is a place. The results were particularly interesting, each having interpreted a different meaning of the word “identity”.

In fig.1 the images generated seem to refer to the generation of a logo, the signs are in fact particularly abstract and try to allude to a bizarre symbolism about the city. What appears interesting is precisely the clear intention to reproduce a logo, probably this is due to the database of images and the obvious association of the term “identity” with the construction of an identity brand. Equally interesting is the case of the images in fig.2, where the term “identity” is evidently connected to the concept of “individual” or even better “personification”, through the generation of representations of half-length men-unclear entities, simulating artistic works, some somewhat distressing-overhanging the city that becomes a background landscape.



Figures 1,2. “Identity of Genova”, images generated by the author with Adobe Firefly, 2023; “Identity of Genova”, images generated by the author with Microsoft Bing, 2023.

In Fig. 3, on the other hand, it is unclear whether the program really intended the term “identity” or ignored it, considering instead the place-determining noun “Genova”. These results give pause, being that each artificial intelligence interpreted the concept of identity differently, figuratively. It was then required to adopt a specific viewpoint of the city: “Genova as seen from the sea.” In this case, the viewpoint was respected by all generative programs (figs.4,5,6). This reveals an important detail, the possibility of understanding the location in space and being able to represent it. From the perspective of representational genre, of course each program generated its own version of Genova, from the city perched on the hills with a particularly romantic atmosphere to the chaotic, contemporary city.

The third prompt is exploration on the theme of detail, proposing to generate “modern Genova”. The adjective was interpreted again and again in different ways; again, there seem to be different influences depending on the source database of the images or the interpretation of the word itself.



Figure 3. “Identity of Genova”, images generated by the author with Dall-e, 2023.



Figure 4.5. “Genova as seen from the sea”, images generated by the author with Adobe Firefly, 2023; “Genova as seen from the sea”, images generated by the author with Microsoft Bing, 2023.

In the first case (fig.7) the city strangely becomes a backdrop at dusk, perhaps as an opportunity to show it during illuminations, as a sign of contemporaneity. There is also no shortage of detail elements that are not traceable to the location, such as the curious obelisk towering in the middle of the city or the dizzying skyscrapers.



Figure 6. “Genova as seen from the sea”, images generated by the author with Dall-e, 2023.

This is even more evident in Fig. 8, where the cityscape is deeply removed from the chosen city and almost seems to depict a scenario of a utopian megalopolis. Perhaps the program wants to respond to the term “modern” before the context, it remains interesting that nonetheless it recognized the concept of modern by declining it on the theme “city”, expressing it in futuristic architectures.



Figures 7,8. “Modern Genova”, images generated by the author with Adobe Firefly, 2023; “Modern Genova”, images generated by the author with Microsoft Bing, 2023.

Perhaps closer to reality, but more confusing, is the result in Fig. 9 where the city almost seems to be swallowed up by the infrastructure and if you look closely, it appears like an apocalyptic scenery.



Figure 9. “Modern Genova”, images generated by the author with Dall-e, 2023.

Finally, seeking a result like the concept of “identity” but much more abstract, they were asked to “describe the atmosphere of Genova”. Unexpectedly, compared to the request to show its identity, this time the images aim to represent the place. What is particularly interesting is that the images try to simulate a romantic, fairy-tale landscape. In this case, the verb “describe” was also added, which seems to be correctly interpreted by the programs as a visual description, thus trying to thicken characteristic areas and subjects from the perspective of vegetation, architecture, infrastructure and more. The only exception in the third image in Fig. 10, where the program tried to simulate a tourist sign, probably guided by the term suggesting a written rather than a representational form. Finally, the third program seems to interpret the atmosphere as a physical rather than abstract concept, tending to represent the sky in different colors and contrasts.

In general, in the totality of the examples produced, place recognizability in some cases can be sufficiently understood by certain attributes related to the type of buildings, vegetation, geographical conformation and color characteristics. This seems to be easier when there is not too much additional information or special features, the case of “Modern Genova” being particularly emblematic.

Of course, this survey is not meant to be an exhaustive exploration, but a starting point

from which to question the opportunities and possible difficulties of generative systems, each of which possesses different characteristics regarding the type of representation, interpretation of data, and starting database (Facchini Termine, 2022).



Figure 10, 11. “Describe the atmosphere of Genova”, images generated by the author with Adobe Firefly, 2023; “Describe the atmosphere of Genova”, images generated by the author with Microsoft Bing, 2023.

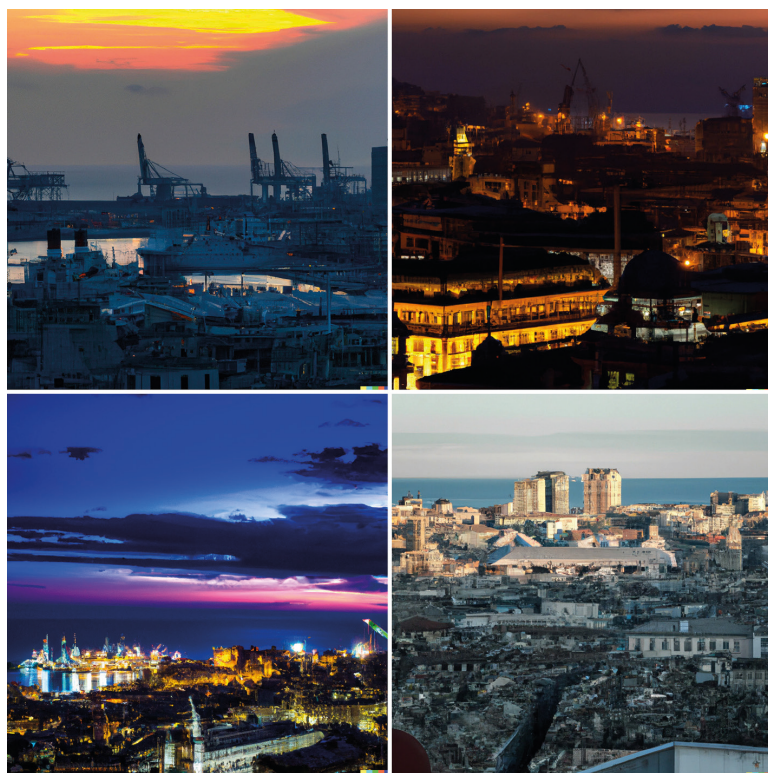


Figure 12. “Describe the atmosphere of Genova”, images generated by the author with Dall-e, 2023.

Conclusion

As one can easily guess, it is not easy to understand the logic behind which generative systems produce a certain image from a certain input. What emerges is a substantial difficulty in maintaining a representation faithful to the chosen location, leaning more toward satisfying the fit in the image on adjectives or nouns rather than on the subject by proper name. Probably the motivation is related to the database that these programs draw on, clearly not trained on a specific subject but on a multiplicity of subjects -in this case, of cities- that can emerge, though perhaps only in part, in place of the chosen place. The labels attributed to the images in the dataset, in fact, must be carefully studied and training made up of thousands of images is necessary (Porcelli, 2020). In an attempt to use generative technology as efficiently as possible, it is found interesting to try out in a subsequent experiment the possibility of using databases trained according to a specific place and for a specific identity consistent in the representational genre, thus realizing a mutable identity, characterized by a continuous and transformable narrative, conveying the representation of the city on different aspects that connote it and make it unique. Moreover, no less important is the textual aspect, keywords in fact must be effective in achieving the desired image and on this aspect, the role of “AI trainers” is increasingly decisive (Marinoni, 2022).

In the goal of harnessing generative technology, cataloging the various themes related to the city is thus a fundamental and not insignificant prerogative. It is proposed, theoretically and experimentally, to build a database related to the city in multiple aspects: architecture, nature, infrastructure, society, culture and more. The evolving representation of a visual identity belonging to a given place would thus become an expression of an articulated, complex, and fluid narrative, made of visual stories that feed the collective imagination belonging to the reference context in an authentic way.

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- G.Porcelli, “*bitmat.it*”, publication 12/03/2020 access 03/09/23 <https://www.bitmat.it/tecnologie/intelligenza-artificiale/limportanza-dei-dati-per-il-machine-learning/>

Architectural Utopia: study and virtualisation of the past of Fontivegge district in Perugia

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Abstract

This study focuses on the reconstruction of the urban image based on utopian visions, where the act of seeing is transformed into an active process which guides the perception and consequent urban design. The centrality of representational studies and the evolution of drawing science, thanks to digital technology, plays a crucial role in the research and application of new urban models. The research is focused on figurative synthesis, considering drawing as a virtual entity. These projects aim to preserve historical memory, promoting social cohesion and a sense of belonging.

In the specific context of Perugia, the present work focuses on the Fontivegge area, where a series of ephemeral utopias have followed one another, ranging from Antonio Cipolla's never realised railway station, to the urban transformation proposed by Tsuto Kimura, to Aldo Rossi's project for the current Piazza del Bacio. These projects profoundly influenced the evolution of the area, even if they remained incomplete or only theoretical. Digitalisation and the creation of virtual models make it possible to explore and better understand these past and present utopias, making accessible the memory of places that have been forgotten or that have never been realised. The aim of this interdisciplinary research intertwined with history is to reveal the multiple facets of urban utopias and the importance of digital representation in the analysis and communication of such visions.

Abstract

Il presente studio si concentra sulla ricostruzione dell'immagine urbana basata su visioni utopistiche, dove l'atto del vedere si trasforma in un processo attivo che guida la percezione e il successivo disegno urbano. La centralità degli studi rappresentativi e l'evoluzione delle scienze del disegno, grazie alla tecnologia digitale, giocano un ruolo cruciale nella ricerca e nell'applicazione di nuovi modelli urbani. La ricerca si concentra sulla sintesi figurativa, considerando il disegno come un'entità virtuale. Questi progetti mirano a preservare la

memoria storica, promuovendo la coesione sociale e il senso di appartenenza.

Nel contesto specifico di Perugia, il presente lavoro si sofferma sull'area di Fontivegge, dove si sono susseguite una serie di utopie effimere, che vanno dalla stazione ferroviaria mai realizzata di Antonio Cipolla alla trasformazione urbana proposta da Tsuto Kimura per passare al progetto di Aldo Rossi per l'attuale Piazza del Bacio. Questi progetti hanno influenzato profondamente l'evoluzione dell'area, seppur rimanendo incompleti o solo teorici. La digitalizzazione e la creazione di modelli virtuali consentono di esplorare e comprendere meglio queste utopie passate e presenti, rendendo accessibile la memoria di luoghi dimenticati o mai realizzati. Lo scopo di questa ricerca interdisciplinare intrecciata con la storia è quello di rivelare le molteplici sfaccettature delle utopie urbane e l'importanza della rappresentazione digitale nell'analisi e nella comunicazione di tali visioni.

Introduction

The term *utopia* comes from the greek οὐ «not» e τόπος «place»; therefore, it means «place that does not exist». In the architectural context, the meaning is multifaceted and has been shaped by social, cultural, and historical contexts. It is not just an ideal place, but also an activity, a process, and a source of inspiration for imagining alternative futures⁽¹⁾.

This research addresses the issue of the reconstruction of the image of the city⁽²⁾, based on utopian visions, with the action of seeing emerging in its status as an active process, in which the action of identifying for the self-identification structures the perception and thus the subsequent design phase⁽³⁾. In this context, the centrality of representational studies as a meeting place and methodological tools for analysis and synthesis is defined. Drawing sciences, renewed by the transversal propulsion of the digital, are taking on a new role for research and new application horizons in recent years⁽⁴⁾.

If today it is possible to represent any shape⁽⁵⁾, then the morphological analysis inherent on the graphic definition of the shape allows for the inclusion of multiple data in its construction, which create a such a high number of possible combinations that the human mind could not manage or optimize.

Therefore, through the representation of utopia new models are created with the aim of integrate different information hitherto forgotten, and to propose processual dynamics that are analysed into the virtual simulation. The virtual model represents the synthesis that today can no longer be delegated, according to a path that can also assume the form of progressive and deferred deepening typical of the digital interoperability⁽⁶⁾, and which is strengthened by the performance of new devices, increasingly capable of replicate realistic images⁽⁷⁾. The analysis is then expressed in the synthesis defined by the images, by that language capable of responding to the complexities of an habitat characterized by multiple languages and

(1) A. Pleshivtsev, T. Pakunova, Formation and development of technotopia as a concept of the figurative and stylistic direction of innovative architectural activity, in "E3S Web of Conferences", 2021.

(2) K. Lynch, *The image of the city*, MIT Press, 1960.

(3) M. Filippucci, Dalla forma urbana all'immagine della città. Percezione e figurazione all'origine dello spazio costruito, in "Linee di Ricerca nell'area del Disegno. Contributo delle tesi di dottorato in mostra", p. 205–206, Aracne, 2013.

(4) R. Migliari, *La Geometria Descrittiva e il suo rinnovamento*, Gangemi, Roma, 2012.

(5) M. Filippucci, F. Bianconi, E. Bettolini, M. Meschini, *Visual Perception Analysis for Landscape Evaluation. An experimental case*, Campello Sul Clitunno, in "De_Sign Environment Landscape City", p. 113, 2018.

(6) F. Bianconi, *Segni digitali*, Morlacchi, Perugia 2005.

(7) R. Salerno, *Vecchi e nuovi dispositivi di realtà virtuale: percepire il paesaggio tra immaginazione e progetto*, in F. Bianconi, M. Filippucci Ed. "Il prossimo paesaggio. Realtà, rappresentazione, progetto", p. 33–38, Gangemi, 2018.

cultures⁽⁸⁾. We live in a visual culture that pervades our society, which in such proliferation loses the inbuilt value and cognitive power of their vitality⁽⁹⁾, an invasion that determines a “new regime of fiction” that can “afflict the hodiern social life, contaminating and penetrating it to the point of making us doubt of it, of its reality, of its meaning and of the categories (identity, otherness) that constitute and define it”⁽¹⁰⁾.

This condition spills over into the urban space, which cannot avoid projecting the inherent identity dimension in the very definition of places. However, in the etymological root of the word, which is connected to the action of “seeing” (idein), images reveal themselves to be purely tied to ideas, tools of the figurative sphere to order and imperfectly represent the experience, correlating it to a topological simplification, because the intelligible meaning of “seeing” is mistaken for the sensible one.

The research theme proposed below will consist of how to enhance the city by studying utopias, and thus how to do the same in images⁽¹¹⁾ in the space conquered by the inherent interpretation of seeing (thoreo) in its statutory link with theoria; the information generates knowledge, a pathos that is connected to an aesthesis due to its iconic form, “which indicates and is indicated by the absence”⁽¹²⁾, and which deepens the knowledge of the city itself through digital instruments⁽¹³⁾.

The underlying representational theme focuses on the figurative synthesis, which is inherent in the processing of images, must be understood as a virtual drawing⁽¹⁴⁾, and that is exactly in this cultural context that utopias fit in. The projects which are presented in this research seek first and foremost to promote the historical memory⁽¹⁵⁾ by trying to instill in the population a sense of knowledge and belonging to the place, thus mending the relationship between people and territory. Similarly, utopia in architecture can be defined as a philosophical exploit that raises profound questions about human nature, society, beauty and functionality. It challenges us to imagine how we could live in a better way, and it invites us to explore new horizons of thought and creativity through the architectural drawing.

However, it remains a complex and elusive concept, which forces us to those confront the ambiguities and challenges associated with the idea of perfection in the built environment.

Historical Utopia

In the realization of the space transformation, it appears necessary to investigate the meanings⁽¹⁶⁾ that leads the urban regeneration, by searching for them in ephemeral utopias and looking for an operational surplus value of culture. Those studies are aimed at seeking

(8) A. Pinotti, A. Somaini, C. Elcograf, *Cultura visuale: immagini sguardi media dispositivi*, Einaudi, 2016.

(9) J. J. Wunenburger, R. Castoldi, *La vita delle immagini*, Mimesis, 2007.

(10) M. Augé, A. Soldati, *La guerra dei sogni. Esercizi di etno-fiction*, Elèuthera, Milano, 2016.

(11) W. J. T. Mitchell, *The Language of images*, University of Chicago Press, Chicago, 1980.

(12) L. Marin, L. Corrain, *Della rappresentazione*, Meltemi, 2001, p. 21.

(13) C. Battini, R. Vecchiattini, *Immagini hdr per la documentazione tridimensionale dei manufatti storici*. In R. Salerno (Ed.), in “Rappresentazione/Materiale/Immateriale. 40° convegno internazionale dei docenti delle discipline della rappresentazione”, p. 311-318, Gangemi, Milano, 2018.

(14) F. Bianconi, M. Filippucci, S. Andreani, *Il valore del segno: la valorizzazione dei beni rurali sparsi nel territorio di Castiglione del Lago*, in *Le vie dei mercanti: S.A.V.E. Heritage : Safeguard of Architectural, Visual, Environmental Heritage*, La Scuola di Pitagora, Napoli, 2011.

(15) J. Pallasmaa, *Identity, intimacy and domicile. Notes on the phenomenology of home*, *Finish Architectural Review*, p. 1-16, 1994.

(16) C. Jencks, G. Baird, *Meaning in architecture*. Barrie & Rockliff the Cresset P., 1969.

a sense of place identity⁽¹⁷⁾, promoting social cohesion⁽¹⁸⁾ and a sense of belonging⁽¹⁹⁾. For this reason, the research focus on understanding the historical and cultural roots of the place itself⁽²⁰⁾, with the intention of recognizing and preserving its original authenticity⁽²¹⁾.

The examined study case concerns the area of Perugia Fontivegge, which is peripheral to the city walls, but at the same time covers a central role for the city's mobility. Recently this area has been affected by the "Extraordinary Programme of Intervention for Urban Regeneration and Security of the Suburbs", a National Urban Recovery Programme⁽²²⁾ project proposal born from the support of the University of Perugia⁽²³⁾.

Studying the historical evolution of the area, starting from the first project for the train station, the initial design hypothesis drawn up by the architect Antonio Cipolla can be identified as an ephemeral utopia that has never been realised. It was a project without a fully complete definition but rich in meaning, which aimed to represent the importance of the city also in the railway field. Nevertheless, following the historical events the city lost its role as a railway crossroads, and thus lead to the replacement of the project with a smaller and standardized one.

In the following years, this area of Perugia was strongly influenced by the presence of one of the greatest industrial realities on the national and international scene, the Perugina, which within a few years managed to establish itself as a new gravitational and identity pole for the entire city. However, when the problem of a serious lack of space arose at the end of the 1950s⁽²⁴⁾, the executive department opted to purchase new land in an area outside the urban fabric of Perugia, and this gradually led to the abandonment of the historical factory. The insistent search for a utopian future led, at first, to the publication of an International Architecture Competition, which was won by Tsuto Kimura⁽²⁵⁾, whose project was never fully realised, and then to the demolition of the establishment, starting from 1983, in favour of the construction of the new management centre designed by Aldo Rossi.

This new layout of the area, however, has increasingly asserted itself as a contradictory place, which has never managed to fulfil the expectations for which it was conceived, also generating a utopian vision of the past, almost in contradiction to the future spirit that led to the disappearance of a place so strongly characterising and identifying for the entire city.

(17) F. Bianconi, M. Filippucci, *Digital Draw Connections. Representing Complexity and Contradiction in Landscape*, Springer, Cham, 2021; J. Pallasmaa, *Identity, intimacy and domicile. Notes on the phenomenology of home*, *Finish Architectural Review*, p. 1–16, 1994.

(18) J. Scholz, A. N. Smith, *Augmented reality: Designing immersive experiences that maximize consumer engagement*, in "Business Horizons", n. 59(2), p. 149–161, 2016.

(19) J. Francis, B. Giles-Corti, L. Wood, M. Knuiman, *Creating sense of community: The role of public space*, in "Journal of Environmental Psychology", n. 4(32), p. 401–409, 2012; J. Kim, R. Kaplan, *Physical and Psychological Factors in Sense of Community*, in "Environment and Behavior", n. 36(3), p. 313–340, 2004.

(20) C. Norberg-Schulz, *Genius Loci. Towards a phenomenology of architecture*, Rizzoli, New York, 1980.

(21) F. Purini, *Landscapes and the Concepts of Landscape*, in "Lecture Notes in Civil Engineering", n. 107, p. 111–132, Springer Science and Business Media Deutschland, GmbH, 2021.

(22) R. Piano, *Renzo Piano: rammendo e rigenerazione urbana per il nuovo rinascimento*, *Ingenio*, 2015.

(23) F. Bianconi, M. Filippucci, *Rappresentazione, percezione, progetto. Il ruolo dell'Università per Perugia città smart*, in "Rappresentazione Materiale/Immateriale - Drawing as (in) Tangible", p. 37–48, Gangemi, Milano, 2018; F. Bianconi, M. Filippucci, G. Pelliccia, *Lineamenta, Maggioli, Santarcangelo di Romagna*, 2020.

(24) F. Chiapparino, R. Covino, *La fabbrica di Perugia. Perugia 1907-2007*, Nuova Prhomos, Città di Castello 2018.

(25) Archivio Industrie Buitoni Perugia. Concorso internazionale di Fontivegge (A11).

Utopia of Fontivegge station



Figure 1. Mook-up image of the first design hypothesis of the station designed by Antonio Cipolla.

During the second half of the 19th century, the transformation and design of railway tracks was a powerful element in the modernisation and transformation of the territory⁽²⁶⁾. The railway modernisation policy was adopted following the creation of the nation-state with the aim of connecting Italy's major urban settlements⁽²⁷⁾. This process gave rise to utopian projects focused on the connection of the peninsula and, in most of them, Umbria was the crossroads of railway⁽²⁸⁾. Perugia, the central city of the region, was identified as the epicentre of the infrastructure in the first design hypotheses of 1845⁽²⁹⁾ and 1856⁽³⁰⁾, the fulcrum of the transversal connection between the two seas⁽²⁹⁾. However, due to a favourable orography and geographical position, the city of Foligno stole this central role from Perugia, and the railway route arrived in the Umbrian capital only in 1866⁽³⁰⁾. These historical facts are essential to understand the reasons behind the evolution of subsequent projects over the time. As a direct consequence, the first design hypothesis, which was characterised by the high quality and utopian dimensions and was developed under the papacy in 1851 by the Architect Antonio Cipolla, was never realised⁽³¹⁾.



Figure 2. Digital representation of Antonio Cipolla's first utopian station, set in its current context.

(26) C. L. V. Meeks, *The Railroad Station: An Architectural History*, Yale Historical Publications, New Haven, 1956.

(27) V. Guadagno, *Ferrovia ed economia nell'Ottocento post-unitario*, Edizioni CAFE, 1996; C. N. Pyrgidis, *Railway Transportation Systems: Design, Construction and Operation*, CRC press, 2016.

(28) P. M. Buttarò, R. Covino, *Le ferrovie in Umbria: realizzazioni e progetti*. In "La città di Foligno e gli insediamenti ferroviari", p. 14–36, Electa/Editori Umbri Associati, Città di Castello, 1989.

(29) A. Perdonnet, C. Polonceau, *Portafoglio dell'ingegnere delle strade ferrate*, Cellini, Parigi, 1846.

(30) A. Cioci, *Ferrovie in Umbria*, Kronion Libri, Bastia Umbra, 1990; S. De Cenzo, *La centralità mancata: la questione ferroviaria in Umbria, 1845-1927*, Crace, Narni 2004.

(31) P. Portoghesi, *Antonio Cipolla architetto del Risorgimento*, Gangemi, Roma, 2012.

Following the standardisation of the technical apparatus and the centralised design of infrastructures, this ephemeral utopia was replaced with a more anonymous place, more linked to serial typologies⁽³²⁾. The new project of the station retains some elements of the original idea, which remains the genesis of the urban space and architecture of this pole. Antonio Cipolla's original drawings are today kept and conserved at the Academy of San Luca in Rome, and they are composed by a floorplan and two elevations, realised with a mixed technique of ink and watercolours. In the margins are reported the date of realisation and a graphic scale, which was an essential detail for reproducing the project in its exact dimensions. All the archival architectural representations preserved were analysed, with the aim of developing an accurate historical and typological study, and particular attention was paid to the other train stations realised by Cipolla, which were used as terms of comparison⁽³³⁾.

The first utopian project was part of a city that aimed to become one of the greatest Italian railway nodes, the meeting point between the country's longitudinal and transversal railway lines, with ample space for staff and citizens, a monumental building designed for an enormous flow of travellers. The original design boards were scanned and digitally reproduced. During this study phase some design indeterminacies emerged, such as the reconstruction of the railway tunnel and the railway-side elevation, and this led to archival studies aimed to produce a digital copy of the building, faithful to the original⁽³⁴⁾.

This reconstruction is aimed at visualising the design in virtual reality, allowing a clear reading of the space. In this way, an attempt is made to communicate the reasons that led to the shape of the current state of the neighbourhood, setting historical memory and cultural heritage as a basis for dialogue⁽³⁵⁾, interaction⁽³⁶⁾ and active connection between place and citizens⁽³⁷⁾.

Utopia of Perugia factory

Although its historical memory is now partially lost, the Fontivegge area played a significant role in Perugia's urban development during the 20th century. In fact, starting from 1914, the area in front of the Perugia Fontivegge train station witnessed the birth and

(32) P. D'Agostino, *Stazioni ferroviarie. Riflessioni tra disegno e progetto*, Maggioli Editore, Milano, 2013.

(33) P. Chabat, *Bâtiments de chemins de fer : embarcadères, plans de gares, stations, abris, maisons de garde, remises de locomotives, halles à marchandises, remises de voitures, ateliers, réservoirs, etc.* A. Morel, Paris, 1862.

(34) S. Fadda, *Costruzione ed esercizio delle strade ferrate e delle tramvie*, Unione tipografico-editrice torinese, Torino, 1915; C. L. V. Meeks, *The Railroad Station: An Architectural History*, Yale Historical Publications, New Haven, 1956.

(35) A. Appadurai, *Modernity at large: cultural dimensions of globalization*, University of Minnesota Press, Minneapolis, 1996; S. Kuliga, J. Charlton, H. F. Rohaidi, L. Q. Q. Isaac, C. Hoelscher, M. Joos, *Developing a Replication of a Wayfinding Study: From a Large-Scale Real Building to a Virtual Reality Simulation*, in "Lecture Notes in Computer Science (Including Subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)", p. 126–142, 2020.

(36) B. Bach, M. Cordeil, U. Engelke, *Interaction Design. Prototyping for Immersive Analytics*, in "Extended Abstracts of the 2019 CHI Conference on Human Factors in Computing Systems", W21, 2019; P. H. Gobster, J. I. Nassauer, T. C. Daniel, G. Fry, *The shared landscape: What does aesthetics have to do with ecology?*, in "Landscape Ecology", n. 22, Issue 7, p. 959–972, 2007; D. Gračanin, *Immersion versus embodiment: Embodied cognition for immersive analytics in mixed reality environments*, in "Lecture Notes in Computer Science (Including Subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)", p. 355–368, 2018.

(37) R. P. Adler, J. Goggin, *What Do We Mean By "Civic Engagement"?*, in "Journal of Transformative Education", n. 3, p. 236–253, Sage Publications, Thousand Oaks, 2005; M. A. Rosenman, G. Smith, M. L. Maher, L. Ding, D. Marchant, *Multidisciplinary collaborative design in virtual environments*, in "Automation in Construction", n. 16(1), p. 37–44, 2007; M. K. Sang, S. C. Won, G. J. Yong, *Usability Principles for Augmented Reality Applications in a Smartphone Environment*, in "International Journal of Human-Computer Interaction", n. 29, p. 501–515, 2013.



Figure 3. Detail from the digital model of Perugina's factory in Fontivegge district.

development of the historic Perugina factory⁽³⁸⁾.

The company, whose origins date back to the early 20th century, moved from the historical centre to this area due to the need for larger space. For the entire century, its presence contributed to spreading the city's fame throughout the world and was so strong that it constituted the gravitational centre of the subsequent expansions of the urban fabric. Run by the Buitoni and Spagnoli families, Perugina was an identitarian place for the city and its inhabitants, establishing itself as an institution thanks to its innovative and avant-garde management. Today, the memory of that place has almost completely vanished, as if its history had dissolved with the demolition of 1983⁽³⁹⁾, to be overwritten by the construction of the new business centre. To bring the memory of the complex back to light a philological study of the plant was carried out, which, intertwined with the company's choices and historical information, made it possible to reconstruct the different configurations of the area that have followed one another over the years, understanding the reasons behind them. The Fontivegge factory was made up of structures designed with great attention to details: the first buildings were conceived by Giovanni Buitoni himself in collaboration with engineer Marco Picconi⁽⁴⁰⁾, and were a great example of industrial buildings in which every element, from the facades to the details of the handrails⁽⁴¹⁾ had been carefully studied.



Figure 4. Virtual reconstruction of the factory in 1956.

(38) G. Chiurini, F. Mancini, S. Stopponi, Perugia, Mondadori Electa, Perugia 2011.

(39) G. P. Ceserani, R. Covino, Perugina: una storia d'azienda, ingegno e passione, Silvana, Milano, 1997.

(40) L. Masia, Buitoni: la famiglia, gli uomini, le imprese, Silvana, Milano 2007.

(41) Archivio Industrie Buitoni Perugina. Dir.e Prod.Tec. b.1 , f.4.

Over the decades, the company faced both periods of great difficulty and moments of great prosperity, and for each of these it was possible to see changes in the establishment's structure. In particular, the 20th century was a succession of numerous events of great relevance for the entire world, and their impact could also be seen on the walls of the Perugia factory: the two world wars and the Great Depression of the 1930s⁽⁴²⁾ caused a collapse of many companies in the country. However, the entrepreneurial mentality with which these hard times were faced was so innovative that it not only made it possible to withstand these difficulties, but also to increase the turnover and further expand their business power⁽⁴³⁾. The production facility in Fontivegge took shape over the decades as the result of all the historical events and the resourcefulness of the families who led the company, increasingly establishing itself as a place of identity for the people of Perugia who lived there on a daily basis, also thanks to the attention paid to personnel that led the management to the decision to include services such as kindergarten, refectory and infirmary within the complex⁽⁴⁴⁾. With the intention of making the memory of that place accessible, an explorable virtual model has been created to let people know and live that non-existent place, an intangible but substantial part of genius loci of this city.

Utopia of Fontivegge residential complex

After the transfer to all Perugia's function from Fontivegge to San Sisto in 1965, the area of the former factory underwent a gradual abandonment that led it to fall into a state of decay in a relatively short period of time. The municipal administration, at the urging of Perugia itself, launched an international architectural competition called "International Competition Fontivegge – Bellocchio Business Centre", sponsored by the "Union International des Architectes", concerning an area of approximately 150.000 square metres encompassing the area of the former Perugia factory, extending towards the Case Bruciate district and then expanding southwards to encompass the entire Bellocchio area up to the Madonna Alta district⁽⁴⁵⁾.

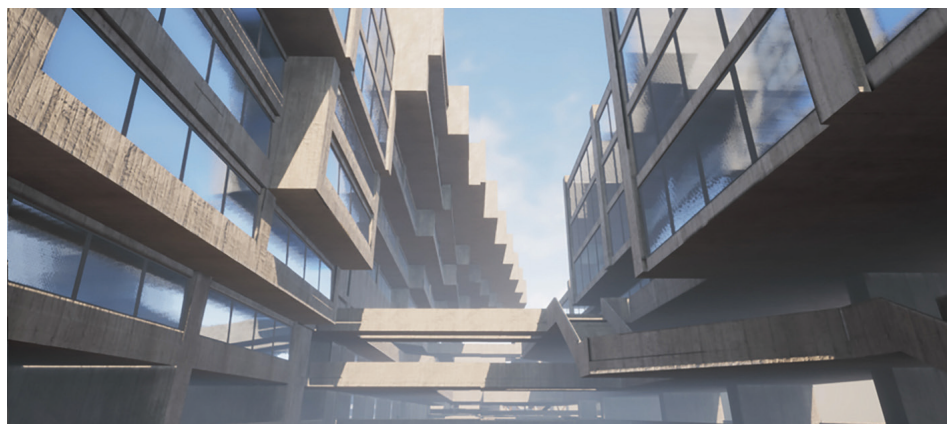


Figure 5. *Virtualization in Unreal Engine of Tsuto Kimura's project for the new Business Centre. 6.*

(42) G. P. Ceserani, R. Covino, Perugia: una storia d'azienda, ingegno e passione, Silvana, Milano, 1997.

(43) F. Chiapparino, R. Covino, La fabbrica di Perugia. Perugia 1907-2007, Nuova Prhomos, Città di Castello 2018.

(44) Archivio Industrie Buitoni Perugia. Dire Prod.Tec. b.1 , f.4.

(45) Archivio Industrie Buitoni Perugia. Concorso internazionale di Fontivegge (A11).

The size of the project area indicated by the competition suggested the great expectations that hovered over the transformation of the area and the development of the entire city, due to an estimation of an enormous urban growth for the following years⁽⁴⁶⁾. In 1971, the project presented by the Japanese architect Tsuto Kimura was proclaimed as the winner, and it embodied this utopian spirit so much that the jury stated as motivation “The main functions of the centre are gathered in a very strong architectural form that, however, is capable of supporting, during its development, a variety of interests on an appropriate scale for the surrounding environment”⁽⁴⁷⁾.

The project was initially evaluated as a balanced solution between the requirements of the programme and the construction of an imaginative space, which partly complies with the indication of the general urban development plan, foreseeing the demolition of the former Perugina factories and the buildings erected in the 1940s and 1950s in the Bellocchio area, replacing them with two new settlements to be connected by aerial, vehicular and pedestrian routes above the railway area. As reported in the chronicles of the time, however, the project was later defined as too ambitious and out of scale⁽⁴⁸⁾, thus ending up being abandoned without ever finding a true realisation, destined to remain hidden among the archival files. To make the project accessible and allow for a full understanding of the hypothesised scenario, a virtual and explorable model of it has been created, that offers the opportunity to observe and retrace the utopian vision that characterises it.

Utopia of Aldo Rossi's residencial complex

After the competition held in the 1970s, the project of Tsuto Kimura was discarded, and Aldo Rossi was commissioned as the architect for the design of the Fontivegge-Bellocchio area. His vision is based on a concept of globalisation, using historical references as motivation to create a shared architecture. This is what happens in this case too, where, in the designing of the utopian city, Rossi aims to maintain the cultural heritage of the place by choosing not to give up the presence of the chimney, representing a final reference to the Perugina factory.

Aldo Rossi's aim was to create recognisable and identifiable places; the project aims to idealise and create an alter ego for the historic city, focusing on the conceptual interaction between the acropolis and the suburbs. The central square represents both a physical and a hierarchical centrality. The residential and commercial building on via Angeloni is parallel to the office building on the opposite side. The fountain in the centre would have been a connecting element between the theatre/neighbourhood centre and the front building that serves as the main access to the square⁽⁴⁹⁾.

However, the design failed to communicate effectively and did not generate an emotional involvement in the citizenship. If architecture should be able to arouse emotions and involvement, and not just an aesthetic appeal, the outcome of Aldo Rossi's architecture, with its complexity and originality, may have lost sight of its role of creating an environment that is conducive to people's lives and maintains a shared language.

(46) R. Zuccherini, *Fabbriche in città. Percorsi di archeologia industriale a Perugia*, Era nuova, 2008.

(47) Archivio Industrie Buitoni Perugina. Concorso internazionale di Fontivegge (A11).

(48) Comune di Perugia, *Azioni Strategiche Integrate “una piazza in ogni quartiere”*, 2016.

(49) R. Zuccherini, *Fabbriche in città. Percorsi di archeologia industriale a Perugia*, Era nuova, 2008.

One of the reasons for this outcome lies in the fact that the project was not realised in its entirety, as in the case of the residential building and the theatre, which would have closed off the square on the fourth side. This decreases the use of the place, which ends with the working hours and thus losing its social function. This led to an isolation of the neighbourhood from the rest of the city, which is the exact contrary of the project's aim⁽⁵⁰⁾.

These reasons led the complex to be considered and studied as an historical utopia, resulting in a digital modelling of the project, in its complete configuration. Digitalisation allows to explore it in virtual reality, communicating the architect's true design intentions and trying to implement the user's interest in the area.



Figure 6. *Visualisation of Aldo Rossi's project in its original concept.*

Conclusion

The research study is structured as an interdisciplinary investigation deeply intertwined with historical reasons, aiming at the understanding and representation of those urban polarities whose roots are connected to ideals and visions often different from each other. By retracing the proposed case studies, which are all focused on the same geographical area, a thread is delineated that sees the area evolve profoundly over the years, articulating between utopias of places that have never been realised, that have been demolished or that have been incompletely built, in a sequence of possibilities and occasions not always understood.

Architect Antonio Cipolla's project for the Fontivegge station was born as a response to an almost futurist vision of the city, but ended up becoming a utopia that was never realised. The Perugia factory was transformed into a place of the past, overwritten in the wave of the same ideals that led, at first, to Tsuto Kimura's project, which will forever remain a pure theoretical demonstration of a vision that never materialised, and then to the partial realisation of Aldo Rossi's project, thus generating an incomplete space.

That desire for a future that turned out to be utopian led to a search for the values of the utopias of the past, and thanks to the possibilities offered by representation, today it is possible to investigate, understand and make them accessible.

In this context, digital twins can be seen not only as an opportunity to share and

⁽⁵⁰⁾ G. Chiurini, F. Mancini, S. Stopponi, Perugia, Mondadori Electa, Perugia 2011.

communicate the urban form, representing the buildings that characterised those projects, but also and above all as a tool for investigation and memory conservation, whose strength is amplified by the performance of new devices that are increasingly suited to reproducing images similar to reality⁽⁵¹⁾.

In this way, virtual models can facilitate knowledge processes focused on memory as the foundation of identity, allowing anyone to explore forgotten or never-existed places, through a gradual deepening that are made possible by digital interconnection.

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(51) R. Salerno, Vecchi e nuovi dispositivi di realtà virtuale: percepire il paesaggio tra immaginazione e progetto, in F. Bianconi, M. Filippucci Ed. "Il prossimo paesaggio. Realtà, rappresentazione, progetto", p. 33–38, Gangemi, 2018.

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The Atlas of Invented Identities
A daring itinerary between volatile identities and
deep-rooted stereotypes
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Abstract

The contribution is the incipit of a just begun research, that questions about the relation between the designed for competitive purposes identities of places and the private and collective narratives, to suggest a reflection about the impermanence, mutability and unstable balances connected to the concept of invented identity, in order to reflect on the collective and, therefore, public spaces of cities, as places in which to experience coexistence. The research intends, therefore, to propose tools for comparing the images and values of city branding and territorial marketing projects with the established narratives and experiences of individuals; from the perspective that private narratives and individual stories are – in opposition to or in harmony with official and collective history – valuable material for not eliding the complexity inherent in the processes that operate around the concept of identity. The aim of the research is to structure a space of relationships in which, according to the indications of Actor-Network Theory, it is possible to deduce the premises for small and medium-scale Urban Interaction Design projects within urban and territorial settings. The Atlas of Invented Identities constitutes a relational space, intended as the first outcome of the research: an open and participatory observatory – realized through the use of a digital platform and workshop and seminar activities – for the confrontation between the official identities of promoting places, the stories of individuals or small communities, and the narratives that come from the worlds on the sidelines of the project, such as literature, film, and art experiences. Desired outcome of the research is the establishment of project briefs that have urban areas as their place of application and coexistence as their goal.

Abstract

Il contributo è l'incipit di una ricerca, appena iniziata, che si interroga sulle relazioni tra le identità dei luoghi progettate a scopo competitivo e le narrazioni private e collettive, con l'intento di suggerire una riflessione circa la transitorietà, la mutevolezza e gli equilibri

instabili connessi al concetto di invenzione della identità, per riflettere sugli spazi collettivi e, dunque, pubblici delle città, quali luoghi in cui esperire la convivenza. La ricerca intende, dunque, proporre strumenti per confrontare le immagini e i valori dei progetti di city branding e marketing territoriale con le narrazioni consolidate e le esperienze dei singoli; nella prospettiva che le narrazioni private e le singole storie siano – in opposizione o in armonia con la storia ufficiale e collettiva – materia preziosa per non eludere la complessità propria dei processi che agiscono intorno al concetto di identità. Obiettivo della ricerca è di strutturare uno spazio di relazione in cui, secondo le indicazioni della Teoria Attore-Rete, sia possibile dedurre le premesse per progetti di Urban Interaction Design di piccola e media scala, all'interno di ambiti urbani e territoriali. L'Atlante delle identità inventate, costituisce lo spazio di relazione, inteso quale primo esito della ricerca: un osservatorio aperto e partecipativo, realizzato mediante l'impiego di una piattaforma digitale e di attività laboratoriali e seminariali, in cui sia possibile il confronto tra le identità ufficiali di promozione dei luoghi, le storie dei singoli o di piccole comunità e le narrazioni che provengono dai mondi a latere del progetto, quali la letteratura, la cinematografia e le esperienze artistiche. Esito auspicato dalla ricerca è la definizione di briefing di progetto che abbiano come campo di applicazione delle aree urbane e come obiettivo la convivenza.

Introduction

The identity of a place is a process of construction that associates and divides people and communities with respect to different gradients, ranging from feelings of belonging to feelings of foreignness, accompanied by emotions of detachment or fear, more or less coupled with curiosity and desire for knowledge. This condition determines different levels of perception of territorial identity and, consequently, different possible behaviors: from an intimate relationship with larger or smaller portions of territory, to a sense of danger and feelings of hostility and rejection for unfamiliar environments.

In this wide range of reactions – to the definition of one's own place of the heart, as well as to resistance toward what is foreign – experience participates whether this is direct or mediated, or the combination of both; in fact, identity narratives about places are co-participants of direct experiences, because the narrative practice that constructs the perception of territorial identity is in fact, at the same time, private and collective dynamic.

In this sense, images and words of those who have gone before us in the discovery and cognitive investigation of places are, inevitably, part of the experience; unless one intends voluntarily to enact an exploratory artifice and subvert the usual and established routes, circumventing the most widespread customs.

However, even in front of terra incognita, each person carries with him or her an imaginary frame of reference, composed of previous experiences, which induces one to distinguish and identify the identity connotations of a place, through comparisons, therefore, through differences and similarities. Because difference – from the idea of specificity up to the concept of unique

– is what characterizes a place or, rather, connotes its identity in relation to the identity of the people who live in it (or pass through it) and the degree of approval, sharing and knowledge of the experiences of those who have gone before us. For these reasons, the identity process of a place – as an aspiration to a meaning, therefore, to a value – is always

in formation and transmissible: alterable as much as stable; consolidated in clichés as much as predisposed to new and original narratives; certified by scholars and experts as much as ready for subversive invention, acted upon or even just thought.

In this regard, the investigation of the relationship between perception and territorial identity finds a valuable reference in Michel Foucault and the extension of his definition of heteropic places to territorial spaces of varying breadth depending on the definition of the boundaries of the field of knowledge and application that a research intends to address and in reference to the studies of anthropologist Francesco Remotti⁽¹⁾ that parallels the concept of identity as examined and proposed by Zygmunt Bauman⁽²⁾. Indeed, if Foucault identifies heteropic places as places of crossing, spaces of crisis and condensation of experience, «contestation of all other spaces»⁽³⁾, Remotti identifies relativistic transience as the outcome of a conscious selection of boundaries within which collective and individual responsibility act; just as Bauman speaks of identity as process, opposed to a predetermined image to be composed. In this sense, entrusting the compromise between personal experience and collective feeling with the construction of the identity of a place involves plurality as a necessity and impermanence as an inherent characteristic of relationships.

Instead, when the purpose is in the competitive seduction for tourism and commercial purposes, it happens that the narrative about places is deputed to construct and transmit a synthetic and comprehensible identity to a plurality of users; in these cases, communication is composed of words and images that insist on a simplification that fixes transformations at a given time and with respect to a well-defined context, as happens in the construction of brand values and images. By this route, the inherent complexity of places and territories becomes an obstacle to be circumvented, in favor of *the invention of an identity* that identifies, selectively and among multiple denotations, connotations useful for the purpose, to be articulated according to an eloquence that is collective, shared and sharable by most. In this way, specificities become clichés, characteristics are assimilated within stereotyped images that, for better or worse, are always reassuring, because are understandable and, like all stereotypes – to a large extent – also true.

Organizing information about places, by reducing through selective cuts their complexity, brings the advantage – seductive and communicative – of eliminating jarring contradictions, nuances, and gray areas, but, above all, it fixes an image as illusorily definitive, so that it, as expressive of elementary and communicable connotations, is a participant in a history made up of simplifications and contributes to the creation of *the Atlas of invented identities*; agreeing with the fact that identity is always an invention – or, rather, an illusion – as Francesco Remotti defines it, calling into question Davide Hume's Treatise on Human Nature.

To the story composed of useful narratives, aimed at distinguishing one place from another within a competitive system, belong the happenings of the city of love; the country of the sun; the coast where the sea is bluest; the terrace of music; the promenade of kisses; the island or rock of the mermaids, along with other examples found all over the world and in cultures different from each other.

(1) Cfr. Francesco Remotti, *Contro l'identità*, Laterza, Roma-Bari, 2001; Francesco Remotti, *L'ossessione identitaria*, Laterza, Roma-Bari, 2017.

(2) Cfr. Zygmunt Bauman, *Intervista sull'identità*, Laterza, Roma-Bari, 2003.

(3) Michel Foucault, *Utopie Eterotopie*, Cronopio, Napoli, 2006, p. 25.

In short, those occurrences that have been selected, among many possible, whereby a place – from small extensions up to vast territories – is interpreted and communicated because of its positioning within a competitive market, within the specific practices of territorial and/or urban marketing which places its origins, with the birth of tourism in the late nineteenth century. Referring to the volume *Selling Places*⁽⁴⁾, the vision of territories as objects of entertainment, consumption and sale overlaps with that of advertising communication from the very beginning. And, especially when referring to tourism, it is intertwined with cultural and racial stereotypes⁽⁵⁾, creating images and myths such as that of the frontier and its crossing, understood as the possibility of conquering *the Garden State of the (far) West*, as proposed by the Illinois Central Railroad in 1860, with an advertisement communicating the sale of «1,200,000 acres of rich farming lands»⁽⁶⁾. In fact, the articulation of the identity project regarding places is related to the first actions aimed at attracting inhabitants to the far West of the United States of America; in 1840 the first stable connections between Europe and North America were established – thus opening the beginning of immigration to that country – in the same years the first railroads were built linking the east coast to the innermost part of the United States; these two events were decisive for the construction of images and imagery referring to these places to be triggered. The need was to steer immigration toward inland states that had invested capital in building infrastructure; «in 1845 the state of Michigan employed resources in an immigration office in New York and later began a promotional campaign both in the east of the country and directly in Germany, the state of Wisconsin began a similar campaign in 1852, and in the following years other states followed suit»⁽⁷⁾.

This, in the still following years, turned into a business activity related to real estate sales that involved the same railroad operating companies and culminated in the last decades of the nineteenth century. These business transactions defined not

only the rents but also the vocation of places, setting the terms for strong competitiveness; to the point that communications began to differentiate and specify more and more the characteristics of individual states or cities. In fact, from communications that concerned the availability of agricultural land, there moved to commercial communications that emphasized the wholesomeness of places, the possibility of acquiring along with land also a quality of life, exhibited as better. In this regard, Stephen V. Ward relates the selling of places to the process of *conceptualization*, as a practice of abstraction and simplification peculiar to business customs and urban policies, whereby the use of local resources – which also include elements of high cultural quality – becomes a device for economic promotion; to this definition Ward associates Babbit, the protagonist of Sinclair Lewis's 1922 novel, as an example of the average man's life that is constrained to efficiency and poised between socially shared customs, conformity, racist separation and the intimate needs to escape from it all. In this sense, conceptualization as the excess of efficient and dangerous simplification – a description echoed in Francesco Remotti's texts – produces images and imaginaries of cities and territories that are fit for sale. These are images that alter – emphasizing or minimizing – the codes of physical, social and cultural contexts; they are advertising vehicles that starting from the essence of places instruct a

(4) Stephen V. Ward, *Selling Places. The Marketing and Promotion of Towns and Cities 1850-2000*, Spon Press, London-New York 1998.

(5) Cfr. W.M. O' Barr, *Culture and the Ad: Exploring Otherness in the World of Advertising*, Boulder, Westview, 1994

(6) Stephen V. Ward, op. cit., p. 14.

(7) Idem, p. 11.

sentence of them, in a narrative structured according to the needs of branding processes. By this route, have been invented narratives, in which places become seductive attractors of investment, capital, and tourism, while declaring their uniqueness by difference, but mostly by subtraction of complexity and authenticity.

For example, an advertisement in which Miss Dakota⁽⁸⁾ offering free housing is from 1860; from 1887 is a map where the city of Wichita is described as the pride of Kansas, the mecca of men, the commercial marvel, the world's best-publicized city, the eighth wonder, the new Chicago, the favorite city, the city of destiny, the Jerusalem of the West, and still the magical mascot.

These examples are forerunners of local identity projects, whereby New York is a place to lose your mind, a city to love with the vertigo of falling in love⁽⁹⁾; Turin is *always on the move*, ready for change as fruit of collaboration between citizens and institutions; Atlanta, which mimics Martin Luther King, is the place for celebrate a dream⁽¹⁰⁾; and, again, there are: Manchester declaring *this is the life*, while Glasgow reaffirms its vitality by smiling; or Boston which, in 1990, was the Massachusetts Miracle, along with Amsterdam which is each of its inhabitants when it says IAMsterdam.

Examples that belong to a much broader and more articulated group of contents, values, identifying signs, images-imaginaries that proceed by assertions, thus as manifestations that determine and communicate at the same time, even when it comes to projects that embrace the possibility of declining identifying signs in the name of a contemporary concept of fluidity, as is the case for the city of Porto, for the brand of Melbourne that changes texture, or for that of Bologna, or even for the city branding project of Helsinki, the result of a co-design with the inhabitants. These are all projects of great interest from the point of view of communication design, but, in each case, the outcome of a simplification, implicit in brand design, which is a design process based on the inescapable certainty of identity as a value; although it is clear to many designers that identity is the outcome of a design process and not an existing datum in itself.

But, if selling is not the only purpose and this is accompanied by the goals of a knowledge process related to a place or territory, a space for discussion becomes useful, and it is even more necessary when the ambitious goal of coexistence of public spaces is part of a reflection on the complexity of places and the very meaning of coexistence. In this reversal of perspective, the cultural and social advantage of the practitioner is a determining factor; in fact, the symbolic correspondence between a place and its images crystallizes in the representation of a part, of a detail – whether a panorama, a monument or a concept as real as mythological – the notoriety of a place and induces error. Because high is the risk of stumbling into stereotyping, in the identification of a part for the whole, according to a process of reduction and exclusion. But the greater risk is not that the Colosseum stands for all the city of Rome, in an imagery in which the Statue of Liberty, the Eiffel Tower, or the Bay of Naples participate; the greater risk – as explained by Francesco Remotti – is that of the overpowering and exclusion of groups and people. With respect to this premise, it becomes necessary to propose confrontational tools to interrogate the relationships between competitively designed place identities and private narratives, with the intention of suggesting a reflection about the transience, mutability and

(8) Idem, p. 18.

(9) I ♥ N.Y. it's a Milton Glaser project, 1976; after the 9/11 il restyling: I ♥ N.Y. more than ever, with a burned heart.

(10) Stephen V. Ward, op. cit., 1998, p. 229.

unstable balances related to the concept of identity invention, to reflect on the collective and, therefore, public spaces of cities as places in which to experience coexistence.

The *Atlas of Invented Identities* is a mapping of commonplaces, of designed identities in a competitive system; it is an attempt to articulate the outcomes of a research project that questions the relationships between customary, iterated and collectively shared narratives and the perception of public places, when designed identity is confronted with individual stories, with the experience of individuals or small communities. The intent is to listen to and provide a space for confrontation with narratives that derive from direct experience, experienced in different ways and by different subjects from each other. It is about the possibility of understanding, from time to time, the role and effectiveness of the simplifying stereotype with respect to De Certau's practice of use⁽¹¹⁾ and Bruno Latour's Actor-Network Theory⁽¹²⁾.

Methodology

Referring to what Bruno Latour writes about Actor-Network Theory, the processes useful and/or necessary in tracing relationships and associations highlights the desirability of not referring to type groups, as «there is no relevant group that, it can be said, constitutes social aggregates» and «no predetermined component that can be adopted as an incontrovertible starting point»⁽¹³⁾. In this sense, the adherence to the use of an infra-language that he proposes as a solution so that all actors involved in a process have an equal chance of expression/understanding and the preparation of an actor-network diagram adaptable to changes are the methodological premises for structuring the *Atlas of Invented Identities*. In defining geographic scopes, at the beginning of the research, the question was whether to start from the delimitation of an already existing territory – city, town, coast, island – or to amalgamate different territories according to the thematisms proper to identity narratives; that is, according to the construction of a list of places that corresponded to the connotations already identified and expressed by communicative systems. But, since the *Atlas of Invented Identities* cannot exist without a strong counterpoint – whether it proceeds according to a straight, parallel, contrary or oblique motion, just as it does in musical compositions – it was necessary to structure the articulation of the research by including cases of experimentation and verification, project workshops that could easily manage the involvement of people and, therefore, the retrieval of the data needed to define the actor-network diagram.

In fact, the research project aims to combine official and collective narratives, common places and private stories, in order to suggest a reflection about the transience, mutability and unstable balances related to the concept of invention of identity, to reflect on the collective and, therefore, public spaces of cities, as places in which to experience forms of coexistence; following the indications of Francesco Remotti who, precisely in coexistence, identifies the possibility of eluding, at least in part, the danger of invented and illusory identities and the practices of overwhelming, exclusion and ghettoization. With this premise, the design and application part of the research was structured according to certain phases: a case study and critical filing of the invented realities, for example,

(11) Michel de Certau, *L'invenzione del quotidiano*, Edizioni lavoro, Roma, 2010.

(12) Bruno Latour, *Riassemblare il sociale. Actor-Network theory*, Meltemi, Milano, 2022. Original edition 2005.

(13) Idem, p. 58.

those resulting from the city branding projects; a laboratory and seminar experimentation related to case studies of investigation and, therefore, to specific areas, so as to identify the components of the actor-network diagram; the definition of the actor-network diagram to be applied for the possible interactions and interfaces of the differentiated users to the platform; the design and editing of a digital platform to be configured as a comparison space for the identification of application areas and design briefs; the implementation, management and monitoring of the interactions and content of the digital platform; the definition of the design briefs outcome of the platform work, such as indications and definitions of innogenetic spaces and possible activities.



Figure 1. Frames from the film *Smoke*, direction and screenplay by Wayne Wang and Paul Auster.

Conclusion

It would be risky and improper to draw conclusions regarding a research project that has just been structured and has not yet evolved to a stage that allows for conclusions, even provisional ones; it is easier to speak of intentions.

The intentions of the research project refer to the possibility of avoiding the deception of the existence of a definitive identity, given for certain, fixed and constant, as far as urban and territorial contexts are concerned; with this in mind, the *Atlas of Invented Identities* is a confrontational tool for identifying and defining directions and operational modes of Urban Interaction Design, through Actor-Network Theory. The Atlas is so named because of the possibility of making explicit the interconnections between the parts and as a reference and homage to Gerhard Richter's *Atlas*⁽¹⁴⁾, a work of cataloguing and chronicling of long duration and in continuous modification and growth, in which materials of various kinds are the prerequisite for new elaborations, while expressing memories and points of view, at the same time, collective and personal. The starting idea, then, is that of an atlas within which it is possible to traverse different paths, an *atlas of disorientation*, as Richter's has been called⁽¹⁵⁾; in which it is possible for Latour's actants to act by tracing a network of itineraries between volatile identities and entrenched stereotypes, so that a new mapping of preliminary interactions is configured for the definition of a network suitable for configuring new design opportunities, oriented by the goal of coexistence and, as much as possible, adaptable to the transience of the concept of identity, in which design is seen as a connector.

It can be assumed that, during the course of the research, identifying signs and invented identities become, therefore, matters of confrontation and transform their meanings, in an alternation between private and collective stories, just as happened with the corner of 6th and 7th in Brooklyn, in the film *Smoke*⁽¹⁶⁾, or with the Strange Story of Osborne's Bull.

In the film *Smoke* 4000 snapshots compose a reportage of the everyday life: seemingly indifferent details, in which there is all the magic of transformations, a single place in which several emotional and relational landscapes live, intimately linked to the people who pass by that street corner and remain, instead, fixed on the snapshots. These pictures have all the power of a work of art, which by fragmenting and stopping the passage of time fixes, forever, a spatio-temporal unity in the coincidence of sign and meaning. Instead, driving along the A6 from Segovia to Madrid one can challenge oneself to see, first, the large silhouettes of Osborne's Bull, and, immediately the images of Silvia and Jose, in Bigas Luna's film, appear more familiar. *Jamon Jamon*, alludes to the female sex, and is an appreciation of questionable elegance; the film weaves grotesque sexuality and stereotypes of Spanish identity: sex, food, and impetuosity, toward an unhappy ending; the black silhouette of the full-length Taurus is the protagonist of one of the film's erotic scenes, stands there to interpret Spain, but, simultaneously refers to something else, to Osborne's Strange Story of the Bull. Among those more or less popular identifying marks of Spain-such as bullfighters, dancers, fans, bears, swords, the ambiguous Maja, the infanta, paella, tapas, and, again, ham-the story of Osborne's Bull is the strangest.

(14) Gerhard Richter, Writings, Interviews and Letters 1961-2007, Thames & Hudson, Londra, 2009.

(15) Enrico Agostini, Atlante di disorientamento. Un profilo di Gerhard Richter, Editrice Clinamen, Firenze, 2015.

(16) Cfr. Paul Auster, *Smoke & Blue in the Face*, Einaudi, Torino 1995. Film, *Smoke*, 1995, direction and screenplay by Wayne Wang and Paul Auster.

It began in ¹⁹⁵⁶ when Manolo Prieto (1912-1991), a graphic designer and illustrator politically committed to the Communist

Party, designed the trademark for the Osborne company, which had commissioned the Azor advertising agency, for which Prieto worked. In 1957 the first silhouettes were installed, four meters high, with horns painted white and the Veteran brandy logo; in 1960 they were replaced by larger silhouettes made of metal material to withstand the weather; in 1962, due to rules regulating the distance from travel roads, the silhouettes were moved away from the roadway and, therefore, enlarged to the height of 14 meters; in 1988, again as a result of the establishment of a new law dealing with the dangerousness of advertisements on public roads, all advertising texts disappeared.

In 1994, an opinion movement-composed of associations, municipalities, artists, politicians, and journalists-opposed the State Roads Management Company, which wanted the removal of all Bull silhouettes; in the same year, the Regional Council of Andalusia included Osborne's Bull silhouettes in its catalog of Cultural Assets with a declaration by the Forum of Navarre; in 1997, a Supreme Court ruling declared the non-removability of the silhouettes judged to be "of historical and cultural interest".

Today there are 70 silhouettes on Spanish soil, catalogued and protected, almost like an endangered species. The brandy company still holds ownership over the registered trademark, but, in 2005, lost a lawsuit over the rights to reproductions of the trademark as tourist gadgets, because "although a registered trademark it is part of the cultural and artistic heritage of the people of Spain".

The strange story of Osborne's Bull is emblematic for describing the possibility of transformation of meaning that a sign possesses and, again, for understanding how this possibility depends on place and perception, as well as on the very characteristics of the sign: it is by a reversal of point of view, almost a stunt, that the bull lends itself to being ridden, simultaneously, by product and territorial marketing. Strange but true: the large, black silhouettes of Osborne's Bull found on promontories and hills of the Spanish landscape have become part of the "patrimonio cultural y artístico de los pueblos de España" and are placed under safeguards by the Spanish Cultural Heritage Legislation, while continuing to invite motorists to get drunk on Osborne's Veteran brandy. In more than fifty years, the silhouette has traveled an unlikely path, holding firm in some places.

The origin was the dissemination of the sign: Osborne's Bull from being an invader of Spanish territory became an accepted and recognized presence then, a visual landmark, still co-starring in films and the subject of exhibitions, finally, immovable: the two-dimensional image of a bull enlivening Spanish territory came alive with the Spanish spirit; then again, never had it been teetotaler!

This time, thanks to alcohol, the story of a turn (giravolta), of a paso doble between brand and artistic heritage, was born.

Of course, Osborne's Bull has antagonists: the Straw Mule of the Catalan Independents, Antón Lezcano's *Vaca gallega*, born in 2002, and the *Basque Sheep* (Ardi Latxa, in eskera), but these are other stories.



Figure 2. Images of Osborne's Bull silhouettes along the A6 from Segovia to Madrid.

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GIC-Lab: Celebrating Architecture, Exploring City, Enjoying Research

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Abstract

At this time of informational logics, systemic and surprising changes and shared explorations, architecture must go back to being, actually, a collective cultural adventure and no longer a mere register of brand names or individual personalities. This adventure involves innovatory lines of research, shared horizons, and narratives that are more stimulating and exciting in their individual and adventurous decodification.

Above and beyond the habitual gloss on ‘singular trajectories’, ‘iconic personalities’, ‘unique experiments’ or ‘revered teachers’, we’re interested in an architecture that can generate shared processes of investigation: trajectories capable of revealing the evolution of a new architecture that is diverse and enabling because connected and promulgated in relation to the conditions of its own time.

Students are no longer former ‘disciples’, but new and virtual associates in the combined research and production programme that is called for today.

The idea of a school as a Greek Stoa/Scholè, a CENTRE (as a centralised formative space) gives way, then, to the idea of a school as a Latin Labor place, a LABORATORY (as a creative and investigative networking environment). In the fields of City Planning and Urban Design the importance of the strategic prospection, the co-decisional processes and the constant exploration of evolving scenarios replace the old paradigms of compositional layouts and static urban morphologies.

Abstract

In questo momento di logiche informative, di cambiamenti sistemici e sorprendenti e di esplorazioni condivise, l’architettura deve tornare ad essere, effettivamente, un’avventura culturale collettiva e non più un mero registro di marchi o di personalità individuali. Un’avventura che prevede linee di ricerca di innovative, orizzonti condivisi, narrazioni più stimolanti ed emozionanti nella loro decodificazione individuale e avventurosa.

Al di là delle consuete decantazione di “traiettorie singolari”, “personalità iconiche”, “esperimenti unici” o “maestri venerati”, siamo interessati a un’architettura che possa generare processi di indagine condivisi: traiettorie capaci di rivelare l’evoluzione di una nuova architettura, diversa e abilitante perché connessa e promulgata in relazione alle condizioni del proprio tempo.

Gli studenti non sono più ex “discepoli”, ma nuovi e virtuali collaboratori nel programma combinato di ricerca e produzione a cui oggi siamo tutti chiamati.

L’idea di scuola come *Stoa/Scholè* greca, ovvero un CENTRO (come spazio formativo centralizzato), lascia il posto all’idea di scuola come il Labor latino, un LABORATORIO (come ambiente di rete creativo e investigativo). Nei campi dell’Urbanistica e della Progettazione Urbana l’importanza della prospezione strategica, dei processi co-decisionali e della costante esplorazione di scenari in evoluzione sostituiscono i vecchi paradigmi degli assetti compositivi e delle morfologie urbane statiche.

Introduction

GIC-LAB, UNIGE (Genova Intelligent Cities, Informational Contexts, Interactive Citizens, International Courses) is a transversal research laboratory (Decree DIPARC-UNIGE, Feb. 24, 2010) founded and directed by Manuel Gausa and co-directed by N.Canessa with coordination by G.Tucci, which has as its theoretical objective - and as its specific field of design interest - the understanding and interpretation of contemporary urban, landscape and architectural space, understood as a relational scenario and its relationship with the current conditions of simultaneity, complexity and informational diversity.

Its goal is to foster in the project a multiple interaction at different levels and scales of intervention, spatial, functional, environmental and social. Exploring and integrating complexity, celebrating and articulating diversity, fostering and boosting multilevel transversality - between processes and information, programs and uses, contentions and realities - by designing new spaces (new scenarios) that are transversal - multi-level and multiscale - in tune with a new relational (open) and informational (advanced) logic, all constitute the main objective that makes the GIC-Lab’s field of interest recognizable.

Below we do not repeat a decalogue, but 3 lists (...) where 3 is the perfect number because of its connection with the trinity, for a total of 21 points which is in turn is the number of perfection, it is the number of the Holy Scriptures, it is the number of times the Om Mantra is chanted during Aumkara, the ancient Hindu practice and it is a number found in popular culture all over the world .

It seems to us to be a very good number, even considered a lucky humerus, because it is divisible by the sum of its digits: $21, 2 + 1 = 3$; $21 : 3 = 7$. It is the eighth number in the Fibonacci series (1,1,2,3,5,8,13, 21...) for the pursuit of perfection and beauty, and perhaps not coincidentally in the Tarot representation it is success, security and happy ending, while in the Smorfia, 21 is the symbol of perfection.

[I] Celebrating Architecture

[1] The last few decades have confirmed the evidence of a spectacular change of scale in the definition of our spaces of interaction and sociability – of our own habitats – which

has to do with the current increase in mobility and long-distance communication, the delocalisation of exchanges, and the capacity for technological and material transformation of our environment.

[2] Faced with the progressive infrastructural and informational (and not just formal or functional) dimension of an evolving territory, defined by layers of information and definition and networks of interchange and flow, our challenge as architects is that of proposing new formulations of space and of architectural design in synergy ‘in’ and ‘with’ a real, virtual and vocationally more complex environment – or, if you prefer, one more open to complexity.

In actual fact, the notion of complexity alludes to this: to the capacity for combining and synchronising, activating and interactivating, multifarious and not always harmonious data and programmes in a single infrastructural framework of (inter)relation.

[3] A defensive (or overly cautious) vision of the architectural intervention – the more traditional kind – would seek to work ‘from’ complexity in order to limit and to ‘essentialise’ manifestations of it: to minimise and tranquilise movements by stabilising trajectories, purifying and limiting information, fixing perimeters. By prefiguring, in the name of greater control, its particular ‘irregular’ dynamics.

A more optimistic and purposeful vision of the architectural intervention would propose (to itself) to work ‘with’ complexity in order to mobilise and maximise its evolutive and combinatory potential, working with a new type of operative logic, capable of synthesising the shift from the stable to the dynamic, the additive to the interactive, and the unitary to the heterogeneous. From the pure to the definitively impure.

Working from complexity in order to simplify it, or working with complexity in order to celebrate it.

[4] Today, we are present at a change of paradigm in architectural thinking. From an architecture based on a static logic we have moved, or are moving, towards an architecture based on a dynamic logic; one that is more impure, irregular and definitively interactive: in interaction with an environment, a context, a society and a creative and scientific culture permanently attentive to the diversity and complexity of a definitively informational space-time.

A new type of ‘alternative’ or advanced logic stemming from the actual conditions of our environment and associated with factors of:

Dynamism (Evolutivity)

Complexity (Simultaneity)

Diversity (Plurality)

Transversality (Connectivity)

Interaction (Interchange)

Factors that are precisely the ones we now must explore.

Those of a new logic that is more open because it is less fixed, because it is more relational and interactive.

[5] A more open logic, which is no longer that of classic metaphysical continuity, nor that of postmodern calligraphy (associated with a yearned-for composition of space), nor again that of functional modern objectuality, associated with a given position in space, but that of contemporary, operative interactivity, associated with a potential arrangement of spaces.

If the object of classical composition was the symbolic or metaphysical reproduction of

the past, and if the modern position was deemed to be that of the functional production of the new, then the object of the contemporary arrangement is the interactive coproduction of the simultaneous, the real and the virtual, based on a new type of architectural thinking and standpoint that intends to celebrate, articulate and promote the diversity of our time, and to do this, indeed, through interaction.

[6] This is the ultimate condition of architectural design: namely to generate and materialise relations, and not just forms, in space.

From an architecture traditionally understood as an 'inert object' we ought to move on today to an architecture purposefully conceived as a dynamic, relational environment. An architecture constructed from a mechanism of interaction and resonance with the new sensibility, a sensibility opens to the complex, evolutive processes that mark the beginning of this century. Therein lies the innovatory potential of a new concern in terms of design, that of an architecture able to express its own movement, but also the different solicitations that convoke and configure it. An architecture able to resonate and to resound, to work beyond boundaries and traditional dichotomies such as architecture and landscape, city and territory, etc.

[7] The contemporary interest in tackling transverse fields involving urbanism, architecture and landscape responds to the interest in moving between boundaries, logics and scales (to recognise and to transgress them), but also to understanding architecture as a relational environment rather than a mere formal or functional object, with all that this implies in terms of constructional and interpretative planning, and (why not?) narrative interaction in and with the environment.

A relational and active volition, then-, or reactive volition if you prefer. That of an architecture which intends to formulate interaction and interchange, plurality and diversity, complexity and mixity, and connection and transversality.

[8] In recent decades, information technologies have gradually become established in our culture of space; the advent of the computer, which enables the processing of enormous amounts of information, has made possible the development of a new and unprecedented relationship between an analytical approach to the built environment and a new synthetic vision of architecture's relationship with other disciplines.

The great achievement of this transformation, which is ongoing today, is the capacity for exchange, register and orientation characteristic of information - data, situations, conditions, contexts, programs, types, spaces, natures - and the consequent creation of a new type of informational environments.

The 'evident informational interaction capacity, more dynamic, complex and transversal, is the great revolution of this new era: a revolution that concerns a whole new generation of architects, designers, geographers, planners, engineers, artists, scientists and thinkers who want to face a new intellectual, social and operational, global and local adventure; starting from a new and shared "advanced logic" - beyond the classical (representational), modern (productive) or post-modern (calligraphic) paradigms - is trying to build new organizational models and living, social and cultural spaces.

This shift in the paradigms of architectural thought and logic presented, in many avant-garde researches of the 1970s (from the radical revision of modern paradigms to the experience of experimental and alternative, pop-modern and/or pre-post-modern avant-garde groups) a clear anticipatory research: active engagement in the social, more spontaneous, less dogmatic; expressive communication and celebration rather than

theoretical intellectualization; spatial diagonalization and dispositional complexity rather than mechanistic rigor; programmatic mixture rather than typological purity; topology rather than volumetry; transgressive and creative transversality rather than disciplinary cleanliness.

[9] Indeed, based on this new logic we have to rethink such traditional issues as the notions of order, form and organisation, and those of architectural structure and expression. And to also rethink our desire as architects not to renounce our first and basic mission, which is to help create a better habitat. That is, a type of habitable environment in consonance with the ambitious anxieties – more than with the contingent demands – of actual society. Not with its tastes, but rather with its ambitions; namely, the ability to foster intellectual curiosity, social projections and cultural expectations in the presence of more imaginative and stimulating types of built settings.

[10] To develop intersecting settings in which authenticity does not reside in some kind of essentialist basis, but in that open-ended process of interchange and interaction intended to work simultaneously with:

- The context and beyond the context.
- The location and the city. The city and geography.
- Nature and technology.
- Concepts more than ideas.
- Formulation more than figuration.
- Trajectories more than objects.
- Fabrication more than construction.
- Synthetic registers more than analytical layouts.
- Processes more than events.
- Arrangements – and devices – more than ‘designs’.



Figure 1. GiC-Lab Workshop Barnum – Celebrating Architecture.

[III] Exploring City

[11] In an adjectival city, given its complexity and the need to integrate but also to select-and “intend”-different and potential levels of positive system (re)orientation, the prospective and propositional (operational) will, carried out in the GIC-lab’s research, results in a multiple approach to the N-City or Multi-City as a system of systems, in networks and networks.

- at the urban-territorial scale (“battle maps” and strategic developments): we talk

about inter-relational and dis-dense (discontinuous and dense at the same time) geo-urban structures; Mesh-Cities, Land-Link- Cities, Agro-Cities,Hydric-Cities, etc.

- at the urban scale (diagrammatic patterns and transversal intra-structures): we talk about urban reactivation and renaturalization systems and structures; Re-Cities or ReCitying

- at the landscape and environmental scale (synergistic eco-interventions, natural and artificial, landscape and productive): we talk about active eco-structures for a new kind of qualitative metabolisms; eco-Cities, Agro-cities, Food-cities, Blue-Cities, Resili(g)ent Cities

- at the infra-structural scale (conjugated systems of mobility, flows and exchanges): we talk about structures at different speeds and with different connective and energy capacities; Speed & Slow Cities, Port-Cities, Ener.Grid Cities, etc.

- at the architectural scale (mixed programs and new habitats): we talk about transfer devices between situations, conditions, stresses and interactions: Hybrids & mixed-use inductors.

- at the trans-cultural scale (approaches to crossing and transfer scenarios): we talk about the phenomena of recreational and/or labor migration and immigration; Tour-Cities, Dream Cities, Theme Cities, Corollary Cities, Migrant-Cities.

- at the techno-innovative scale (new evolutionary processing tools and formal-informational interaction logics): we talk about the importance of a new advanced logic related to parametric simulation and responsiveness propitiated for new technologies and the growing importance of Artificial Intelligence (Smart Cities & Sense-Cities, Responsive Cities, Self Learning Cities, etc.).

- to the collective scale (social interaction and plural co-participative and co-decisional processes): we talk about a new type of activism, mediation and/or multi-social sharing in different networks, and a new type of public space that is more active and adaptive, performative and relational); Actant-Cities, Co-Cities.

[12] The research associated with the GIC-Lab UNIGE laboratory, on multi-scale planning, urban design and territorial and landscape foresight, has long been addressing essential aspects directly related to this advanced logic with a strong innovative approach, particularly focused on Mediterranean contexts (Med.Nets): from the multi-urban networked approaches - MED. NET COASTS - of the Barcelona/Maresme and Genoa/Ponente coasts (Total Goa, Gausa 2012) to the processes of reactivation and re-naturalization and urban mobility based on green ropes and corridors (BCN-GOA, Multistring Centralities); Urban-connective recycling processes (ReCitying) also associated with the environmental importance of the agricultural landscape and its mixed conception and production - AC+, Agri-culture, Agro-cities, BCN Llobregat multi-Agro-Park to Albenga Glass City or Med. Ned Agro.Coast.Cities (Sommariva 2014, Gausa & Canessa 2018, Canessa 2020, Tucci 2018, Tucci 2019): the circularity of an agro-food economy with a priority attention to the Second Life of waste (CFC Project, Creative Food Cycle associated with the European program Creative Cities, 2018, Gausa et al. 2020^a).

[13] It has also carried out actions and research linked to the KAAU project (associated with the European Erasmus Knowledge program, 2015-2019) aimed in particular at promoting proactive approaches to the issue of eco-environmental risk and in particular to water and alluvial hazards in the Mediterranean regions (Resili(g)ence, Gausa 2020 ;

GOA resilient City, Canessa 2020).

Experiences particularly focused on the various processes mentioned above and those more related to a coastline stretching from the Mediterranean to the Black Sea (from the Latin Arc to the Gulf of Odessa).

These approaches to urban and rural areas where agriculture, environment, heritage, tourism (among others) but also water courses and sectors, basilar and present in all of them, can be integrated in holistic strategies of analysis, research and proposal for the various relationships between Land-Water, Sea-Coastal, City-Landscape, essential in the development of the current Mediterranean Medi-polis.

Port-cities, beach-cities, agro-cities or river-cities have been shaping the adjectival and often combined and intertwined scenarios of these works: from the reconsideration and strategic redefinition of the old port centers immersed in the challenges of a new type of global positioning associated with the importance of tourist and financial flows and their current reconversion into new environmental spaces, attractors and/or distributors of visitors and resources between coast and pre-coast (Moretti 2020), to the “beach-cities” - one of the great paradigms of the Mediterranean context - essentially touristic (or para-touristic) and that are facing, today, new operations, strategies of restructuring, redefinition (and reversion) but also requalification, infrastructural, patrimonial, landscape and building (Canessa 2021).



Figure 2. Barcelona, Parc Agrari del Baix Llobregat, a Smart Agro-Parc: Mapping new territorial and informational strategies (Gausa+Raveau Arquitectura - Gic-Lab, 2014, F.Ciccone, I.Meta, V. Fannesu, V. Croci, E. Toreia, A. Calabró, colls.).

Or from the coastal Agro-Cities - or close to the coast, in their bordering areas - with a strong rural and supra-urban component at the same time, to the “river-cities” (or better, “cities between rivers” or “versus river”) often related to the previous ones and whose hydric-urban condition would be different from that of the great interior metropolises with

central and seminal rivers (Paris, London, Berlin, Madrid, Vienna, Budapest, Budapest, Berlin, Madrid, Vienna, Vienna, Budapest, Budapest). Berlin, Madrid, Vienna, Budapest, Rome, etc.) in which the relationship with the fluvial border in most of the large and medium-sized Mediterranean coastal cities and ports, agro-tourist or neo-industrial, would be somewhat different.

PhDs, fellows and researchers collaborate with the Gic-Lab, including PhD architects Nicola Canessa (Co-director), Giorgia Tucci (Coordinator), Matilde Pitanti, Francesca Vercellino or Alessia Ronco-Milanaccio. The Gic-Lab is associated with the Advanced Urban Design and New Habitats Laboratory (Master's Degree in Architecture LM⁴), Urban Design Laboratory (Master's Degree in Product and Event Design, LM-¹²) and Urban Design Laboratory (Architectural Sciences) courses.

In all these collective explorations students sleep an active part of an interactive dynamic open in two directions, Top-Down and Bottom-Up, being an active part not only of a "didactic" experience but of a prospective and exploratory "adventure," where future scenarios are combined with a strong operational capacity in its contextual translation (in its applicability through different administrative and/or municipal dynamics).

[III] Enjoying Research

[14] At this time of informational logics, systemic and surprising changes and shared explorations, architecture must go back to being, actually, a collective cultural adventure and no longer a mere register of brand names or individual personalities. This adventure involves innovatory lines of research, shared horizons, and narratives that are more stimulating and exciting in their individual and adventurous decodification.

Above and beyond the habitual gloss on 'singular trajectories', 'iconic personalities', 'unique experiments' or 'revered teachers', we're interested in an architecture that can generate shared processes of investigation: trajectories capable of revealing the evolution of a new architecture that is diverse and enabling because connected and promulgated in relation to the conditions of its own time.

[15] What must be encouraged in the profession, in education, and in research, is generosity rather than rivalry, teamwork, and inter-teamwork, networking (also without networks), near and far, side by side, and at a distance. Working with discipline and indiscipline, between disciplines and beyond the discipline.

The combining of rigour and audacity, analysis and intuition, personal affirmation, and common concerns, the close at hand and the cosmopolitan.

Intellectual respect and emotional admiration.

Intimate conviction and enthusiastic curiosity.

Without exclusiveness, competitiveness, or rivalry.

Without any stupid jealousy or cautious suspicion.

Without any more anxiety about making mistakes or fear of ridicule.

Enjoyment of the emotion of experiencing architecture and proposing architectures.

[16] The trade gives way to research (and therefore the transmission of certainties to the construction of criteria... criteria for action). the transmission of certainties to the construction of criteria... criteria for action). Students are no longer former 'disciples', but new and virtual associates in the combined research and production programme that is called for today. The profession gives way to research, and the transmission of certainties

gives way to the construction of criteria: the criteria of intervention.

The idea of a school as a Greek Stoa/Scholè, a CENTRE (as a centralised formative space) gives way, then, to the idea of a school as a Latin Labor place, a LABORATORY (as a creative and investigative cosmopolitan and networked environment).

[17] Trusting in emergent talent and energy and combining the rigour and deliberation of experience with youthful imagination and enthusiasm are therefore crucial in guaranteeing the purposeful quality of an authentic educational environment.

A school with a genuine vocation for feedback and leadership cannot let talent go to waste. On the contrary, it must incorporate talent, each generation's talent, as a whole. Not on the basis of mentorship but by promoting it through encouraging the drive towards initiative, and by providing access to areas of projection and responsibility.

This is what we try to do in the UNIGE's GIC-Lab (Università degli studi di Genoa).

[18] Neither should we be afraid of "trying", of testing... To the test. Not to the experiment... we must not be afraid of error or mistake... not of ridicule...

Neither should we be afraid of talent... nor of discussion and exchange between disparate people.... We must not be afraid of debate or of a confrontation based on respect and intellectual curiosity.

We must not be afraid of the new, not of the prone to the new ... neither to the restless not to the iconoclastic...

On the contrary, it is vital for spaces of excellence to generate authentic proactive, creative and plural energy rather than excessive monolithic and jealous coherence.

In this sense, rigid and hierarchical structures lose their capacity for inventiveness, generation and leadership.

[19] A change in the actual university model is to be glimpsed on the horizon. We are witnessing the final defensive death throes of a model overly rooted in totemic and hierarchical structures that are excessively rigid due to academic restrictions. It is obvious that we must open these structures up to society itself, but above all, to the emergence of talent and purposeful energy.

The transverse field of architecture forms part of the academic and scientific community, but also of the cultural, productive and creative community. That is its greatness...

[20] Above and beyond economic strategies and productive cost-effectiveness centred on commercial and competitive efficiency, didactic production and scientific research have to be capable of generating cultural value – ideological, intellectual, ethical and proactive positioning – and of generating not only knowledge, but also creative energy and stimulus.

To celebrate architecture and to enjoy research: today, this ought to be a potential shared discourse, fundamental to vindicating – and to designing – the transverse role of an old, extremely old, (trans)discipline.

[21] Celebrating architecture and enjoying research... that should be a possible shared discourse today...

In every moment of change, the communication of ideas - from theory and practice, from dissemination and teaching - implies the testing of diverse formats... reflexive and active, rigorous and playful, didactic but also experiential, empirical, celebratory, festive, performative

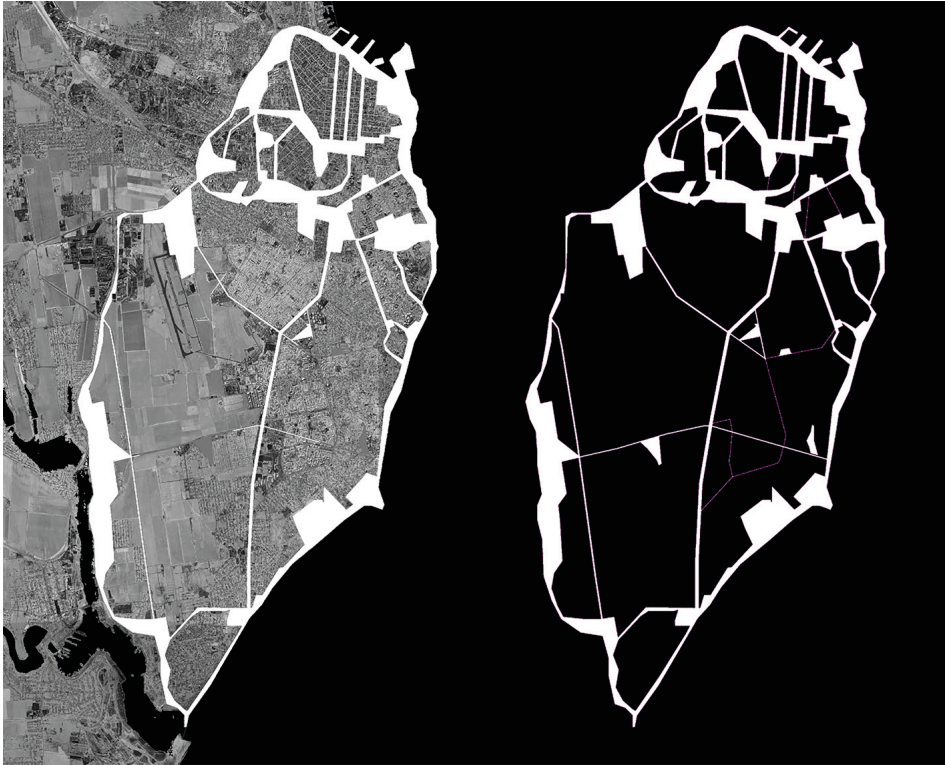


Figure 3. *Odessa, ReCITYing: Green Rings - Gic-Lab, 2021.*

Conclusion

In its final stretch all the courses associated to the GicLab laboratory culminate with a great celebratory/performative workshop related to a strong component of urban activism shared between citizens and citizenships, social, cultural and artistic disciplines, municipal managers and students of multiple origins, in order to “scendere al campo” and propitiate imaginative formats of strong social and creative interaction, above all in unusual spaces to incorporate to the new urban networks (recovered, re-evaluated, reformulated scenarios, open spaces, semi-natural landscapes, oriented to the new urban networks); open spaces, semi-natural landscapes or endangered heritage sites and large abandoned artifacts). From Barnum workshops to the various formats promoted by European projects such as KAAU, Creative Food Cycle, etc., the ability to work with prototypes, installations or more or less ephemeral and always “experiential” fabrications have allowed, in turn, to share events (banquets, shows, performances, fabrications) with large social collectives, carried out in the framework or with the help of such devices.

In all of them it is a matter of promoting a fundamental idea today: that of learning by doing, or if you prefer, knowing doing, not only learning but exploring techniques and technologies, methods and methodologies, gnosis and gnoseologies.

Celebrating architecture and enjoying research, in fact...

By land, sea and air... in networks.

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Colors and scents among wine, plants and landscape: a little didactic-experiential garden in Champagne (FR)

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Abstract

Through the synesthetic perception of colors and scents we can enhance learning, memory and emotional experience. Taking advantage of this principle, in a small didactic-experiential garden in le-Mesnil-sur-Oger, in the Côte des Blancs in Champagne (France), the landscape architects Ariane Smythe and Benoît Vignes (firm Métamorphose) tell the story of the link between the colors and scents of wine. The scents that we can recognize in wine are those of some plants, which become protagonists in the garden, to make direct comparison possible and favor the memory of visual and olfactory sensations. The garden becomes an effective teaching tool to help us identify and understand the different characteristics related to the vine, the terroir and the evolution of the wine. Located next to a vineyard of great qualitative interest (the Clos St. Vincent, owned by Krug), it also becomes a meeting place for local producers, who have been represented in the garden itself, through a work of participation and sharing.

Abstract

Attraverso la percezione sinestetica di colori e profumi possiamo potenziare l'apprendimento, la memoria e l'esperienza emozionale. Sfruttando questo principio, in un piccolo giardino didattico-esperienziale a le-Mesnil-sur-Oger, nella Côte des Blancs in Champagne (Francia), i paesaggisti Ariane Smythe e Benoît Vignes (studio Métamorphose) raccontano il legame tra colori e profumi del vino. I profumi che possiamo riconoscere nel vino sono quelli di alcune piante, che diventano protagoniste nel giardino, per rendere possibile in confronto diretto e favorire il ricordo delle sensazioni visive e olfattive. Il giardino diventa uno strumento didattico efficace per aiutarci ad identificare e comprendere le diverse caratteristiche legate al vitigno, al terroir e all'evoluzione del vino. Collocato accanto ad un vigneto di grande interesse qualitativo (il Clos St. Vincent, di proprietà Krug), diventa anche un luogo di incontro tra i produttori locali,

che sono statirappresentati nel giardino stesso, attraverso un lavoro di partecipazione e condivisione.

Introduction

“È un fatto che ogni manifestazione della vita - animale e vegetale - ha nel colore una delle più convincenti espressioni. Ecco alla nascita colori tenui e delicati, quasi a simboleggiare un preludio: verdi teneri, o rosa soffiati al germogliar delle piante; colori che si fanno caldi e intensi con la maturità, che prorompono all'autunno in trionfali e accese tonalità, quasi un estremo inno alla vita prima della quiete.” (Pietro Porcinai, 1957).

[It is a fact that every manifestation of life - animal and vegetable - has one of the most convincing expressions in color. Here is at birth soft and delicate colors, almost to symbolize a prelude: soft greens, or pinks suffused with the budding of plants; colors that become warm and deep with maturity, which break out in autumn in triumphant and bright shades, almost an extreme hymn to life before the quiet.]

From an emotional point of view, we link certain tones and nuances of colors to some particular moments in our lives and/or to certain emotions.

The color of the plants reminds us of the passing of the seasons: in the same way, we can associate the color of the wine with reference to its evolution.

Even more powerful is the association of colors and perfumes, which we naturally use to remember and specify our sensations, through sight and smell: we can even imagine the colors of perfumes (Rolls, 2019), relying on the olfactory, instinctive, deep memory, linking the image of what smells to its chromatic aspect.

As far as the color of the wine is concerned, we can find a relationship between the colors, the aromas and the organoleptic characteristics of the wine. For example: delicate shades of greenish yellow and white, the scent of fresh flowers that have just blossomed, and other spring-related scents correspond to a greater freshness, of a young wine, suitable for opening a menu, paired with an aperitif. Golden reflections in the color of a more evolved wine, suitable for more important courses, make us think of the warmth of the summer sun and of the scent of yellow flowers and ripe fruit, with hints of honey.

The color of the wine depends on a series of complex factors, linked to the type of vines used, and on numerous environmental factors, such as the pedoclimatic environment, the composition, texture and drainage capacity of the soil, the seasonal evolution in the various vintages, in addition to the winemaker's choices related to the grape harvest time and winemaking techniques.

The characteristic aromas linked to the vine complete the descriptive picture and allow us to identify and appreciate the characteristics attributable to the terroir.

In le-Mesnil-sur-Oger, a small didactic-experiential garden, fourth in a series of “vineyard gardens” in Champagne (after the playful-didactic vineyard garden in Chouilly, the panoramic balcony in Cramant and the Vix park in Avize, dedicated to water), illustrates the relationship between colours, perfumes, vines and terroir, to illustrate the possibility of understanding the evolution of wine by associating the visual and olfactory examination with the actual tasting.

Chromaesthesia

The parts of the brain responsible for vision are large and numerous. Colors have a strong symbolic connotation. The role of expectations and their influence on the perception of smells and tastes are fundamental for understanding the value of communication and in influencing and educating consumers.

Chromesthesia results from strong cross-modal associative ability (Rizzo and Eslinger, 1989).

The vision of food activates some areas of the brain capable of determining expectations consistent with what has been seen. When the color-flavor combination is inconsistent, difficulties are created in the identification of tastes. This phenomenon can be partly attributed to the natural effect that colors have on us, but above all as regards the recognition of the characteristics of a wine, this is strongly linked to learning processes and learned associations (Clysdale, 1993).

A study at the University of Bordeaux (Morrot et al., 2001) had groups of oenology students tasting white, red and red-tinted white wines. It demonstrated how the sight of wine color develops expectations that condition olfactory and gustatory perception. In particular, the relationship between sight and smell, is due to the role that the primary cortex responsible for vision has in the case of olfactory stimulation, arriving at defining a mental image that can strongly condition the perception of what one is about to taste.

Our brain processes visual and olfactory data to generate the pleasure of tasting, activating specific gustatory areas before the actual tasting (Russo, 2020).



Figure 1. *View of the Clos du Mesnil from the garden of the Clos Saint-Vincent (photo by A. Ghersi).*

Clos du Mesnil

In the heart of the “Côte des Blancs”, in the famous village of le-Mesnil-sur-Oger, there is a historic and unique vineyard in Champagne: 1.87 hectares entirely enclosed by a stone wall, built in 1698, the year the vineyard was planted. On a gentle slope facing south-east, the clos presents unique ripening conditions, which bring the grapes to maturity 15 days earlier than in the “external” vineyards. Property of the Benedictine monks in the sixteenth century, then divided between various owners, it was unified and dedicated to the production of Champagne from the beginning of the nineteenth century. The Krug maison bought it in 1971 and started a complete and progressive renovation program, intervening in rotation particle by particle. Today we find Chardonnay plants pruned in “chablis”, of ⁵ different ages, from which few, very precious bottles are obtained.



Figure 2. Panel on the history of the Clos du Mesnil, on the surrounding stone wall (photo by A. Gherzi).

The garden of the Clos Saint-Vincent

In an area next to the famous Clos du Mesnil, connected to the Town Hall of le-Mesnil-sur-Oger, an experiential garden was created on an area of 2,000 m², which was inaugurated in 2021.

The cost of the construction (190.00 euros) was contributed by the Municipality of Epernay for 38%, with the contribution of the Brotherhood of Saint-Vincent for 32%, by the Municipality of le-Mesnil-sur-Oger for 10%, by the Department of Marne for 10%, and the Grand Est Region for the remaining 10%.

The garden was designed starting from the pre-existing features: two parts, one

wooded, with a gradient that allows a view beyond the wall of the nearby Clos du Mesnil, and a flat part, devoid of trees. Some paths have been designed in the wooded part, which lead to three significant places: a wooden belvedere on the Clos du Mesnil, a space with a table for tastings and a large central area, characterized by a large circular table with benches, which seats 32 people, for convivial moments, on a floor with metal outlines of the hands of the growers, producers and members of the Saint-Vincent brotherhood involved in the conception and implementation of the project (10 winemakers, 15 members of the brotherhood and 33 Champagne maison). In the flat part, the typical colors and scents were staged in the garden, illustrating, through the plants, the relationship between perceptible aromas in the wine, colors of the flowers and fruits, characteristics of the vine and the terroir, up to the evolution of the wine.

At the center there is a small circular pavilion with an explanatory panel; around it the circular area is divided into three parts, dedicated to the Chardonnay, Pinot meunier and Pinot noir vines (the three main vines used for the production of Champagne).



Figure 3. Central panel of the didactic garden about the colors, scents and aromas of Champagne (graphics by Antoine Pouillot) www.champagne.com.

In each part there are flower beds with plants (herbaceous, shrubby and climbing plants), assuming the leading role: they recall the scents of wine. A series of panels in the shape of a vine leaf, explain the selection of plants, while other larger ones, on the enclosure wall, illustrate the works in the vineyard and other elements of the wine landscape.

The largest area is dedicated to Chardonnay, the typical vine of the Côte des Blancs and therefore of le-Mesnil-sur-Oger. Chardonnay is associated with the white color, both

of the flowers and of the apple pulp, a typical recognition, which corresponds in the wine to a character of liveliness and minerality linked to the very particular soil (the craie) on which the vineyards grow.



Figure 4. Central pavilion with panel in the center of the area dedicated to the relationship between colours, perfumes, vines and plants (photo by A. Gherzi).

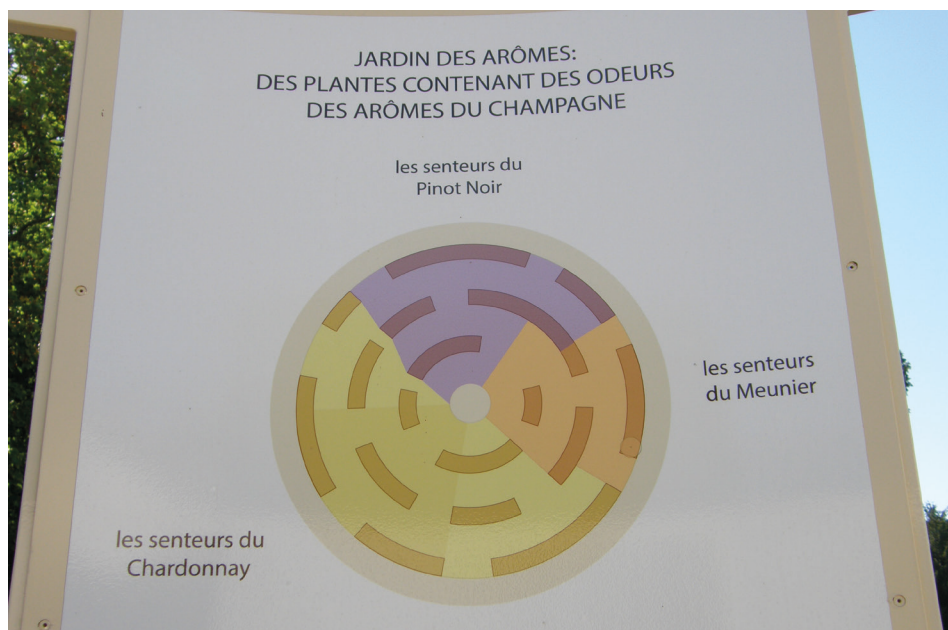


Figure 5. Scheme of the division of the garden into sectors dedicated to the three main grape varieties: Chardonnay, Pinot meunier and Pinot noir (photo by A. Gherzi).

This chalky calcareous substrate, rich in marine fossils, formed about 70 million years ago, is an exceptional regulator of the water resources that the vine needs. It retains moisture in the hot season and absorbs heavy rainfall, leaving the soil humid but well drained. Furthermore, gypsum retains water by capillary action, naturally regulating the water consumption of the vine, favoring the balance between the acidity of the fruit, the sugar and the precursors of aromas, which will reveal themselves in future wine.

Pinot meunier is associated with roundness and yellow fruit recognition; for Pinot noir we refer to the small red fruits and the characters that bring body and structure to the wine.

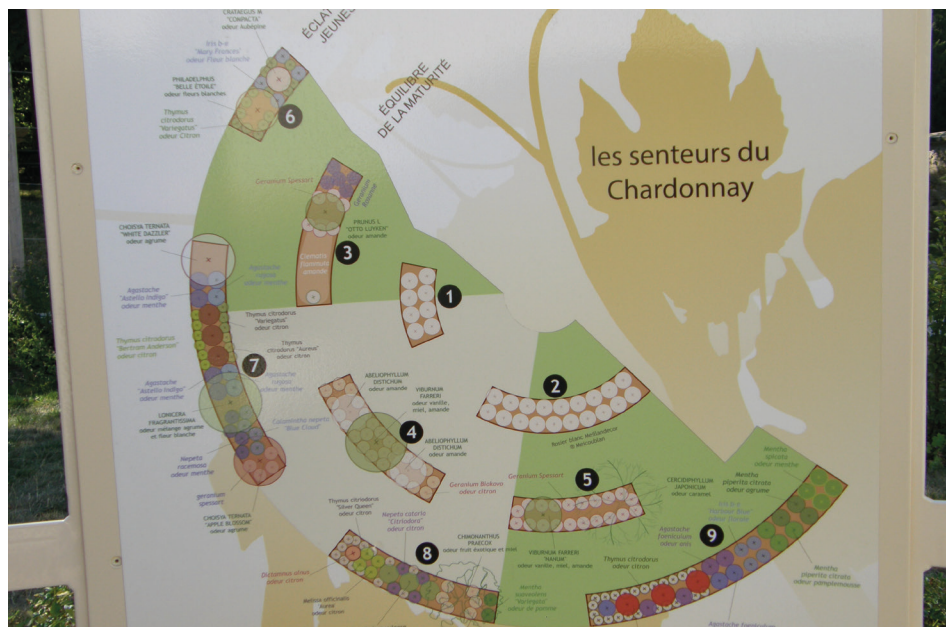


Figure 6. Plan of the sector dedicated to Chardonnay (photo by A. Gherzi).

In the sector dedicated to Chardonnay, on the outermost ring are represented colors and aromas that characterize the wine in its phase of freshness and youthful momentum of wines with 2/3 years of aging on the lees. Here the plants are selected because of their colors and smell: scent of white flowers (in particular: Hawthorn, *Crataegus compacta*, Iris "Mary Frances" and *Philadelphus "Belle Etoile"*) scent of lemon (*Timus citriodorus "variegatus"* and "*aureus*", *Nepeta cataria "Citriodorus"*, *Dictamnus alnus* and *Melissa officinalis "Aurea"*) scent of citrus fruits (*Choisia ternata "White Dazzler"*, "Apple blossom", and *Mentha piperita citrata*), smell of citrus fruits and white flowers (*Lonicera fragrantissima*) scent of mint (*Agastache rugosa*, *Agastache "Astella indigo"*, *Calamintha nepeta*) scent of anise (*Foeniculum vulgare* and *Agastache foeniculum*) scent of apple (*Mentha suaveolens "variegata"*).

In the intermediate ring, aromas related to the balance of maturity, of wines with 3/4 to 6/8 years on the lees, are described (scent of exotic fruits and honey from *Chimonanthus praecox*, caramel smell from *Cercidiphyllum japonicum*, scents of vanilla, honey and almond from *Virburnum farreri "Hanum"* and *Prunus laurocerasus "Otto Luyken"*, again scents of white flowers and lemon from *Geranium x cantabrigiense "Biokovo"* and

almond scent from *Abeliophyllum disticum*). In the innermost ring there are mainly white flowers of *Mediland* rose bushes and of the *Geranium macrorrhizum* “Spessart”.

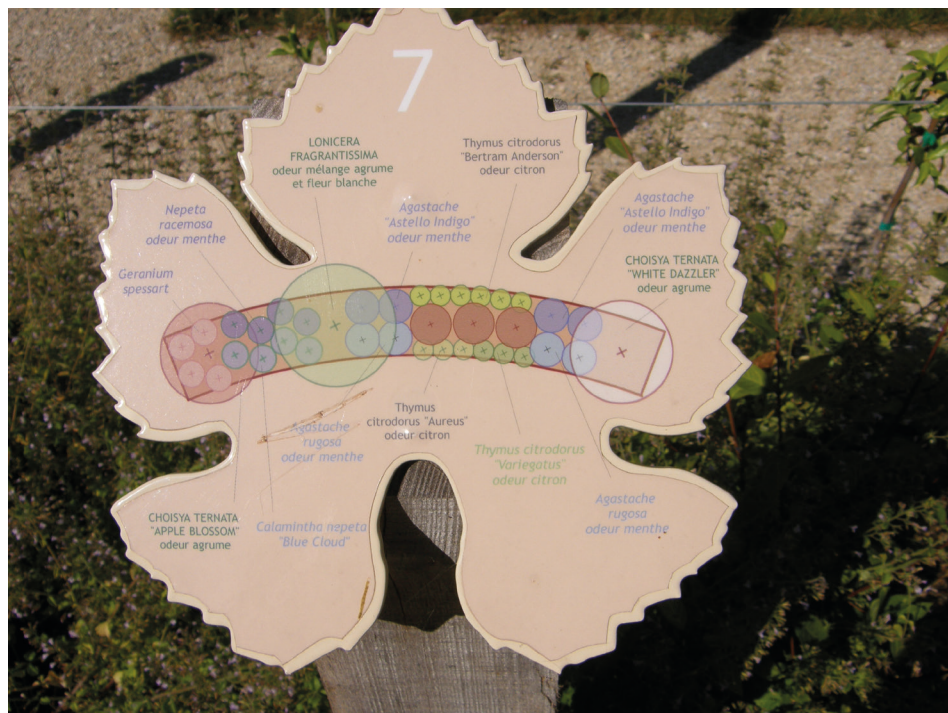


Figure 7. Detail of a flowerbed in the sector dedicated to Chardonnay (photo by A. Gherzi).

To represent the Pinot meunier in its youthful phase, in the outer ring we find *Osmanthus fragrans* with a scent of apricot, peach and blackberry, *Choisia ternata* “White Dazzler” with a citrus scent, *Fragaria vesca* with a strawberry scent, *Viburnum bodnantense* with a vanilla scent, Apple-scented rubiginous rose, *Heliotropium arborescens* “Princess Marina” with an intense vanilla scent. To illustrate the characteristics of maturity for the intermediate ring *Hamamelis mollis* “pallida”, *Arabis caucasica* and *Lillium regale* with the smell of honey, *Myrrhis odorata* scented with licorice were chosen, *Calluna vulgaris* “dark star” and *Abeliophyllum disticum*, with almond scent. To show the fullness of the evolution (of wines with more than 6/8 years of aging on the lees) there is the *Thymus* “Pinewood”, with the smell of pine and resin and the *Cosmos atrosanguinea* with the scent of cocoa. For the youthful phase of Pinot noir, in the external sector are *Fragaria vesca* “mara du bois” (strawberry), *Viola odorata* and *Rosa annapurna* (violet scent), *Rubus idaeus* (raspberry), *Vaccinium corymbosum* (blueberry), *Thymus* “fragrantissimus” (smell of orange) and the scented *Rosa centifolia* and *Rosa damascena*. To recall the scents of maturity there are *Rubus* “thornless evergreen” (blackberry) and *Vaccinium myrtillus* (blueberry); with *Festuca glauca* “Uchte” and *Berlandiera lyrata*, with a chocolate smell, to represent the fullness of evolution, together with *Geranium Rozanne* plants, with blue flowers.

In some points, metallic cylinders to smell have also been placed, which reproduce some scents, such as the gluttonous smell of brioche and grilled bread for the mature



Figure 8. Pavement of the convivial area, in the center of the wooded part, with the inox silhouettes of the hands of winemakers, producers and members of the Saint-Vincent brotherhood (photo by A. Gheresi).

Chardonnay, and fruit jam for the evolution or the scent of walnut and boisée typical of the Pinot more evolved meunier. Through a visit to this small garden it is thus possible to identify and memorize the typical colors and scents of the three vines, which are then often vinified together, in the more traditional Champagnes, which therefore develop even more complex characters, specific to this very particular wine. In some points, metallic cylinders to smell have also been placed, which reproduce some scents, such as the gluttonous smell of brioche and grilled bread for the mature Chardonnay, and fruit jam for the evolution or the scent of walnut and boisée typical of the Pinot more evolved meunier. Through a visit to this small garden it is thus possible to identify and memorize the typical colors and scents of the three vines, which are then often vinified together, in the more traditional Champagnes, which therefore develop even more complex characters, specific to this very particular wine.



Figure 9. Panel illustrating the project partners (photo by A. Gheresi).

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Freehand drawing in design: vision, synthesis and awareness

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Abstract

Drawing means leaving a trace through a universal language that implies values of both semantic and emotional origin. Drawing integrates conventional signs such as figures, letters and symbols, with images of great evocative and communicative effectiveness. However, it can be understood according to many meanings: in this treatment, the aim is to emphasise the importance of freehand drawing in design as a tool capable of translating and simplifying complex contents, adapting to the different phases of in-depth analysis and transmission of ideas.

In design, devising solutions that are comprehensible and immediately usable means establishing a mutual dialogue between user and designer through the interpretation of ideas, one's own or those of others, with the invaluable skill of freehand drawing: enchanting by communicating without speaking is an added value to any project.

It is evident how much an exclusive, complex and structured context like design finds its most useful solutions in one of the most immediate and simple tools: drawing is everyone's and for everyone, no one can establish its beauty but can recognise its effectiveness.

Abstract

Disegnare è lasciare traccia attraverso un linguaggio universale che sottende valori sia di origine semantica, sia di carattere emotivo. Il disegno integra segni convenzionali quali cifre, lettere e simboli, ad immagini di grande suggestione ed efficacia comunicativa. Tuttavia esso può essere inteso secondo molte accezioni: in questa sede, l'obiettivo è porre l'accento sull'importanza dell'apprendimento del disegno a mano libera nella progettazione come strumento capace di tradurre e semplificare contenuti complessi, adattandosi alle diverse fasi di approfondimento e trasmissione delle idee.

In ambito progettuale, ideare soluzioni comprensibili e subito fruibili significa

instaurare un mutuo dialogo tra utente e progettista attraverso l'interpretazione di pensieri, propri o altrui, con l'inestimabile abilità del disegno a mano libera: incantare comunicando senza parlare è un valore aggiunto a qualsiasi progetto.

E' evidente quanto un contesto esclusivo, complesso e strutturato come quello della progettazione trovi le sue più utili soluzioni in uno degli strumenti più immediati e semplici: il disegno è di tutti e per tutti, nessuno può stabilirne la bellezza ma può riconoscerne l'efficacia.

Introduction

While recognising the incidence of freehand drawing in the history of communication, there has been a gradual loss of its practice over time.

The spread of increasingly advanced technological tools has facilitated certain design practices while not guaranteeing direct control of ideas and their development. Although the preliminary idea must necessarily move to a digital platform that facilitates its executive development, the need to preserve the creative and ideational aspect of the project remains of great importance, without limitations or inhibitions arising from the idea of drawing as something necessarily beautiful to see.

It is in fact a tool and language that can be used by any designer precisely because it does not require any translation, often including even very complex content.

In particular, here we would like to focus on the fascinating field of nautical design, a sector closely influenced by a multifaceted and multidisciplinary approach. In this field, it is difficult to univocally mark out the design process because it requires often unpredictable changes of direction at different points in the design spiral, affecting the entire production chain. And yet, an unfailing characteristic that makes this kind of project totally unique is precisely the creative component: whether it is the designer who imagines a new style or the owner who wishes to visualise the dream he has in mind, drawing remains the most effective and persuasive communicative tool capable of enchanting the beholder. Especially in such an exclusive context, relying on a simple, traditional tool means reconnecting with tradition and the emotional aspect that, when observing the complexity of a large yacht, struggles to emerge.

Learning the development of the nautical project from its early sketching and conception stages is fundamental to understanding the complexity of its subsequent design development. However, young designers are finding it increasingly difficult to regain the expressive freedom taken away from them by technology. In order to return to an appreciation of the value of creativity, the University of Naval and Nautical Design offers freshmen the Concept Design course, the soul of which lies precisely in the ability to approach the project freely, exploiting the component of uniqueness typical of an approach to the idea free of schemes, as well as being able to interpret the thoughts of others and make them visible.

Being able to communicate without speaking in order to describe a product, transporting one's interlocutor into an imaginary reality that alludes to the future, is an objective that is difficult to realise with the aid of computer technology. Alessandro Brunelli maintains that drawing is 'thought and language' even before it is a verification tool and that it is, therefore, an irreplaceable tool, especially from a computer, for the definition of the design process. Through the Concept Design course, freshmen enter the

nautical world using an unconventional approach and come up with innovative proposals, recognising their feasibility and evaluating their potential.

Therefore, the aim of this discussion is to focus on the role of freehand drawing in design, particularly nautical design, focusing on some of the methodologies practised in the course to train young designers. If they are to learn to use drawing as a language that simplifies ideas, it is necessary to accept the streamlining of the tools at their disposal and to promote the enhancement of the creative process. Restorative skills can be trained through the practice of gestures and the habit of interpretation, a fundamental attribute for the acquisition of skills that are useful both for the transmission and archiving of contents of great importance. Design activity requires empathy, visualisation, readiness for action, collaboration, curiosity and awareness: “the designer wants to act in a practical way on reality, paying particular attention to human needs, in a Promethean sense, but cautiously»⁽¹⁾.

Drawing and Designing

In the sphere of design, we often move from a mental prefiguration to its concretisation through phases that closely link eyes, hands and brain in a continuous ideational interweaving. Quoting Gregotti, “Any Italian vocabulary assigns to the word ‘drawing’ the double meaning of proposal, intention or project; but also that of representation of an imagined or real figure, or even the form of a composition. But while these definitions propose the meaning of the completed act, they do not grasp the role of drawing in the process of making architecture by which the project then takes its final form”.

With the practice of drawing, the connection between head and hand is inseparable and does not require filtering or encoding by additional tools: imagined forms are transferred to paper and, in the same way, the figure on paper can be compared with the idea in one’s mind. The immediacy of this connection is particularly effective when proposed to another person: the breaking down of communication filters and the speed of transmission of concepts allows for a more direct and inclusive interaction, even when related to complex content.

Gabetti, in his essay ‘Drawing to Communicate’ historically analyses how drawing has been used in Architecture according to representational needs. As in this discipline, what distinguishes structured and multidisciplinary fields is, however, a difference in approach dictated by socio-cultural differences or, more practically, by individual skills. Even for drawing, it must be stated that not everyone has the same dexterity with graphic tools or their decoding, so much so that a good drawing must provide a simplified and intuitive view of the design to ensure its correct dissemination.

As shown in the example (Fig.1), the design drawing is immediately usable and capable of translating the highly specific contents of a traditional technical paper, lowering the level of comprehension but not being any less effective. It doesn’t, in fact, make use of codes known only to experts in the field; rather, it synthesises a thought in a seductive manner, making it visible on paper and managing to facilitate even complex aspects and characteristics. [Schön 1992, pp. 174-177]. What makes the nautical field peculiar is the history of its evolution and the traditional approach that is still preserved today towards

(1) B.Latour, *Un Prometeo cauto? Primi passi verso una filosofia del design*. E/C rivista dell’Associazione Italiana di studi semiotici, 3(3/4), 255-263, 2009.

the design process.

Historically, the change in the conception of the nautical means of transport has been emblematic: first conceived and used solely to perform practical functions, it then became an object of desire intended for pleasure and leisure. In this sense, it became necessary to direct the design towards another type of construction that would take into account optimised structural and aesthetic characteristics aimed at pleasing the eye of the customer above all. This paradigm helps to understand how much the design of a boat must respect a variety of multidisciplinary characteristics and expectations that the designer has to face with a changing and dynamic approach that knows how to take into account, especially in the early stages, the importance of the emotional key.

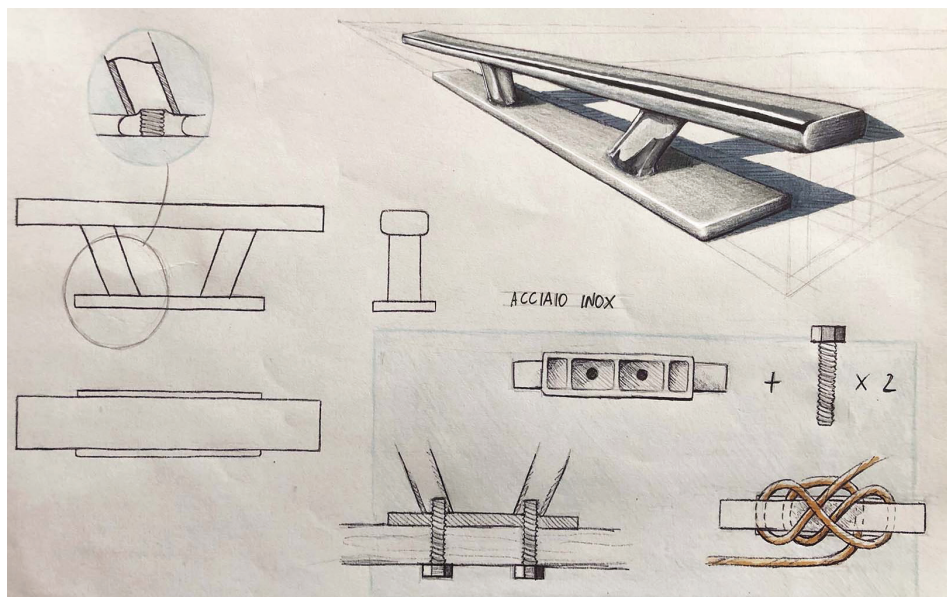


Figure 1. *Picture story of a nautical component; Naval and Nautical Design student.*

Methodologies and learning

The nautical designer's approach is influenced by his knowledge of the design parameters and he himself represents the key to interpreting certain contents for the client, as the interpreter of a unique and personal dream. It is therefore interesting to dwell on how an exclusive and structured context such as the one considered in the example can find expression, at least in some of its phases, in one of the most immediate and simple tools: as Glaser maintained, drawing allows an emotional suspension by preserving the representation of the object and granting an ideational evolution denied instead by the use of other tools.

The immediacy and expressive energy of drawing brings with it a degree of imperfection that is nonetheless capable of convincing because it leaves space for the imagination; in this sense, a skilful draughtsman is not necessarily the one who is able to propose a beautiful drawing, but who is able to express ideas through signs using a language that is accessible to anyone who has to understand notions highly conditioned by technicalities. Today, young designers are too oriented towards an immediate visualisation of design

solutions, granted by modelling and rendering tools that take them away from a scheme-free approach. Ideas are conditioned by others that already exist and struggle to be innovative because they have lost the habit of facing the blank sheet of paper, forcing them to a preliminary phase of observation and thoughtful proposal of controlled and conscious solutions. Quoting Martegnani, three-dimensional visualisation programmes are the result of a set of mechanical operations that are not instinctive but, above all, modifiable (Martegnani and Montenegro 2001, pp.58-65); this aspect contributes to an ever decreasing interest in understanding and controlling what is being proposed. In the conceptual phase of nautical design, there is an interest in developing a hypothesis through an approach that is as free as possible from schemes; the designer-thinker must be able to creatively access the idea by developing signs and forms that are independent of the reflections of what already exists and of the need to exalt the artistic nature and beauty of the design produced.

Louis I. Kahn considers the preliminary drawing the appropriate tool to tackle design problems, viewing each trace as a question to which the correct answer must be found. Drawing therefore becomes a means of investigation and reasoning. In order for an inversion of thought to take place in the ideational process of young designers, leading them to consider freehand drawing as an indispensable tool for design communication, it is necessary for the canonical learning of its practice to be juxtaposed with structured and experimental exercises (Fig.2). The proposal to invent solutions from a blank sheet of paper is a stimulus to familiarise oneself with a new, uninhibited, clear and accessible language.

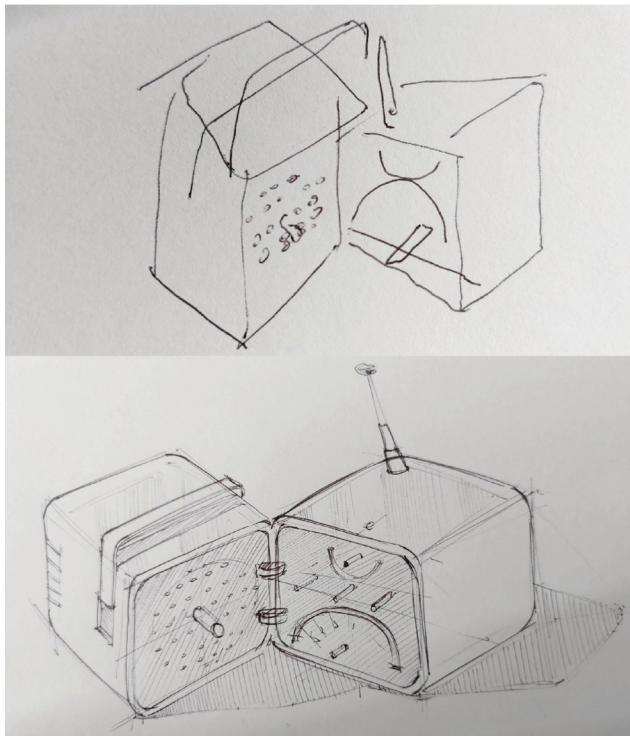


Figure 2. Concept Design course, observation of an object and its reproduction first with closed eyes, then with open eyes, in 3 minutes.

Combined with an ability to synthesise and an awareness of the aesthetic limits of their products, designers learn to control solutions characterised by ease of reading and, above all, the uniqueness and irreproducibility typical of freehand drawing.

Design for the Nautical makes this approach complex because it is defined through multiple approaches converging in a final product that is highly elaborate in terms of technology, engineering and aesthetics. Right from the very first moments of design experimentation, therefore, freshmen on the course struggle to detach themselves from the operational requirements that a sector such as this demands: for this very reason, the aid of courses in representation and conception is of fundamental importance. In the Concept Design course, through initial focus groups that can be defined as cognitive, the trends of the freshmen are investigated. What emerges, year after year, is not only the loss of manual dexterity or creative impetus, but rather the gradual loss of flair because it is considered to be of little use in the performance of everyday activities, including training. By means of collective discussions and practical demonstrations, students are able to recognise how useful it is, in the design field, to re-appropriate those skills practised only in childhood; these, if developed consistently with the learning objectives, allow each designer to carve out a unique glimpse into the nautical design scene.

temperamatite

(meno com. **temperamatita**) s. m. [comp. di *temperare* e *matita*], invar. – Arnese (detto anche *temperalapis* o *temperino*), adoperato per fare la punta alle matite, costituito da un corpo variamente sagomato, dotato di un foro conico, nel quale si inserisce una estremità della matita, e da una piccola lama affilata fissata tangenzialmente alla parete del foro stesso; con la rotazione della matita si provoca il taglio del legno che riveste la mina, il quale viene eliminato sotto forma di truciolo continuo: un t. di metallo, di plastica; t. automatico e t. semiautomatico, tipi speciali e più complessi per uffici, studi e laboratori, azionati per mezzo di un motorino elettrico o a mano.

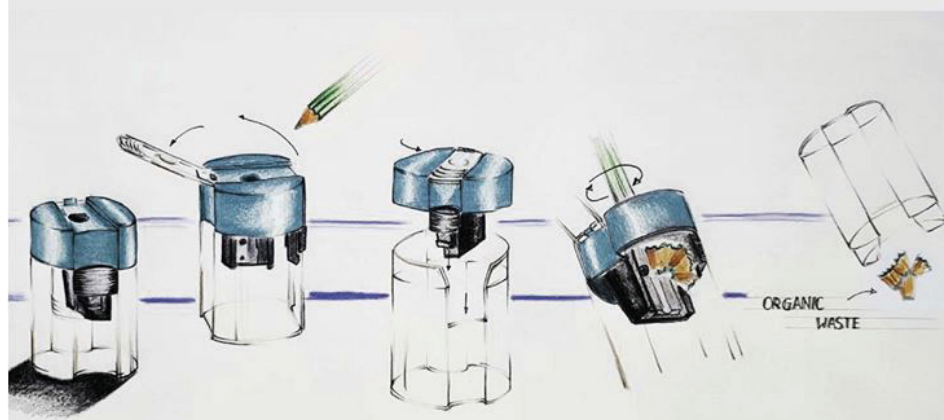


Figure 3. Drawing by a Concept Design student, comparison between verbal and graphic description of the same object. The immediacy of the second image summarises and simplifies the first one.

Through specific exercises, in fact, a kind of informative drawing is practised that lies somewhere between the evocative and immediate design sketch and the technical construction drawing. The exercise of freehand drawing for the conception of a nautical project, proposes with the Concept Design course a series of exercises, both individual and collective, that cross different spheres.

The first objective of the class is the ability to translate one's own ideas and others', emphasising how drawing can often replace the verbal description of a content. With drawing, in fact, no knowledge of foreign languages or reading is necessary; it requires less comprehension effort and certainly advantageous interpretation time, as demonstrated in the example (Fig.3).

Facilitating comprehensibility by following specific principles of setting the work on the paper and optimising the layout also gives the representation greater incisiveness. From an early age, at least according to Western culture, drawing and writing follow static rules of occupying already defined spaces and boundaries. Pulver upholds the criterion of space symbolism, according to which the sheet of paper represents the projection of the environment in which one moves and interacts, following all ⁶ vectors: when observing a graphic support, such as a simple sheet of paper, it is important to be able to recognise the relationship existing between the different signs drawn in order to independently establish a correct reading hierarchy. Besides, you will not always have sheets of paper or notebooks at your disposal: what would happen if you found yourself drawing on board of a yacht under construction, having to communicate a variation to the carpenter? (Fig.4).



Figure 4. Detail sketch made in production following exchange of ideas between designer and carpenter, Sanlorenzo shipyard, Yacht SL120A.

For a design drawing to be comprehensive without being redundant, it is also necessary to be able to recognise its excesses. Training oneself to accept even slightly elaborate drawings is a difficult but necessary step, especially for those who, as beginners with freehand drawing, are unable to detach themselves from decoration.

In this context, one learns to eliminate all the trappings typical of a purely artistic production, leaving aside laborious techniques that require the support of drawing instruments of a more complex use. A designer's best drawing must be comprehensible, not only attractive.

By acquiring a critical awareness of this nature, another cardinal goal of Concept Design is achieved: it is also possible to give a realistic appearance to the design by using tools that allow us to imitate, even if only approximately, the materials or context of our product (Fig.5). Citing the architect Jerzy Soltan, Le Corbusier's collaborator in Paris, drawing is the "possibility of exploring what has yet to be discovered": increasing realism allows for the addition of fundamental and immediately comprehensible information, projecting the observer before what at that moment he can (still) only imagine.



Figure 5. Drawing by a Concept Design student, freehand rendering of a nautical interior.

Conclusions

Practising freehand drawing helps, over time, to build the personality of the designer-draftsman, who becomes able to add value to his designs also thanks to the recognisability of his sign. The teaching of this kind of approach aims at the acquisition, by the designer, of the autonomy to propose his own ideas by drawing them on a sheet of paper: overcoming the inhibition of "being unable to draw" is the most effective way to transmit and fascinate. It is therefore possible to say that the uniqueness of freehand drawing highlights the exclusive nature of specific projects, especially in contexts already strongly influenced by a certain exceptionality, such as the nautical one.

Not by chance, the glorious boats that made history are the result of genius and intuition, of the controlled transition between idea and graphic production and of skilful craftsmanship (Fig.6).

The potential of a draft or idea expressed through drawing lies in the development of imaginative abilities rather than technical virtuosity; freehand drawing belongs to everyone, including people who believe they lack it. This is why it is of crucial importance to learn to recognise the need for this reversal, right from the start of a design career, in order to be able to fascinate not only the observer, but also those who carry it out.

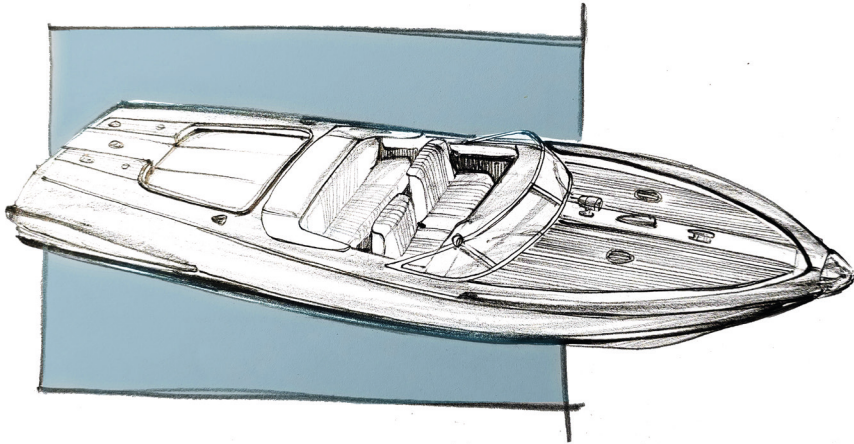


Figure 6. Drawing of a Riva Aquarama, the most famous of Carlo Riva's creations still celebrated worldwide as a true legend.

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Reconstructing the visual perception of a historical site: the digital restoration of a lost fresco in Genova

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Abstract

In April 2023, the research collaboration between the Department of Architecture and Design (dAD, UNIGE) and Palazzo Imperiale (Genova) regarding the decorative features of the palace, with specific reference to Luca Cambiaso's fresco "Morte di Cleopatra," was concluded. The artwork, a focal point of the pictorial cycle in the main hall on the second noble floor, was lost during the bombings of World War II, and a whitewashed ceiling has now replaced the original painted vault. The purpose of the research was to digitally recreate the fresco in its original location, projecting it as it was believed to appear at the end of the 16th century. A black and white photograph of Cambiaso's work, taken by Superintendent Mario Labò in the 1940s, is preserved in the DocSAI archive of the Comune of Genova, and was used as visual reference for the restoration. The research project, following an initial phase of source study, was conducted using computer and technological methods: from photographic sampling of other frescoes by the same artist to hand-painting the colors on a graphic tablet; from digital restoration of the photograph to the projection onto the ceiling of the room. During the 2023 Rolli Days, the recolored fresco was presented to the public during the four days of the palace's opening. For the first time since 1942, visitors were able to admire the story that Cambiaso and his patron intended to convey, in a place where there now stands a silent ceiling.

Abstract

Nell'aprile 2023 si sono conclusi i lavori previsti per la convenzione di ricerca tra il Dipartimento Architettura e Design (dAD, UNIGE) e Palazzo Imperiale (Genova) inerente gli apparati decorativi del palazzo, con particolare riferimento all'affresco "Morte di Cleopatra" di Luca Cambiaso. L'opera, protagonista del ciclo pittorico del salone al secondo piano nobile, è andata perduta durante i bombardamenti della Seconda Guerra mondiale e un controsoffitto imbiancato ha oggi sostituito quella che era l'originaria

volta affrescata. Scopo della ricerca è stato quello di riproporre nella sua originaria ubicazione, tramite proiezione, l'affresco così come si ipotizza potesse apparire alla fine del Cinquecento.

Presso l'archivio DocSAI del Comune di Genova è conservata una fotografia in bianco e nero dell'opera del Cambiaso, scattata dal soprintendente Mario Labò negli anni Quaranta e utilizzata come base grafica. Il lavoro di ricerca, dopo una prima fase di studio delle fonti, è stato condotto per mezzo informatico e tecnologico: dalle campionature fotografiche di altri affreschi dello stesso artista, alla stesura del colore realizzata a mano su tablet grafico; dal restauro digitale della fotografia, alla proiezione sul soffitto della sala.

In occasione dei Rolli Days 2023, l'affresco ricolorato è stato presentato al pubblico durante le quattro giornate di apertura del palazzo. Per la prima volta dal 1942, i visitatori hanno potuto ammirare la storia che il Cambiaso e il suo committente hanno voluto raccontare, là dove oggi si trova invece un soffitto muto.

Introduction [M.E.R.]

The artistic heritage of a complex and historically rich city like Genova is manifested in numerous expressions across various levels of preservation and, consequently, readability of what its original physiognomy was. It is precisely this heterogeneity that provides the starting point for seeking new methodologies to bring the perception of a historical artifact to a more homogeneous and ideally complete level.

In light of these considerations, there is also a reflection on the opportunity to combine a scientifically-based narrative with the desire and necessity to reach as wide a group of visitors as possible, characterized by varying levels of artistic sensibility. The perfect opportunity for such experimentation arose with the study of Palazzo Imperiale in Genova, one of the Palazzi dei Rolli, some of which have been UNESCO heritage since 2006. Closed to the public for over forty years after the end of the Second World War, it was consolidated and partially restored in the early 2000s and reopened its doors during the Rolli Days twice a year.

The subject of this research is the first hall of the second noble floor, now divided into two rooms by a wall erected at the end of the 17th century, immediately after the first bombardment by French ships, which destroyed part of the ceiling and its decorations. Luca Cambiaso's fresco "Morte di Cleopatra" survived until World War II, captured by the lens of the superintendent Mario Labò before collapsing due to a second bombardment. The reconstruction of how the original frescoed vault might have appeared is still in progress, while the digital coloring of the photograph for its projection at the palazzo during the Rolli Days 2023 has been completed.

The goal, therefore, is to experiment with a kind of 'accessibility' to a heritage that surpasses the obstacles of time, decay, damages and the limits of imagination. Fundamental for the development of research in this regard has been deep historiographical research and, even more so, documentary research related to historical representations.

The starting idea, therefore, had two methodological references: on the one hand, to seek the spirit and identity of a space, not only attempting to overcome the obstacle of its current perception but also to reconstruct the relationship between architecture and original decoration. On the other hand, to define a narrative method that could adapt to

the needs of communicative effectiveness and exhibition logistics.

The research⁽¹⁾, therefore, began with a study of the origins of Palazzo Imperiale and its original appearance, then shifted focus to the research on the vanished Cambiaso fresco, with the aim of reconstructing through it a part of the evolution of the palace and its connection to the city.

As part of the Rolli complex, the evolution of the palace can, in fact, transport the visitor to an almost immersive experience related to the history of Genova and the way noble families of the 16th century lived.

Visual communication and iconography in Palazzo Imperiale [G.L.]

Palazzo Imperiale and its precious decorations – being commissioned by Vincenzo Imperiale, a wealthy Genoese nobleman – were completed between 1560 and 1565. The artists who worked there were among the most prominent names of the time: Giovanni Battista Castello, known as *il Bergamasco*, and Luca Cambiaso with his school. Masters of late Mannerism, they adorned the palace with ornaments of great communicative power, capable of attracting the passerby's gaze even in the typical narrow streets of Genova, the *vicoli* (Grossi Bianchi, Poggi, 1980). As was customary in the 16th-17th centuries, no decorative detail was left to chance; everything had to tell the story of the family's achievements, talents, and public roles of its members, as well as their aspirations and political sympathies (Müller Profumo, 1992). In this regard, the choice of themes for the frescoes on the second noble floor, the reception floor, was very original. Even today, it is possible to admire in the second hall the "*Virtù di Cimone l'Ateniese*," where, alongside celebratory busts of Roman emperors and Spanish kings, the historical events of the Greek hero unfold in what appears to be a deliberate parallelism with the moral principles of the palace's patron (Parma, 1999). The story of Cimone is drawn from the volumes of Plutarch, which were present in multiple copies in the family library and served as inspiration for another even more original and enigmatic pictorial cycle. From some written and graphic testimonies, such as photographs taken just before the bombings, we know that the first grand hall was intended to narrate to the visitor the stories of Cleopatra and Marco Antonio. Probably chosen as symbols of great patriotism and courage, they certainly also declared Vincenzo's unique and cultured taste, especially considering the philological approach of the scene painted by Cambiaso. This scene, depicting the "*Morte di Cleopatra*" (Death of Cleopatra) survived the first bombing in 1682, which struck and obliterated much of the ceiling containing the panel painted by Bergamasco depicting the life of Cleopatra, of which we have no visual evidence. The hall required consolidation and restoration work already at the end of the 17th century, with the construction of a wall that destroyed more decorative elements and the original unity of the large vault covering the space.

In 1942, an air raid struck over 1,250 buildings in the historic center of Genoa. Among them was Palazzo Imperiale, where all the ceiling of the first hall with the original frescoes was definitively lost. The fire following the bombs' impact and the neglect of the subsequent decades left the building in a dilapidated state, causing the loss of

(1) This research, formalized with an agreement between the Department of Architecture and Design of the University of Genova (dAD) and the Administration of Palazzo Imperiale, is performed under the supervision of professors Maria Elisabetta Ruggiero and Ruggiero Torti from the Department of Architecture and Design (dAD) of the University of Genoa.

many important paintings and sculptures (Ceschi, 1953). The heat of the flames and the atmospheric agents to which they were exposed altered the surviving frescoes, including the painted frieze depicting cherubs, festoons, and the “Three Fates” that ran along the entire perimeter of the hall, just below where the panels dedicated to the Egyptian-Roman stories were supposed to be.

In the 2000s, unable to work on the material surface of the building due to imposed constraints and, in the case of the subject of this research, the complete lack of a working base, the restoration choice fell on a simple whitewashed false ceiling. Thus, not only the artistic and historical dimension of the images that were once represented on the vaulted ceiling was lost but also the communicative key for which the environment itself had been conceived. For this reason, in addition to the image’s recovery, it was decided to project the final result onto the ceiling – hypothesizing its actual dimensions – to give the visitor back the experience for which the environment had been designed.



Figure 1. *On the left, the first portion of the ceiling and the decorated band of the room where the fresco was supposed to be. On the right, details of the decoration. Pictures by the authors.*

Methodology [G.L.]

The project was divided into three main phases: the initial research phase, the digital intervention phase, and the final projection phase. The overall workflow was structured as follows:

1. Archive and bibliographic research; 2. 3D survey of the structure; 3. Hypothesis of ceiling reconstruction/fresco localization; 4. Restoration and optimization of the original photograph; 5. Analysis of the photographic image; 6. Investigation and color sampling of other Cambiaso’s frescoes; 7. Color restoration; 8. Projection at the original site; 9.

Communication to the public.

The preliminary documentary and bibliographic work was crucial for accurately placing and dimensioning the fresco. Its description has only come down to us through texts written by visitors who were able to admire Cambiaso's work directly between the 18th and 19th centuries. "The fresco in the hall; stupendous work that, since the first stepping into the hall, refrains me from talking of its details that do not concern its beauties. [...] I will not dare to affirm with Ratti that in no fresco better than in this one Luca showed himself a strong painter of feelings, and a great artist; though in Genova and other vaults outside this City for both prerogatives he strives to make us wonder. But that the present painting must be counted among the best it cannot be doubted, and perhaps, once it has been copied in drawing, it would be clear to everyone that it is outstanding for the amount and variety of concepts that give life and eloquence to the scene. As for the painting, there is no lack of vividness of tones, energy of chiaroscuro, and masterful graduation of perspective, indeed such qualities shine, although to a close examination there is some want of the full freshness found in other works by him" (Alizeri, 1874, pp. 573-589)⁽²⁾.

Carlo Giuseppe Ratti in 1780 briefly mentions the room on the second floor which "has a superb fresco within the vault by Luca Cambiaso and shows the Death of Cleopatra ... In the frieze the beautiful figures of the Fates and other goddesses are also by Luca himself" (C. G. Ratti, 1790, p. 319).

Simultaneously with the collection of textual information regarding the fresco, a preliminary 3D study model was created to process the volumetrics of the original building structure, taking into consideration all dimensions of the edifice. The laser scanner recording of the volumetrics focused on the first three rooms of the second noble floor, which are the surviving spaces that were part of the original building where Cambiaso worked. The investigation of the building through the 3D model obtained from the scan did not provide any help in sizing the original fresco, as both the ceiling and the west dividing wall now present in the hall were reconstructed after the bombings and do not match the height or depth measurements of the original room. However, the model obtained allowed for the study of the graphic representation of the hypothetical configuration of the entire unified ceiling, as it would have originally been divided to accommodate the panel with the Death of Cleopatra (Fig. 2). This panel was intended to be situated on the ceiling portion just after the main entrance, in what is now the first room encountered, the smaller of the two into which the hall has been divided.

Regarding the archival graphic material, only two crucial pieces of evidence were identified for the completion of the work: a preparatory sketch of the Death of Cleopatra, executed in the same year and currently part of a private collection (Suida, Suida, 1958), and a black and white photograph taken by Superintendent Mario Labò immediately before the devastating bombing that destroyed the fresco. The photograph is currently

(2) "L'affresco della sala; stupendo lavoro che al primo entrar queste soglie, mi vieta di fiatar pure intorno ad esami che non riguardino le sue bellezze. [...] Io non ardirò d'affermare col Ratti, che in niun affresco meglio che in questo si mostrasse Luca gagliardo pittor d'affetti, ed esecutor grande; essendo in Genova e fuori altre sale, ove per ambedue le prerogative ci sforza lungamente a meraviglia. Ma che la presente debba contarsi tra le migliori non può mettersi in dubbio, e forse, recata in disegno, prevarrebbe ad ognuno per quella copia e varietà di concetti che dan vita ed eloquenza alla scena. Quanto al dipinto, non vi manca vivezza di toni, energia di chiaroscuro, e maestrevole graduazione di prospettiva, anzi vi brillano tal doti, quantunque a chi bene esamini non vi sia intera la freschezza che si trova in altre sue opere." [Alizeri, 1874, p. 573]

"ha un superbo affresco entro la volta di Luca Cambiaso e mostra la Morte di Cleopatra...Nel fregio son pure dello stesso Luca le belle figure delle Parche ed altre deità". [Ratti, 1780, p. 319]

preserved in the DocSAI archive of the Comune di Genova. The hypothetical sizing of the fresco's frame was calculated based on the portion of the frame depicted in the photograph, compared to the surviving stucco frames in the palace.

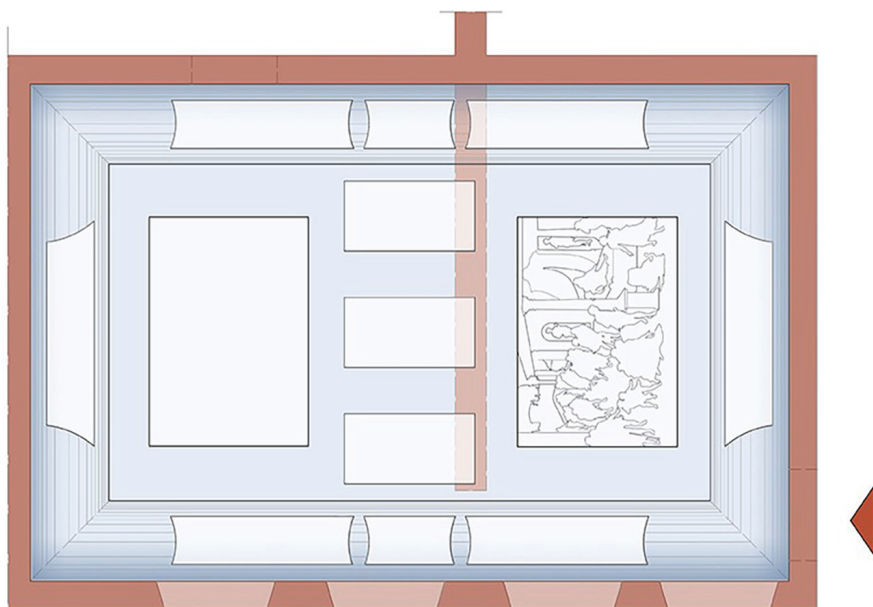


Figure 2. Schematic representation of the hypothetical original layout of the ceiling. Drawing by G. Leandri.

The second major phase of the research focused on the photograph as a direct source of the fresco's image, as the drawing deviates from the final work of Cambiaso in many elements. The photographic image exhibits surface deterioration over time, both in material and color. The strong contrast of the print and some missing parts make it difficult to discern certain details of the fresco.

Therefore, the first step involved digital restoration of the photograph in black and white, acquired at the highest possible quality and manually processed using a graphics tablet to fill in gaps and recover darkened graphical elements. The restored photograph was then used as the working base for the subsequent color application phase (Fig. 3).



Figure 3. On the left, the original picture by M. Labò. Image by DocSAI. On the right, the final result after the digital restoration. Image by the authors.

Following the restoration of the photograph, an analysis of the composition of the scene was conducted, examined in the context of the peculiarities of Luca Cambiaso's painting style. This included the creation of perspective depth through the movement of subjects and the almost "theatrical" arrangement of the narrative. This analysis helped identify some of the key characters in the story narrated by Plutarch: on three distinct planes, in an oblique development, the protagonists can be discerned. From Cleopatra lying on the bed to her desperate son Cesarione rushing to her side, the procession unfolds, forming an animated background that deceives the eye into perceiving depths that the small size of the panel would hardly offer.

Although a photographic campaign was conducted for the other frescoes in the adjacent rooms and the decorative frieze below the false ceiling, it was not possible to rely solely on these colors as references for recoloring the photograph due to significant alterations caused by the 1942 fire. Therefore, a color sampling was done using typical colors used by Cambiaso in the Genoese palaces in the mid-16th century. For this task, the fresco "Il Ratto delle Sabine" at Villa Imperiale, painted by the same hand during the years when the Cleopatra cycle was being completed, was chosen. The fresco has recently been restored and, as a result, exhibits the vibrant colors for which the artist was known (Magnani, 1995). A photo campaign was conducted using a Sony A99. Approximately 300 photographs were taken, from which over 200 colors were sampled, categorized by elements (vegetation, skin tones, male garments, female garments, hair, drapery, etc.), type of color (greens, pinks, reds, yellows, etc.), and shade (dark tone, light tone, mid-tones). Using the Wacom Color Manager, the color brightness of the samples was set as the baseline, calibrating the brightness of the graphic tablet accordingly. From these images, it was possible to create a color palette, while a comparison with a large number of frescoes allowed us to deduce, with a high degree of probability, the frequent combination of elements and colors applied by Cambiaso (Fig. 4).

DETTAGLIO 2

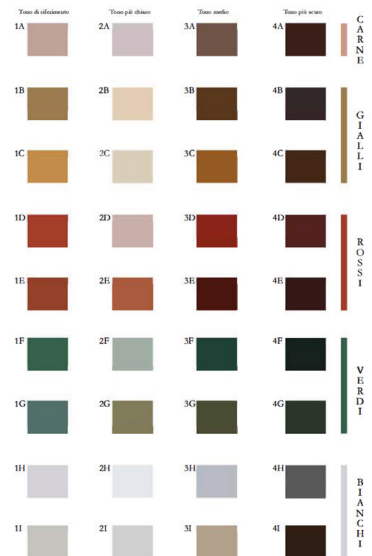
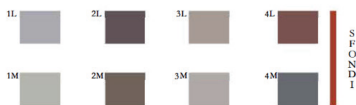


Figure 4. Colour sampling from the "Ratto delle Sabine" by Luca Cambiaso, 1561. Image by the authors.

In the final phase of the work, the color was applied to the digitally acquired photographic base. This operation was carried out entirely by hand on a Wacom graphics tablet and involved the overlaying of over eight hundred transparent color layers to preserve the original shadows and highlights (Fig. 5). No reference was made to any international color code as the study of colors was conducted directly on other works by the same artist.

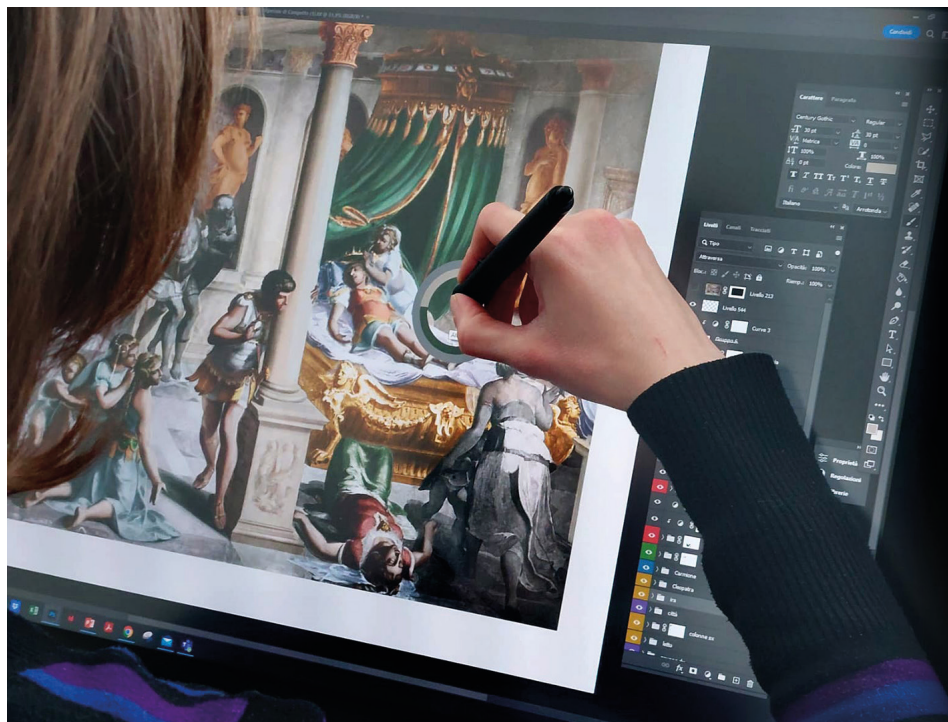


Figure 5. *Freehand colouring of the fresco photograph on a Wacom tablet. Image by the authors.*

The recently restored pieces exhibited recurring colors, typical of a 1500s painter, vivid and intense, which constituted Luca Cambiaso's usual stylistic hallmark. These tones, digitally analyzed through Adobe software and Wacom Color Manager, were adjusted to harmonize with the original shades at the Palazzo Imperiale, unfortunately altered by the heat of the fire following the bombings. The decision was made not to create an excessively vibrant color but to tone it down visually to maintain coherence with the frescoes in the adjacent rooms. Furthermore, the application of digital color did not occur on a white and uniform surface, but on the grayscale tones of the photograph. Therefore, it was necessary to balance the colors during the process, depending on the shade of gray onto which the color was applied. Finally, the transparency and multiple layers applied one over the other to replicate the shadows and lights of the photograph required further manual adjustments. Upon completion of the coloring, specific color points were analyzed in their components, comparing them with those sampled from the photographs of the "Ratto delle Sabine". The manual intervention in both the photographic restoration and coloring phases was necessary for two main reasons. Firstly, the only available

photograph, once digitized, did not have the necessary quality to be automatically processed by software, which was unable to recognize and separate individual elements. Secondly, the color layers were applied with digital brushes that replicated the delicate variations in intensity of the original and simulated the application of the fresco.

The projection and communication to the public [R.T.]

Upon completing the operations of image study and restoration, an experimental form of informative visual communication linked to state-of-the-art Augmented Reality projection technology was identified. This technology has the capability to reintroduce Cambiaso's lost fresco to visitors through an engaging communicative language designed to capture the user's attention and enhance their emotional involvement. Projected Augmented Reality, better known as video mapping, enables a fusion between the real world and the virtual world, providing an effective and captivating perceptual experience through the use of technologies involving projectors, high-definition 4K cameras, combined with a sophisticated integrated system of hardware and software capable of intelligently scanning the projection within the visible beams of structured light in the environment (Martini, 2018). Projected Augmented Reality is a form of augmented reality that uses projected light to add digital content directly onto objects or real environments, instantly viewable by multiple people without the use of devices. Since projected AR involves projecting onto objects not conventionally used as projection surfaces, the digitally projected content needs to be precisely mapped and aligned with the physical scene to ensure a more engaging experience. The technology used for this reconstruction is Lightform Compute: a hardware processing device called "LFC" that acts as a playback server, which, when paired with a 4K color video camera for adjustable focus and field of view scanning, would enable the acquisition and analysis of structured light scans projected by a compatible projector. The acquired data is sent to the cross-platform application "Lightform Creator" – installed on another laptop connected to the system via Wi-Fi – capable of controlling the LFC device, initiating a scan, creating content masks, transmitting and playing images, texts, and videos to the projector, and creating AR content for projection.

Delving further into detail, special attention has been given to prioritizing the viewpoint of the projector, which must necessarily align with the camera's optics to ensure the same perspective between the two devices. After performing the main alignment maneuvers between the optics, we proceeded to scan the environment by projecting visible structured light, captured by the 4K camera and processed through the aforementioned integrated system to detect deformations in the beams of light itself (Fig. 6). In other words, the projection of a series of coded luminous grids – typically consisting of vertical and horizontal lines – is exploited by the high-resolution camera to assess the position and dimensions of the environment and objects present, in accordance with the deformation of the lines simultaneously captured by the camera. Finally, the camera captures an image as if it were taken with the optical parameters and the same perspective as the projector. This results in the projection of a virtual image of the environment perfectly aligned with the real environment. The information obtained is processed through a computer and converted into 3D maps of the surfaces onto which it is now possible to project light – hence information – precisely and calibrated. This integrated system is of significant

importance because it allows the processed information to be transmitted and converted into 3D maps directly onto real surfaces that become possible screens for conveying information. Dedicated software, in addition to controlling the projection, can create captivating and engaging visual and audio experiences through creative and synchronized design of procedural visual and audio effects. As for the room's lighting, considering it's not possible to darken the four windows in the room and that visits occur every 30 minutes from 9 in the morning until 7 in the evening, it was decided to set the projection brightness to a medium-high level during peak natural lighting hours. The perception of color slightly varies throughout the day, similar to the textured frescoes, which are subject to the different brightness of the environment in the absence of artificial lights.

The communication to the public has relied on various design choices, not only concerning technological methods but also the physical space of the installation and expressive synesthesia. First and foremost, to make it easier to view the fresco on the room's ceiling, it was necessary to opt for the decontextualization solution, as the original setting no longer retains its characteristics as a room – now partially used as an entrance, ticketing area, and corridor. Secondly, it was necessary to define the boundaries of the projection itself to suggest the scale relationship between the artwork and its display. Even from these brief remarks, the complexity of the operation is evident, as it must be simultaneously evocative, historically supported, correctly presented, and coherently perceived by the audience (Brusaporci, 2018).

On April 28-29-30 and May 1, 2023, the doors of the private Genoese noble palaces were opened for the Rolli Days (Fig. 7). During the visits, postcards featuring the final image of the fresco were distributed to the public to facilitate the understanding of graphical elements while trained guides provided explanations (Fig. 8).

In addition to the projection, a short video presentation was created, continuously narrating the history of the place, details about the artwork, the project phases, and, most importantly, contextualizing the contemporary realization in relation to the time of its creation, ensuring that nothing appears arbitrary or misinterpreted.

In conclusion, the high-resolution projection of the lost fresco “Morte di Cleopatra” breathes new life into Cambiaso's work, seamlessly adapting to real surfaces and “augmenting” reality with ever-updated content, both visually completing missing parts and communicating the project's methodologies and execution through other media.



Figure 6. Projection tests of structured light beams in the rooms of Palazzo Imperiale. Pictures by R. Torti.

All of this is visible under both night-time and daytime lighting conditions, without the need for devices to view augmented content, as is the case with some other forms of augmented reality (Luigini, Pancioli, 2018).



Figure 7. During the Rolli days 2023, many visitors could appreciate the restored image projected on the original location at Palazzo Imperiale. Image by the authors



Figure 8. The postcard that was distributed to the visitors, showing the digitally coloured picture of the fresco. Image by G. Leandri

Conclusion [G.L.]

The research, which benefited from the expertise of academics from various fields – ranging from professors and researchers in graphics and technologies (Department of Architecture and Design, Department of Civil, Chemical, and Environmental Engineering, UNIGE) to professors of modern history (Department of Italian Studies, Romance Languages, Classical Studies, Arts, and Performing Arts, UNIGE) – has been an important opportunity for exchange and dialogue among the key areas of cultural and visual dissemination of historical heritage. The absence of the tangible artifact posed some complex challenges, particularly due to the lack of similar experiences previously carried out in other contexts. However, it has suggested interesting and original avenues for development that can provide the basis for expanding the possibilities of restoration and restitution of what has been physically lost. Modern technology now offers sophisticated means for conducting research, enabling highly precise manual intervention and speeding up processes, as well as allowing the creation of adaptable study and visualization models for both the research phase and different audiences. Nevertheless, the control of the human hand has proven crucial for a more evocative graphic representation and for communicating to the broader public what was originally executed by a brush.

Having concluded this initial phase of the research, we are currently proceeding with the second phase, which involves the creation of a complete 3D model of the frescoed vault and the completion of decorations that are hypothesized to have surrounded the panel containing the fresco. Fundamental references in this case will be the grotesques and masks painted by Cambiaso, which can be found on the ground floor and on the ceiling of the main staircase. Part of the future virtual restorations will also include the painted frieze along the perimeter of the two rooms and the sculptural elements of the large stone fireplace in the second room, also damaged by the ceiling collapse. In this way, the visual allure of the hall will be as complete as possible and ideally more faithful to how it must have appeared to visitors in the 16th century.

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One and Three Cities

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Abstract

In the 1965 work ‘One and Three Chairs’ (fig. 1), the American artist Joseph Kosuth first exhibited a wooden chair, a photographic image and the written definition of the word ‘chair’. With this work, the artist asks what a chair is, thus drawing attention to the problematic and conflicting relationship between reality, its iconic reproduction in the form of an image, and its logical expression by means of words. What he proposes is a chair in three different representations, highlighting the need to consider art first and foremost as a language that conveys meanings or ideas comprehensible to all those who share the same expressive system with the artist. The only thing that really connects these three elements is the code of linguistic relations, according to which the object of investigation of reality can only be language. In this work we have a kind of dematerialisation at a distance from the real object. Both the use of photography and the written word, in relation to the material object, can only evoke the idea of the object, giving rise to an act of abstraction. The result is a dematerialisation of the object/art.

Abstract

Nel lavoro “One and Three Chairs” (Una e Tre Sedie) del 1965 (fig. 1), l’artista statunitense Joseph Kosuth, espone per la prima volta una sedia di legno, un’immagine fotografica e la definizione scritta della parola “sedia”. Con quest’opera, l’artista si chiede cosa sia una sedia, richiamando così l’attenzione sul rapporto problematico e conflittuale tra la realtà, la sua riproduzione iconica sotto forma di immagine, e la sua espressione logica per mezzo della parola. Quello che propone è una sedia in tre diverse rappresentazioni, mettendo in evidenza la necessità di considerare l’arte innanzitutto come un linguaggio che veicola significati o idee comprensibili a tutti coloro che condividono con l’artista lo stesso sistema espressivo. L’unica cosa che realmente collega questi tre elementi è il codice delle relazioni linguistiche, in base al quale l’oggetto di indagine della realtà non

può che essere il linguaggio. In quest'opera abbiamo una sorta di smaterializzazione a distanza dall'oggetto reale. Sia l'uso della fotografia che della parola scritta, in relazione all'oggetto materiale, possono solo evocare l'idea dell'oggetto, dando vita a un atto di astrazione. Il risultato è una smaterializzazione dell'oggetto/arte.



Figure 1. *Joseph Kosuth, One and Three Chairs, 1965, tecnica mista. New York, Museum of Modern Art (MoMA)*
A Complicated Order

In his book 'A Complicated Order. How to construct an image (2008)', the Franco-Hungarian architect Yona Friedman tells us from the very first pages how our way of representing the world is essentially linked to an idea of synthesis, implemented by our thinking. A synthesis that boils down to a simple duality: thinking in images and thinking in words. Within this dualism, the image is by its very nature a unitary reality, representing a totality⁽¹⁾, a codified ideological signifier that conceals, through the reality it represents, a political conception of order. Words, on the other hand, are better suited to narrate the complexity of disorder, where disorder is not structured as a concatenation of destabilising processes but as a system rich in variables fluid, and arbitrary, presenting a complex grammar that cannot be simplified and is in constant motion. This leads Friedman to move further, stating that 'disorder does not exist. There is only 'complicated order': an order 'not defined through any rule of construction'⁽²⁾ but through a codified system, the internal rules we do not know and which, due to their characteristics, do not admit to simplification. This is a chaotic and erratic reality that cannot be reduced to the

(1) Yona Friedman, *L'ordine complicato. Come costruire un'immagine*, Quodlibet edizioni, 2011, pp.12

(2) Yona Friedman, *op.cit.* pp. 29-30

representation of an image, object form, or repeatable totality. Its wealth of variables makes it impossible to construct an act of synthesis other than that of accumulation, which makes a complex system comprehensible.

The relationship between image and text is thus linked to our way of perceiving and interpreting the world, but the recognisability of the world is never absolute. It always depends on cultural grids and conventions to establish a possible interpretation of reality. The act of perception is always linked to the way we understand the reality that surrounds us, its folds and iconographies, and has keys to interpretation and interpretation that vary over time about the societies we relate to. How the inhabitants of Ancient Greece read the world differed from that of the Romans of the Late Empire or the amanuensis monks of the Middle Ages. Our perception of the world is thus a condition that is historicised and contextualised in a variable socio-cultural universe, and the act of 'looking' is always linked to 'knowing how to look', to recognising distinct variations. On the other hand, within the fabric of relationships between text and image, the understanding of reality and, in turn, its expression, knowledge, and signification are stabilised. A balance between independent parts, within which the play of synthesis created by an image always enters into a close relationship with the perception of reality and its current modes of existence of the visible. These considerations bring to mind the work 'One and Three Chairs' by Joseph Kosuth.

"One and Three Cities"

In the 1965 work 'One and Three Chairs' (fig. 1), the American artist Joseph Kosuth, for the first time exhibited a wooden chair, a photographic image and the written definition of the word 'chair'. With this work, the artist asks what a chair is, thus drawing attention to the problematic and conflicting relationship between reality, its iconic reproduction in the form of an image, and its logical expression using words. He proposes a chair in three different representations, highlighting the need to consider art first and foremost as a language that conveys meanings or ideas that can be understood by all those who share the same expressive system with the artist.

The only thing that connects these three elements is the code of linguistic relations, according to which the object of investigation of reality can only be language. In this work, we have a kind of dematerialisation at a distance from the real object. Both the use of photography and the written word about the material object can only evoke the idea of the object, giving rise to an act of abstraction. The result is a dematerialisation of the object/art.

In this work, art moves from a system of intuition and synthesis, to one of scientific and philosophical analysis⁽³⁾. The need to work in an experimental context establishes that the object of the research is language, which tends to present itself as its cognition. Starting in the second half of the 1960s, this led to a shift in the focus of art from the form of language to its content, marking the crisis of the form-object and diverting attention towards language and thought, thus moving from the object to the concept⁽⁴⁾. Leading

(3) Cfr. Catherine Millet, *Art Conceptuel*, ed. Art press, 2019.

(4) At the end of the 1960s, the world of architecture saw the emergence of a group of architects working analytically, intent on dematerialising the architectural object and fabrication in order to investigate its process values. Antifarm, Superstudio, and Archizoom, together with the works of Yona Friedman, recall, on the one hand, the research work of conceptual artists and, on the other hand, the operations of the Radicals.

to the abandonment of expressive forms and durable materials and preferring instead linguistic forms of ephemeral material ephemeral matter, which may be sheets of paper, verbal conversations, or philosophical reflections on art-making.

If we apply the same conceptual method as the American artist to the city's theme, we are immediately confronted with an extremely complex issue.

So, let us try to build an installation that we call "One and Three Cities" (fig. 2). Following Kosuth's procedure, we will then have:

- a window, or better, a view of the city seen through a window, as far as the physical and objective essence of the city is concerned;
- a map, as an interpretation of a graphic representation of the city, within which the most significant streets and monuments are indicated;
- a text, encyclopaedic information about the city we want to analyse, with data on urban density, the number of inhabitants, its surface area, some historical information, etc.

So, is this installation a vision of one city, or are they three different situations?



Figure 2. *Emmanuele Lo Giudice, One and Three Genoa, (collage digitale del 2022, progetto per un'installazione) ©Emmanuele Lo Giudice*

This is certainly a comparison between three linguistically related situations, but in Kosuth's work with a chair, we have the possibility of exposing "the chair object"; with the city we do not have the same possibility. The contemporary city has long since lost its essence as an object. I therefore chose to use a device, and specifically, a window. This shows us the city, or it would be better to say the idea of a landscape that can be seen through a window, reinterpreted as a synthesis of the contemporary vision of the city. An urban vision is limited by the "frame" of the window and the viewpoint it carves out. Within this choice, a dual subjectivity comes into play: the "window", which, depending on its location, will always show a different landscape of the city, and the "viewer" who looks at the city through the window. In this way, the use of the window activates

an apparatus of interpretation and relationship between man and his urban vision, thus becoming an instrument of interpretation, a 'landscape painting'. An element of synthesis of the lost object of the city, immersed in nature, is proposed as an artifice. With this choice, the window is proposed as a possible tool for interpreting the physical reality of the contemporary city.

The choice of window is followed by using an image representation of the city. The most obvious choice fell on the use of the map. This map shows us the city's urban fabric in graphic form, with its streets, squares, and roads. A map, however, can only lead us to part of the connections, the various networks, the various urban places, the various buildings, and the architecture; it is always a representation in fragments. As is the encyclopaedic definition. The latter is also a representation of fragments, given the impossibility of defining a complex and multiple reality, such as the city, in a limited number of words. The definition of the city can only be partial and selective. Following this analysis, the only factors that unite these three elements: a window, a map and the text, are the codes of a linguistic relationship in the city. So, it is necessary to understand the codes that define the city, especially since the relationship between these codes generates a kind of calligram present in all three forms of language. A calligram that generates a conceptual idea of urbanity by immediately negating it. A calligram that is immediately ready to unravel as soon as it takes shape, as happens in René Magritte's brilliant work of 1929, 'The Betrayal of Images' known as 'Ceci n'est pas une pipe'. In this work, the artist illustrates the thing in its essence without telling us, providing us with the 'instructions for use' in the caption, but at the same time, as he tells us its name, he gives it by denying that it is such.



Figure 3. René Magritte, "La Trahison des Images" (1928-9), nota soprattutto come: "Ceci n'est pas une pipe" ("This is not a pipe")

This points to the paradox of art and language, according to which the sign is never the thing but a conceptual representation of it. Magritte writes: “Things do not have similarities, they have or do not have similarities. It is only for thought to be resembling. It resembles being what it sees, understands or knows; it becomes what the world offers it “⁽⁵⁾. Magritte’s work, and in particular the calligram it generates, deconstructs the idea of a verisimilitude understood as “what appears obvious”, and of the existence of an objective reality that art aspires to imitate, to lead us to a new reflection on the paradox of language and codes of signification.

It is clear that, unlike Kosuth’s work, the subject we are analysing has the problem of objectifying itself. This subject has a precise name that places it in a precise spatio-temporal dimension, but it cannot objectify itself; none of the proposed languages can propose the city as an object.

A city is a place, a territory, but it is also an urban concept and ‘myth’, a complex system of relationships between objects, people, and spaces. An interconnected vision shows us an urban reality as a real presence in our perceived world.

As in Joseph Kosuth’s work, this installation’s project consists of analysing the relationship between the various forms of language, inviting greater attention to the relational systems and codes to which the reading of the urban factor is linked.

Without question, today, we are presented with the impossibility of objectification and a possible representation of the city that is exhaustive and all-encompassing. This leads us to consider all the tools and languages we use as fragments of meaning. What this intervention wants to tell us is that, to talk about the city, we must necessarily distance ourselves from it through language, which, given its essence of interpretation and purest subjectification, is a language that always and in any case implies a poetic understanding of the representation of the theme.

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(5) This is a fragment of the letter that René Magritte sent in 1966 to the philosopher Michel Foucault, in Michel Foucault, *questo non è una pipa*, ed. SE, 1973, pp. 89.

De_fin(d)ing places

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Abstract

“Man separated himself from nature; by becoming an individual, he took the first step towards humanization. He performed the first act of freedom. Myth accentuates the suffering caused by this act. The transgression of nature, the alienation from it and the other human beings makes man naked and ashamed.” (...) The way which Erich Fromm outlined the biblical myth of man’s expulsion from paradise. The eminent thinker sees the beginning of the taming of the space around and its organization as the first act of humanity. The man had to create a new home for himself consciously.

How an object (architectural) is represented and depicted, as well as at the scale , depends on the possibilities of perception. This thesis deals with alternative ways of feeling and experiencing space. It aims to show good practices that can make such places or objects meaningful and distinctive and have their unique identity in specific landscape conditions. As an inseparable part of nature and, simultaneously, of the environment in which he lives, man perceives reality according to certain limitations. On the other hand, perception is the ability to perceive phenomena through the senses and depends on their existence and possibilities (and limitations). Case studies such as the inventive design project, the lamp, by the architect, Philippe Rahm⁽¹⁾, will serve as an illustration for considering the creation of new territories in synergy with the environment and based on the visibility of phenomena taking place. The Spectrum lamp⁽²⁾ is based on light spectra which, as in the technique of impressionist pointillism, depending on the added wavelengths and their coincidence of overlap) emits light visible to human, animal, and plant physiology prism. The perceptible wavelengths create independent ‘suns’ for individual living organisms in an individualized range, according to the need for photosynthesis, growth, and well-

(1) Philippe Rahm, Swiss “climate architect.” He designs solutions on a design, architectural, and urban scale, analyzing the possibility of perceiving phenomena in the area of all living organisms and respecting the rules that prevail in nature—a manifesto for contemporary sustainable design (author’s note).

(2) Spectral Lamp for Artemide, arch. Philippe Rahm, 2015, Milan, Italy

being. Transposing this thought to another scale, already architectural, it should be noted that designed space always transcends its context, the situation in which it is created. It is necessary to anticipate (like the wavelengths of these light waves) the potential needs of the user, its reception, and interpretation in an anthropological sense, i.e., linked to cultural, technological, and spatial conditions.

“It can rightly be argued that architecture is born when man goes beyond the concrete environmental situation and identifies principles that can be used to solve other (analogous) tasks. From a set of concrete situations, man extracts meaningful forms and principles of organization that enable more general planning. Some of these forms can be called archetypes because they represent the meaning of man’s most primordial experiences” (...)⁽³⁾ Architecture serving the daily human rituals of culture has several simple and predictable conditions, such as legibility and attractiveness, based on the arousal of sensations and emotions, depending on their conception - the superficial and the sublime. It is a symbolic culture still.

Architecture is now redefining the arsenal of values and meanings. The perception of the passage of time, the taming of place, and the identification of territory is changing dramatically.

Abstract

“L’uomo si è separato dalla natura; diventando un individuo, ha fatto il primo passo verso l’umanizzazione. Ha compiuto il primo atto di libertà. Il mito accentua la sofferenza causata da questo atto. La trasgressione della natura, l’alienazione da essa e dagli altri esseri umani rende l’uomo nudo e vergognoso.” (...) Così Erich Fromm ha delineato il mito biblico dell’espulsione dell’uomo dal paradiso. L’eminente pensatore vede l’inizio dell’addomesticamento dello spazio circostante e la sua organizzazione come il primo atto dell’umanità. L’uomo ha dovuto creare consapevolmente una nuova casa per se stesso.

Il modo in cui un oggetto (architettonico) viene rappresentato e raffigurato, così come la scala di un oggetto, dipende dalle possibilità di percezione. Questa tesi si occupa di modi alternativi di sentire e vivere lo spazio. Si propone di mostrare le buone pratiche che possono rendere tali luoghi o oggetti significativi e distintivi e avere una loro identità unica in condizioni paesaggistiche specifiche. In quanto parte inseparabile della natura e, contemporaneamente, dell’ambiente in cui vive, l’uomo percepisce la realtà secondo determinati limiti. L’obiettivo è mostrare le buone pratiche che possono rendere tali luoghi o oggetti significativi e distintivi e avere una loro identità unica in condizioni paesaggistiche specifiche. In quanto parte inseparabile della natura e, contemporaneamente, dell’ambiente in cui vive, l’uomo percepisce la realtà secondo alcuni limiti (D’altra parte, la percezione è la capacità di percepire i fenomeni attraverso i sensi e dipende dalla loro esistenza e dalle loro possibilità (e limitazioni). Casi di studio come il progetto di design inventivo, la lampada, dell’architetto Philippe Rahm^[1], serviranno da illustrazione per considerare la creazione di nuovi territori in sinergia con l’ambiente e basati sulla visibilità dei fenomeni in corso. La lampada Spectrum si basa sugli spettri luminosi che, come nella tecnica del puntinismo impressionista, a seconda delle lunghezze d’onda aggiunte e della loro coincidenza di sovrapposizione) emette luce

(3) Ch. Norberg Schulz, *Genius Loci: Towards a Phenomenology of Architecture*, Rizzoli, USA, 1980, p. 226.

visibile al prisma fisiologico umano, animale e vegetale. Le lunghezze d'onda percepibili creano "soli" indipendenti per i singoli organismi viventi in una gamma individualizzata, in base alla necessità di fotosintesi, crescita e benessere. Trasponendo questo pensiero alla scala architettonica, va notato che lo spazio progettato trascende sempre il suo contesto, la situazione in cui viene creato.

È necessario anticipare (come le lunghezze d'onda di queste onde luminose) le potenziali esigenze dell'utente, la sua ricezione e interpretazione in senso antropologico, cioè legata alle condizioni culturali, tecnologiche e spaziali. "Si può giustamente sostenere che l'architettura nasce quando l'uomo va oltre la situazione ambientale concreta e individua principi che possono essere utilizzati per risolvere altri compiti (analoghi). Da un insieme di situazioni concrete, l'uomo estrae forme significative e principi di organizzazione che consentono una pianificazione più generale. Alcune di queste forme possono essere chiamate archetipi perché rappresentano il significato delle esperienze più primordiali dell'uomo" (...) [2] L'architettura al servizio dei rituali umani quotidiani della cultura ha diverse condizioni semplici e prevedibili, come la leggibilità e l'attrattiva, basate sulla suscitazione di sensazioni ed emozioni, a seconda della loro concezione - il superficiale e il sublime. Si tratta ancora di una cultura simbolica.

L'architettura sta ridefinendo l'arsenale di valori e significati. La percezione dello scorrere del tempo, l'addomesticamento del luogo e l'identificazione del territorio stanno cambiando radicalmente.

Introduction [De_Fining]

The identity of a place for humans is intrinsically linked to a sense of belonging. Belonging, in turn, stems from accessibility and is intrinsically linked to the landscape and its capacity to be perceived and thus processed and adapted to human needs, whether daily, permanent, or temporary. Based on methodology - case studies and philosophical thought as well as the author's design work, an attempt is made to answer the question as to what are the sustainable ways of synergizing architecture (with its entire arsenal of meanings) with the landscape, where the human being is treated as an inseparable part of it.

Architects can make a significant impact at a tiny scale, commented Grafton Architects in one of the interviews.

Significant concerning customs based on the notion of community is a definition of this concept based on phenomenological (idealist) philosophy, emphasizing the importance of the 'spirit of the place.' Norberg Schulz (Norberg Schulz, Ch., 1980) defines place as an integral part of human existence. It is, in other words, an environment-given meaning. *"Landscape is a comprehensive phenomenon. Once given a specific meaning, it becomes a place. The popular expression that 'something has a place' is meaningless because there is no event without reference to a location. (...) So, what do we mean by place? Something more than mere location. The place is made up of concrete material things like shape, structure, and color. Together, they determine the character or essence of a place. It is, therefore, an indivisible phenomenon which, if deprived of any element - such as the relations of its users - loses its nature" (...) (4)*

(4) Norberg Schulz, Ch., Op. Cit.

Methodology [De_Coding]

One of the most noticeable and apparent changes in the landscape that can be registered, even for people with severe visual impairments, is light and shadow). Daylight helps with orientation, both in the time of day and in the topography of space.

An architectural representation where light subtly and intuitively marks out a piece of territory for the community, a subtle intrusion into the space, is the chapel within the Vatican Chapel exhibition⁽⁵⁾ by Paraguayan architect Javier Cornvalan (Fig.1).



Figure 1. *Vatican Chapels Exhibition*, @ archives.

At the same time- the space delineated by the illumination of daylight is read symbolically. A rim, a section of a cylinder skewed according to the angle of incidence of the light and installed on a delicate steel substructure, causes a circle of light to be 'projected' onto the grass. It is read in context as an apparent 'closing' of the meeting place. From the center, a three-dimensional cross can be seen (as a symbolic marker and religious reference), looking up into the sky. The structure hardly touches the ground, and its expression is ephemeral and changeable because it depends on the time of day and the delineation of the 'meeting area' by the *chiaroscuro*.

In his entirely secular interpretation of the chapel, Norman Foster, in the same exhibition, proposes a kind of spatial palisade, which, like grasses/reeds in a landscape, frames appropriate vernacular views that are conducive to reverie, contemplation and 'encloses' the space in pre-set directions and angles, visually not interfering with the surroundings. The project is based on the synergy between man and place, and man is treated individually as part of this landscape.

(5) Ten Vatican chapels, on San Giorgio Maggiore; "forest" of 10 chapels, ten architects, as part of the 16th Venice Architecture Biennale.

In contrast to the above exemplifications, the organization of postmodern space at the turn of the twentieth and twenty-first century, resulting from the development of transport, the media, the pandemic of the development of digital technologies on a massive scale and in every sphere of life, has forced the emergence of additional places that are anonymous, transitory and devoid of identity (car parks, waiting rooms at airports, supermarkets, underground stations, computer game rooms). The impact of such places on the user, his or her relation, and perception of such spaces is the object of contemporary research. As anthropologist Marc Auge said at a lecture at the Centre for Contemporary Art, this requires the collaboration of an ethnologist (as a researcher of post-fate phenomena) with an architect (who designs these phenomena) in order for architecture to prevent the creation of anonymous spaces⁽⁶⁾. Places that are crowded but without belonging, which we access superficially, through the mechanical process of punching a ticket, inserting a card into a reader, turning on a computer game, Marc Auge calls them 'non-places' (*'Non-places'*)⁽⁷⁾. This term refers to commercialized, similar environments that are particularly important because modern man spends much of his life. Non-places are the result of several determinants:

- the user's lack of belonging to a place,
- lack of context
- appropriation of space through sending superficial information and not evoking deeper associations.

They thus trigger a sense of alienation in users, which Georg Simmel defined as follows: "*Remoteness within a relation means that the close person is far away, while alienation means that the close person is far away.*" (...) ⁽⁸⁾ Man experiences such places randomly and chaotically. The boundary between the offered goods and visual information and the material essence of the place and the architecture is blurred.

The whole gives an image so absorbing that another possibility of perception dominates: "*...non-places eliminate the identity of the individual within them and create a typical individual, only looking at and registering the surroundings, but not reflecting on them.*" (...) ⁽⁹⁾ Following the reflections on tame places and accessibility, it is worth showing the practices in which the message conveyed by architecture can be intentional and exclusionary.

By using the language of the topography of a place, it is possible, through influencing particular senses, to appropriate it for a specific group of users and thus to limit accessibility for others (Fig. 2).

This is an urban example, while another, based on perception and at the same time considering issues of accessibility and 'reading' the landscape and orientation in space, is illustrated by the student design of a unit for temporary/recreational housing, created based on the legibility of the place according to potential limitations of perception and through the individual senses (Fig. 3).

(6) Meeting with Marc Auge, Laboratory of the Centre for Contemporary Art, conducted by Prof. Wojciech J. Burszta (Warsaw School of Social Sciences and Humanities), Warsaw, 9. 07. 2011.

(7) Auge, M., 'non-places. Introduction to the anthropology of hyper-modernity', PWN, Warsaw, 1992, Polish edition.

(8) G. Simmel.: "Strangers"; transl. M. Łukasiewicz, Warsaw 1975, PWN.

(9) M. Auge, Op. Cit.



Figure 2. Photograph: Guy Corbishley/Demotix/Corbis, defensive 'architecture against homeless people, UK.



Figure 3. Courtesy of Warsaw University of Technology, Faculty of Architecture/ archives/ Independent Section of Design and Theory of Architecture; Tutors: A. Lorens, PhD, B. Świniarski, stud.doct., authors: stud.: J. Zawada, W. Ignatjew-Zielonka.

Man finds himself in space, connecting places through paths. That is why reading towns or cities where such connections are not logically planned is so tricky. When I say paths, I do not mean specific routes connecting places but the symbolic, often intuitive directions connecting fragments of space, often building a greater whole. What kind of pattern the paths form is essential: Are they vertical or horizontal, and how are they

‘directed’? The paths form more extensive patterns, which we can divide or move along specific axes defined by dominants, the topography of the area, and composition.

“We are living in a time where we experience the climate-related consequences of people having divided the world into separate units for centuries, without understanding that our actions have consequences many thousands of miles away,” (...)⁽¹⁰⁾

Following the exhibition in the Danish pavilion, the theme of the relationship between water and architecture, water and everyday needs, rituals, and human interactions had been addressed holistically. Water is one of the most precious resources in constant flux and offers both deliverance and threat to humanity. This exhibition, consisting of installations showing water in its various physical states of aggregation, paid close attention above all to the communal factor and humanity’s co-dependence on this resource. A simple spatial arrangement was used: a spout for drawing drinking water was installed on one pavilion wall, and a tap for turning off the water supply on the opposite wall. Next to it, a plaque with the comment *“Ask the friend”*⁽¹¹⁾.

Thus, we can see the apotheosis of commonality and cooperation and the connection between nature, the environment, and the people who flock there. Following a similar line of thinking, this thesis’s author looked at water’s interdependence as a resource with modular architecture. In the Lotus Eaters project, they recognized that plastic, as a by-product of human activity on earth, will remain with us in an imaginable, eternal perspective. It has hydrophobic properties, so it could create a structure that can be used for planting plants with minimal water as in the desert). Objects have been created that resemble the shape of a water lily, as it is a plant with structural, self-supporting properties and a structure that allows for minimal water absorption. The plastic object would have a structure close to the surface of the minima to enhance water collection and evaporation (Fig. 4).

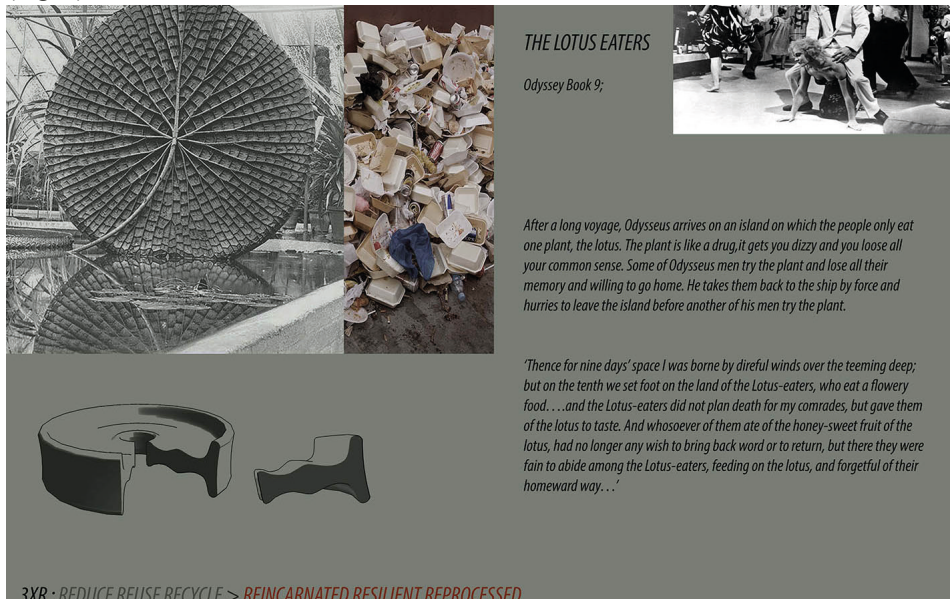


Figure 4. A. Lorens, B. Hulewicz, *The Lotus Eaters*, archives of the author.

(10) From the interview with Marianne Krogh, curator of the Danish pavilion / Biennale di Venezia 2021.

(11) Marianne Krogh, Lundgaard & Tranberg, Danish pavilion / Biennale di Venezia 2021.

Based on such a defined module architecture, accessible structures, urban furniture, or green islands can be created.

We were finally referring to a broader scale and showing an example of ‘good practice’ in terms of the considerations undertaken in a Master’s student project under the direction of Prof. Ewa Kuryłowicz, Piotr Kudelski, and the author of this paper⁽¹²⁾. In Mumbai, where the project site was located, we proposed the use of a system of mangrove growths so that in the dry season, we would ‘add’ a piece of territory for people who do not have one. In contrast, in the wet season (monsoon) the area would turn into pools and urban *thermae*. This kind of ‘living’ installation on an urban scale was intended to exemplify the direct connection between architecture and environmental and atmospheric changes while responding to demographic changes (Fig. 5).



Figure 5. Courtesy of Warsaw University of Technology, Faculty of Architecture/ archives/ Independent Section of Design and Theory of Architecture.

Conclusion [De_Finding]

“In Doctor Faustus, Thomas Mann wrote about a composer who devised a new form of absolute music capable of changing human thinking. Nevertheless, Mann did not describe what this music would depend on; he merely created the imaginary idea of how it might sound. Perhaps that is what the role of the artist (designer?) relies on- giving a foretaste of something that could exist and thus causing it to be imaginable. Moreover, being imagined is the first stage of existence. “ (...)⁽¹³⁾

Since the era of the Anthropocene, man has constantly marked his presence on Earth

(12) CO- WATERING, Warsaw University of Technology, stud. Marcin Bombalicki, Zofia Kurczych, Maurycy Olszewski i Monika Wegierek, Superv.: Prof. Ewa Kuryłowicz, Anna Lorens PhD, Piotr Kudelski, Grand Prix Global Sschindler Award.

(13) Speech of Olga Tokarczuk in 2019, when she received a Nobel Prize for Literature; The Nobel Foundation.

without feeling responsible for his achievements in a long-term context. Every action has consequences, and they can be both positive and disastrous. Just as tourists visit the city of Venice, man is a guest of our planet in the scale of centuries.

In the hegemony of the oculo-centrism of modern times, it is essential to realize that the perception of architecture in the landscape is influenced primarily by physical, other sensory, and environmental aspects. Everything, too, is variable over time. Therefore, breaking the scientific nature of this paper for a moment, the author will use a humorous example to illustrate the thesis that the contemporary context for architecture is 'conditions' in their broadest sense. As a design designer, Marcantonio designed a lamp with a pop-cultural, seemingly superficial expression - '*giraffe in love*.'⁽¹⁴⁾

The lamp is shaped like a giraffe, with the giraffe supporting the candelabra/lamp with its snout. The comment accompanies the design: 'Why does a giraffe illuminate its surroundings with light? Why a giraffe? Moreover, why is it named in love?'. The answer is- the giraffe, through its long neck, has too much distance from its heart to its head so that it can realize that it is experiencing this feeling. Hence, it illuminates with the light of this emotion entirely unconsciously. Man strives to limit the space, to make it a tame place. He does so within the possibilities of perception. Considering this almost obvious process in a broader scope, it is worth quoting the thoughts of Dorte Mandrup⁽¹⁵⁾ The Norwegian architect made a distinction between context and conditions (conditions). By conditionality, she meant the non-specific characteristics of new, previously unexplored locations. She noted that just as making or denying a context is a dialogue with an architecture or environment that has already been recognized and explored,- so conditionality is a set of characteristics of a place (e.g., climate, weather conditions, sunshine, etc.); that require the architect to be specialized and able to draw on the knowledge of scientists and researchers.

Concerning sensing architecture with other senses, these would be more substantial vibrations, enable deaf people to orient themselves better and make people without such limitations nervous, for people with limited vision - textures, light, and finally, sounds. All of the above point to architecture being a choreography of human mobility, not a stage set. The territory is determined by synergy with the landscape, weather conditions, accessibility, and perception of the place. It is mutable and temporary.

As a commentary proving that landscape is a dynamic phenomenon, extremely dependent on the possibilities of perception, there is a beautiful phenomenon occurring in Venice - the stravenamento, where, under certain weather conditions and a clear sky, it is possible to see 'superimposed' silhouettes of the sea, the buildings of Venice and the mountains with the same intensity (Fig. 6).

We always come across something, never nothing. Each place has its atmosphere and history. It is often magnificent and intense; other times, it may be initially elusive. Nevertheless, if we keep listening, every place will start talking sooner or later. The place always dictates the result, and we never try to impose something not rooted in it. In this way, we discover, interpret, and add new stories to what already exists. Architecture always refers to nature even when nature is not noticeable. Nature is the basis of life itself, and nature is harmony, rhythm, and energy. It is felt and seen in architecture -

(14) Designer MarcAntonio for Qeebo; 2020.

(15) Guest lecture at the Presentation of the Awards of the "Theory" Competition of the Stefan Kurylowicz Foundation at the Faculty of Architecture of the Warsaw University of Technology in 2019.

sometimes, some things shrink, condense, evaporate, and change their properties; light enters the space; the colors change their hue; we feel and see the variability of different textures. The world is made up of interconnected natural cycles and systems.

In a given space, try to isolate elements that may be permanent or ephemeral. Stravenamento means, in the Venetian dialect of the Chioggia fishermen, "look into the future. You will see something more". So, let this phenomenon become a manifesto for looking deeper, further, and multi-layered...



Figure 6. Courtesy of @claudiovianelli, *Dolomiti e Venezia, Stravenamento*.

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LANDesign® HUB. Human Backup

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Abstract

The methodological approach of the ®LANDesign research laboratory builds off from the osmosis between research and teaching, and from their synergic involvement with placement activities. Students are prepared to develop an attitude towards Art and Science, cultivated in their dual theoretical-technical nature, aimed at sustainable regeneration of urban environment, as well as of design objects, and social relations, drawing on skills and operational hypotheses from experts, such as: sociologists/designers/architects/engineers/economists/agriculturalists/veterinarians/urban planners/artists/communicators/doctors, in a mirror relationship with the productive world. Students' attitudes are deployed into projects of recovery of external areas abandoned to neglect converted into urban gardens (land design), projects of development of sustainable products (ethical design), projects for fostering responsible citizenship, with special reference to Nutrition-care and Self-Health- and Environment-care (food-pharma design). This contribution, after presenting innovative teaching methodology "tandem design" and an overview of the Pharma-Food Design ²⁰²³ Course projects whereby students have designed and prototyped products and services for health and well-being in the medical-care and healthcare fields, briefly illustrates the methodological rules underlying the Lab's research activities, synthesized by the dual e-duco/pro-duco motto, and describes the ERGO format: a travelling exhibit for placement, a hub terminal collecting and sorting ideas, contacts, opportunities and instances of constructive critical thinking in art, science and industry to foster educational regeneration, productive regeneration and sustainable regeneration. Ergo builds employability by integrating training, research and work.

Abstract

L'approccio metodologico del laboratorio di ricerca LANDesign si fonda sull'osmosi tra ricerca e didattica e sul loro coinvolgimento sinergico in attività di placement.

Gli studenti sono “educati” a sviluppare un’attitudine verso Arte e Scienza, nella loro indissolubile duplice natura teorica e tecnica, finalizzandola alla rigenerazione sostenibile dell’ambiente urbano, degli oggetti di design, e delle relazioni sociali, attingendo competenze e ipotesi operative da esperti, quali: sociologi/designers/architetti/ingegneri/economisti/ agrari/veterinari/urbanisti/artisti/comunicatori/medici, in speculare rapporto con il mondo produttivo. Le attitudini progettuali degli studenti sono messe a confronto con la realtà nel recupero di aree esterne abbandonate all’ incuria convertite in orti urbani (land design), nello sviluppo di prodotti sostenibili (ethical design), così come nella promozione di azioni di cittadinanza responsabile, con particolare riferimento alla cura della nutrizione, del Sé, di se stessi, della salute e dell’ambiente (food-pharma design). In questo contributo, dopo aver presentato la metodologia di didattica innovativa “tandem design” e alcuni lavori del Corso Pharma-Food Design ²⁰²³ in cui gli studenti hanno progettato e prototipato prodotti e servizi per la salute e il benessere in ambito medico-assistenziale e sanitario, si descrive il formato ERGO: una mostra itinerante dei progetti degli studenti per il placement, un hub di raccolta e un terminale di smistamento per idee, contatti, opportunità e istanze di pensiero critico costruttivo in arte, scienza e industria, e un laboratorio per la valutazione di progetti di rigenerazione educativa, rigenerazione produttiva e rigenerazione sostenibile. Ergo costruisce occupazione integrando formazione, ricerca e lavoro.



Pharmafood Design prof. Sabina Martusciello
Tutor Arch. Silvia Buonomano



Designer Andrea Scala

Progetto Otiuz

Patologia Stress e disturbi correlati

Il progetto Otiuz nasce dallo studio della meditazione mindfulness, in particolare dalla forma di meditazione detta “meditazione dell’uvetta” nella quale vengono stimolati i sensi della vista del tatto dell’olfatto e del gusto. Partendo da questa base è stato sviluppato otiuz con l’obiettivo di alleggerire il carico di stress sulla persona, creando momenti di ozio controllati. Otiuz si compone di due elementi, il primo consiste nella caramella, composta da limone associato al basilico e frutti di bosco con rosmarino, il secondo elemento del progetto è il packaging che grazie alla sua conformazione muta e diventa un visore di realtà aumentata analogica, in grado di rimandarci ai luoghi in cui oziare grazie alla suggestione data dai colori e dai gusti delle caramelle. In questo modo si compone un sistema che delimita uno spazio temporale ben preciso nel quale oziare in modo sano e costruttivo.

The Otiuz project was born from the study of mindfulness meditation, in particular from the form of meditation called “meditation of raisins” in which the senses of the sight of smell and taste are stimulated. Starting from this basis otiuz was developed with the aim of lightening the stress load on the person, creating controlled moments of idleness. Otiuz consists of two elements, the first consists of candy, composed of lemon associated with basil and berries with rosemary, The second element of the project is the packaging that thanks to its shape changes and becomes a viewer of analog augmented reality, able to refer us to places to laze around thanks to the suggestion given by the colors and tastes of candy. In this way a system is composed that delimits a very precise temporal space in which to laze in a healthy and constructive way.

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Figure 1. The Otiuz project.

Introduction

The innovative and participatory approach of the LANDesign® research laboratory, running at the University Vanvitelli since 2010 and located in the cloister of the San

D. Dragoș, M.D. Tănăsescu, The effect of stress on the defense systems, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3019042/>, Published on J Med Life. 15/02/2010
S.S. Adaramola, Job Stress and Productivity Increase, <https://pubmed.ncbi.nlm.nih.gov/22317168/>, Published on Work, vol. 41, no. Supplement 1, pp. 2955-2958, 2012

Lorenzo ad Septimum Abbey in Aversa home of the Architecture and Industrial Design Department, builds off from the osmosis between research and teaching, and from their synergic involvement with placement activities.

In the LANDesign® lab students are prepared to develop an attitude towards Art and Science, cultivated in their indissoluble dual theoretical-technical nature, aimed at sustainable regeneration of urban environment, as well as of design objects, social mores and social relations.

The laboratory is committed to developing and bringing to achievement the following kinds of projects:

- recovery of external areas abandoned to neglect converted into urban gardens (land design);
- development of sustainable products (ethical design);
- fostering responsible citizenship, with particular reference to nutrition-care and Self- and Environment-care (food-pharma design).

The laboratory is set up as a place for the construction of a “we who inhabit the common home” (Pope Francis, *Laudato si* n.12).

Focus of the Lab’s research activities is the dual *e-duco/pro-duco* rule which is hereafter described:

E-duco: to bring out/let emerge (lead out, from the Latin etymology *educēre*) the attitudes and potentialities already inherent both in the student and in the raw materials from which design objects come to life, through education to observation, in its triple declination of:

- self-observation (observation of oneself and Self);
- observation and knowledge of the materials of the project;
- the introjection of contents starting from the observation of the external environment in which the product is placed.

By this approach, the laboratory prepares students to the discernment of their own vocations and to the development of skills and talents in projects of stem value, working toward preparing both students and project ideas for the regeneration of productive, social and urban fabrics.

Pro-duco: prepare the student to carry out (from the Latin etymology *producēre*) a project, both in the primary meaning of concrete realization of a material product, as an object of design and construction for manufacturing on the small and large scale, and in the secondary, yet not less important, broader-sense meaning of content and experience usable in the consumer society, in the service society, up onto the non-consumer society.

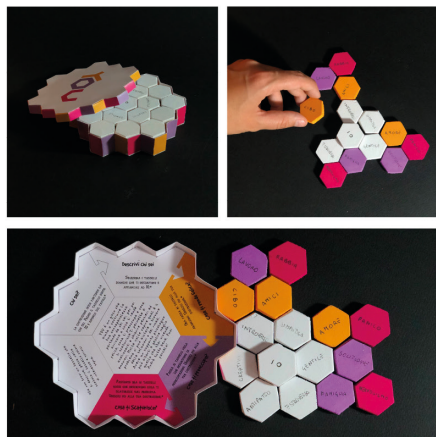
It is therefore given to «product» the most general meaning, identifiable by the English expression “making a dent in the world”, of a tangible sign that testifies to the processing in the material and/or psychic world, with a positive impact. An impact is considered positive when it brings to a sustainable transformation (i.e., a transformation responsible for both present and future generations) over the internal and external environment, over furnished interiors and urban environment, over society and ecosystems, not least over the individual and the Self, as the Lab’s rules proceed from Baumann’s awareness that “the great danger for the new generations is the expropriation of the inner life”.

In the development of projects, the projective attention of the student is focused on the three Vitruvian tenets: Function, Form, Feasibility (rule of the three F). Her/His perceptive sensitivity is stimulated towards the trinomial: economy, ecology, empathy, the latter

particularly referring to the ability to understand the mood and emotional situation of the «dwelling» and its cohabitants as addressees of the product, alluding in the above to



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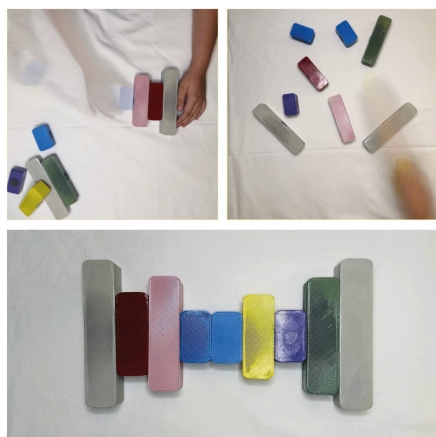


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Figure 2. *The You project.*



Pharmafood Design prof. Sabina Martusciello
Tutor Arch. Silvia Buonomano



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Figure *The Totempo project*

Designer Lucia Borrello

Progetto You • Find yourself

Patologia Ansia, Stress, Panico e vari disturbi correlati

"You" è un gioco che aiuta a costruire la propria consapevolezza analizzando la situazione che si sta vivendo, la causa che scatena quel problema, chiarire pensieri ed emozioni, e conoscere se stessi. Molte volte capire qual è il problema ci puoi aiutare a trovare delle soluzioni o dei rimedi. Comunque, avere un supporto psicologico può aiutare a gestire meglio quello che si sta vivendo.

"You" is a game that helps build your awareness by analyzing the current situation, the cause of that problem, to clarify thoughts and emotions, and know yourself.

Many times understanding what the problem is can help us find solutions and remedies. However, having psychological support can help you better manage what you are experiencing in life.

Dean E., Axiety, PubMed, 2014 Jul 13, <https://pubmed.ncbi.nlm.nih.gov/27406490/>
P Roy-Byrne P., G Craske M., Murray B S., Panic disorder, PubMed, 2006 Sep 16, <https://pubmed.ncbi.nlm.nih.gov/16980119/>

Designer Ilaria Troiano

Progetto Totempo

Patologia Esaurimento nervoso da stress

L'obiettivo principale di "Totempo" è quello di fornire ai bambini uno strumento visivo per creare una routine quotidiana equilibrata. Il totem, rappresenta diverse attività e momenti della giornata, come il tempo per studiare, giocare, mangiare, riposare e altre attività importanti. I bambini avranno il compito di organizzare il totem in un modo che rifletta la loro giornata ideale, seguendo una routine personalizzata. Con "Totempo", i bambini impareranno a gestire il tempo in modo efficace, sviluppando competenze di pianificazione, responsabilità e autonomia. Questo progetto li aiuterà a prendere consapevolezza dell'importanza di una routine strutturata, consentendo loro di bilanciare in modo armonioso le diverse attività quotidiane, promuovendo allo stesso tempo l'apprendimento, il gioco e il riposo necessario per un sano sviluppo.

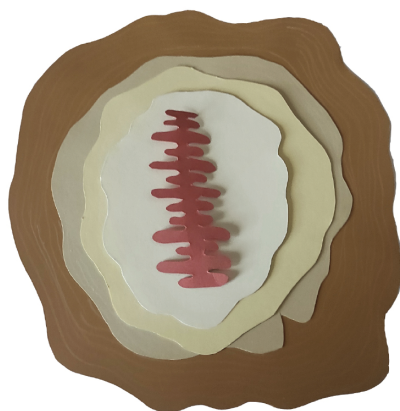
The main goal of "Totempo" is to provide children with a visual tool to create a balanced daily routine. The totem represents different activities and moments of the day, such as study time, playtime, mealtime, rest time, and other important activities. Children will be tasked with organizing the totem in a way that reflects their ideal day, following a personalized routine. With "Totempo," children will learn to manage time effectively, developing planning skills, responsibility, and autonomy. This project will help them become aware of the importance of a structured routine, allowing them to harmoniously balance different daily activities while promoting learning, play, and necessary rest for healthy development.

L' esaurimento nervoso. Stati depressivi. Cause. Cure, Narcissus.me, 2015 - La sindrome da burnout: definizione, tipologia e gestione, Roy I., 2018 - Sintomi e caratteristiche del burnout, Mauranges A., 2018 - Burn out solutions needed, Tirado LAA, Br Dent J., 2019

Pharma food design is the course of the Master's Degree Course in Design where the design is taught of aids for different pathologies, as well as of analog and digital artifacts for the care, for nutrition, for nourishing of the five senses with a multidisciplinary, interdisciplinary, holistic, shared, intelligent approach (*intus legere, inter legere*), capable of revealing relationships and interconnections.



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Tutor Arch. Silvia Buonomano



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Designer Pia Graziano

Progetto cicatriarbori: la forza delle storie incise
Patologia Disturbo da Dismorfismo Corporeo (DDC)

Il Disturbo da Dismorfismo Corporeo (DDC) è una condizione psicologica caratterizzata da un'eccessiva preoccupazione per presunti difetti o imperfezioni dell'aspetto fisico. Le cicatrici possono essere un problema per le persone affette da DDC, soprattutto se sono evidenti o sfiguranti. Il progetto mira a sensibilizzare sull'importanza di accettare e comprendere le cicatrici. Utilizza un parallelismo tra le cicatrici sul corpo umano e le discontinuità del tronco di un albero, collegando la bellezza e l'accettazione delle imperfezioni naturali alle cicatrici. Un'esperienza di gruppo prevede la creazione di una sezione del tronco che rappresenti le proprie cicatrici utilizzando dei cartoncini. Questa attività incoraggia la riflessione, la condivisione e l'accettazione personale e collettiva, favorendo un senso di appartenenza e solidarietà tra i partecipanti.

Body Dysmorphic Disorder (BDD) is a psychological condition characterized by excessive preoccupation with perceived defects or imperfections in one's physical appearance. Scars can be a problem for individuals with BDD, especially if they are prominent or disfiguring.

The project aims to raise awareness about the importance of accepting and understanding scars. It uses a parallel between scars on the human body and discontinuities on the trunk of a tree, connecting the beauty and acceptance of natural imperfections to scars.

A group experience involves creating a section of the trunk that represents one's own scars using cardboard. This activity encourages reflection, sharing, and personal and collective acceptance, fostering a sense of belonging and solidarity among participants.

Phillips, K.A. (2005). *The Broken Mirror: Understanding and Treating Body Dysmorphic Disorder*. New York: Oxford University Press.
- Smith, J. (2020). *The Tree that Bears the Wound: Exploring the Relationship Between Trees and Scars*. Green Publishing.
- <https://www.positivityblog.com/turning-scars-into-strength>

Figure 5. *The Cicatriarbori project.*

The methodological process is as follows:

- integrate attention and care through exploratory educational workshops to facilitate the recognition of the skills of the participating students;
- urge students to listening attention, empathy and patience to analyze pathologies which require an answer in terms of product, starting from everyone's and their own little big impairments;
- foster, with prudence and boldness, projects, developing a freedom from conditionings originated by scenario analysis.

To facilitate this design process for the benefit of the autonomy of each student, new teaching habits are needed, a *modus operandi* in which words/matter can be translated into virtuous civil actions: self-responsibility, trust, solidarity, interconnection, transparency, awareness, civic sense, patience, care, kindness, passion, reciprocity.

An innovative teaching method denominated "in tandem teaching" from the twofold semantic meaning of the word tandem which is, in the first place, a 'bicycle with two seats and two pairs of pedals, for front-seat and back-seat cyclists', and the other one being the semantic alteration of the Latin adverb tandem standing for "finally", therefore, in conclusion. By tandem riding, people – and first of all students – can compare with each other; in tandem you can verify and experiment design hypotheses and contribute

as co-designers in the project of others. In tandem project groups can share reflections, suggestions, studies, research. In tandem one can give shape and structure to artifacts generated by participation, by interconnection, from care for the project of others. In tandem it is possible to conform products and services that can facilitate healthy virtuous civil habits. In tandem it is possible to combine teaching and research, to experience active, participatory and laboratory disciplinary teaching, guided by the learning methodology of the scientific method⁽¹⁾. The result of the teaching and research path is promoted and challenged in an analog and digital traveling exhibit, named “ERGO”, to the LANDesign HUB Scientific Committee and to companies, associations, local organizations and authorities, to stimulate the Placement action and to promote the idea “adoption” for R&D. On ad-hoc designed spaces for exhibition, students set up and present their drawings, models, executive projects, prototypes, models, videos. ERGO is a format launched in 2016, and now in its XXXIII edition, that combines the final exam of the Design Course with the action of Orientation and Placement. Stakeholders participating to the exhibit “meet” the enthusiasm, passion, creativity and competence of students, promoting and facilitating employment.



Pharmafood Design prof. Sabina Martusciello
Tutor Arch. Silvia Buonamano



Designer Simone Martucci

Progetto IO: sono le mie emozioni

Patologia: Difficoltà nel comunicare le emozioni

IO nasce dallo studio di R. Plutchik che ha elaborato la ruota delle emozioni con la quale illustra le emozioni utilizzando sfumature di colore. Il progetto rende tangibile questo studio con uno strumento che consente di connettersi con le proprie emozioni, identificarle e comunicarle. Lo strumento si pone l'obiettivo di aiutare le persone ad entrare più a fondo in se stesse e distinguere le emozioni primarie: collera, vigilanza, estasi, ammirazione, terrore, stupore, disperazione ed odio. L'intensità dei colori si riferisce alla forza dell'emozione che, se lasciata senza controllo, può intensificarsi. "IO" è un abaco delle emozioni che costituisce ed evidenzia le emozioni provate e rappresenta un metodo innovativo per annotare le emozioni, al fine di imparare a gestirle. È importante poter vivere un momento con se stessi chiedendosi "che cosa ho vissuto oggi?"

IO was born from the study of R. Plutchik who elaborated the wheel of emotions with which he illustrates emotions using shades of color. The project makes this study tangible with a tool that allows you to connect with your emotions, identify and communicate them. The tool aims to help people go deeper into themselves and distinguish primary emotions: anger, vigilance, ecstasy, admiration, terror, amazement, despair and hatred. The intensity of the colors refers to the strength of the emotion which, if left unchecked, can intensify. "IO" is an abacus of emotions that constitutes and highlights the emotions felt and represents an innovative method for noting emotions, in order to learn how to manage them. It's important to be able to live a moment with yourself asking yourself "what did I experience today?"

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Figure 6. The IO project.

The final exam, far from aiming at representing a final act of a course of study, is hence (actually, ergo stands for hence in Latin) proposed as an action generating both guidance activities (towards the students of the participating schools and the students of the same degree course) and placement (towards the world of research and work). Being ergo the Latin conjunction ‘therefore, hence’, the word pushes forward the conclusion of a syllogism and is also the first element that in compound words has the meaning of

(1) This type of action pursues the indication of DM 934/2022.

‘work’. Ergo builds employability by integrating training, research and work.



Pharmafood Design prof. Sabina Martusciello
Tutor Arch. Silvia Buonomano



Designer : Mariateresa de Franchis

Progetto: LEXI

Patologia: Dislessia

La dislessia è un disturbo specifico dell'apprendimento che colpisce l'acquisizione del linguaggio scritto. Di origine neurologica, le sue cause sono sconosciute, sebbene vi sia una chiara componente genetica.

LEXI è un gioco di parole per bambini dagli 8 anni in su, ha lo scopo di insegnare in modo divertente la composizione delle parole.

Il Progetto si distingue dai giochi di parole classici in quanto è stato ideato tenendo conto delle difficoltà dei soggetti Dislessici.

Il tabellone è composto in Pannolencio che grazie al velcro posto dietro le lettere fa in modo di tenerle ferme evitando così che si spargano in maniera involontaria sulla scacchiera e evitando di confondere lettere e parole in quanto nelle forme più gravi di dislessia il soggetto non riesce a vedere le lettere in maniera lineare ma galleggianti nello spazio carta.

LEXI presenta in packaging compatto, tabellone, tabelle lettere e sacchetto contenente le lettere sono tutti collegati tra loro.

Dyslexia is a specific learning disorder that affects the acquisition of written language. Of neurological origin, its causes are unknown, although there is a clear genetic component.

LEXI is a word game for children from 8 years old upwards, it aims to teach in a fun way the composition of words.

The project stands out from the classic wordplay in that it has been designed taking into account the difficulties of dyslexic subjects.

The scoreboard is composed of Pannolencio that thanks to the velcro placed behind the beds makes sure to keep them firm thus avoiding that they are scattered in involuntary maniera on the board and avoiding to confuse letters and words as in the most serious forms of dyslexia the subject cannot see the letters in a linear way but floating in the paper space.

LEXI presents in compact packaging, scoreboard, reading tables and bag containing the letters are all connected together.



Figure 7. The LEXI project.

The evaluation [R.S.]

ERGO is primarily a hub, i.e., a terminal collecting and sorting ideas, contacts, opportunities and instances of constructive critical thinking in art, science and industry, aimed at supporting the improvement of projects and preparing conditions that facilitate the complete realization (the “implementation”, from ἔργον) of the selected project ideas.

A moment of careful collegial reflection concerned the preliminary sharing of the criteria and methods for evaluating and choosing those projects and project ideas considered most promising with respect to the potentially achievable results in terms of educational value, productive value and value stemming from sustainable regeneration. In this reflection it was considered that, concerning the capability of evaluating the potentiality of success of product ideas in the competition over markets, the evaluation panel embraces professionals with consolidated experience in the field of market analysis and analysis of the promotion of innovative business ideas and startups. Likewise, as far as the evaluation of the educational contents potentially achievable by a project is concerned, the evaluation committee includes profiles with consolidated experience in academic and educational evaluation. For this reason, it was considered that the panel is sympathetic to a synthetic evaluation, owing to the evaluation experience gained by the company and academic profiles of the committee members in their respective fields.

On the other hand, the committee also reflected upon the need to include evaluation criteria which, while remaining intersubjective, can address figures of merit independent of the market and of market competition and which, as such, are figures of merit which

Michael H., Kinberly G., Dyslexia, in “National Library of Medicine”, 2013.

Umani speciali, Tipi di Dislessia: differenza tra dislessia e dislessia.

lend themselves much less to an evaluation based on the success considered feasible on the basis of the success already experienced on the market by similar projects in the field of the promotion of innovative business ideas and educational contents. This consideration was stimulated by the presence of several projects considered to be promising which, however, were considered as such for the achievement of rather different figures of merit. Some projects presented an innovative and sufficiently mature product idea, clearly identifying the market segment, recipients and stakeholders. Other projects, although not responding to all the positive characteristics just mentioned, have instead aimed to raise awareness of the importance of diagnosis and/or of the acceptance/understanding of bodily and psychic wounds (vulnera) and pathologies drawing inspiration from morphologies of the animal and plant world, thus highlighting a considerable introjectional and projective work.

A final consideration concerned sustainability and the space and resources actually available today for a transformation that aims to generate a tangible positive impact (“to make a dent in the world”) in communities bound today, in the era of “zero land consumption” and “permacrisis”, to a condition of reduction of important resources to implement a transformation project. Some concrete resources, such as land destined for anthropic transformations, as well as certain materials, such as some qualities of stone and wood, undergo today, differently from the past, a condition of real scarcity. No less important intangible resources that can be considered today markedly scarce compared to the past, are the attention and receptivity that the community is able to pay to innovative products and contents. Such a condition of low receptivity can be sharply presented in numbers: already in 2020, 300 hours of videos uploaded per minute on the YouTube platform alone have been reported (Lin, Chen, 2020), which correspond to about 50 years of video content uploaded daily. To overcome the oxymoron of an ‘Art of not doing’ and of a ‘Science of not constructing’, dictated by the actual, or feared, lack of resources and/or by the desire to sustain the availability of sufficient resources to future generations, and to overcome the prospect of deploying art and science in the construction of a very bland <product> making a very bland <<dent>> in a world often very inattentive, a careful evaluation of the impact on the Self acquires educational importance not secondary compared to the other figures of merit. Self is understood here, in the original Jungian meaning of the term, as the completion of the inner process of individuation (Jung, 1939) by the student proposing the project, as well as the process of individuation by the recipients of the <product>, the territorial communities and social networks that receive it. In the light of the above considerations, it was decided to blend the synthetic evaluation with an examination that ought to be, as far as possible, analytical of a set of merit figures selected starting from the founding values of the LANDesign laboratory. It was decided to explicitly include, in this analytical assessment, an equal number of merit figures linked to market-dependent value elements and an equal number of merit figures deliberately unlinked to market-value considerations.

Two categories of analytical evaluation criteria were therefore considered:

M1) Value recognized in terms of presumable competitive advantage of the product designed in the project

M2) Usability value, identity value, as well as individuation, compositional and creative values generally perceptible from the presentation of the project and from the project drawings

With regard to the identification of figures of merit of the first category of analytical evaluation M¹, reference has been made to a famous and consolidated model of analysis of the forces operating in the economic environment that can be used to evaluate competitive positions of companies, products and services, the model of the five forces of Porter (Porter, 1980), saving a figure of merit to each force:

- C1) advantage over threat of new entrants;
- C2) advantage over bargaining power of suppliers;
- C3) advantage over bargaining power of customers;
- C4) advantage over threat of substitutes;
- C5) advantage over competitive rivalry.

Concerning instead category M², the following five merit figures have been considered:

- I1) Value brought to product recipients: (Recipient = Individual)
- I2) Value brought to product recipients: (Recipient = Society)
- I4) Identity value perceptible in the project (Identity)

I5) Value perceptible in the project in terms of Individuation Process (in the Jungian sense, of formation and expression of one's individuality and of individuation within a path from the person to Self)

(Individuation)

I3) Discretionary and personal criterion of subjective aesthetic judgment of the evaluators on the elements of compositional, creative and imaginative value perceived as a whole by the design drawings

(Aesthetics)

Judgments were expressed with integer numerical marks on a scale from 1 to 5. Finally, a weighted synthesis was carried out between the results of the comparative synthetic judgments and tabular analytical evaluations expressed by the individual elements of the evaluation panel.

Researching while doing [F.M.]

It can be questioned to what extent the experimental work herein presented on students has met results belonging to a scientific domain. While further phases of testing, identification of emerging problems, and several improvements would be desirable, as it is often the case in this type of applied research work, in the students' creative process up to now observed, some recurring aspects have neatly emerged from observation, opening the path for the individuation of a true scientific method. It is convenient to highlight first some recurring crosscutting features which have characterized the way of working of design students. In a first phase of the creative process, students generally show an attitude towards elaborating handmade drawings as a constitutive basis for deploying perceptive capabilities of imaging design. Only in a second phase, they combine various complex digital works with performance previsions. This is the first point of congruence with a scientific experimental approach where, as Alexandre Koyré interpreted the first steps into a scientific path, new ideas don't arise under the influence of ideologies and institutions, but in a free modality, even learning from mistakes. Technology experiments, in fact, are even more intuitive in a first step, when representative characteristics are to be found in an iterative process among stakeholders, students and teachers.

Students, then, moving from a sensible intuition towards technical details, begin to

build models, in a free way, while applying rules and, at the same time, enjoying group amusement atmosphere while finding the way towards the project. In a following phase, they focus on the design of details, moving at the same time in relation with the goal they pursue and the definition of precise elements corresponding to requirements and predicted performances.

In this phase, creative handmade drawings still remain the constitutive basis for perceptive capabilities of imaging details. Now, at the time that someone who teaches technological design sees a student's sketch, she/he is led to see as rationally obvious that a series of requirements remain open to an ample grade of possible technically defined solutions. Interactions between these broadly opened intuitions and specific selective performances might or might not prove to be adequate. But it is right at that moment that a second point of correspondence emerges between students' approach to work and an effective scientific approach: the dynamic way by which it is necessary to synthesize information in order to let creative thinking been promoted, immediately after this rapidly experimented and forecasted perception. It is possible to move along a progressive path between synthetic intuitive views and concrete individualization with a framework of set rules organized into a matrix of alternative possibilities. In a scientific experience, at the same time the choice of a dynamic approach puts the intuitive phase at the beginning, notwithstanding the risks of failure. Apart from evaluating existing literature research works, exploring surveys, collecting data, reporting the acquired data into a complex report, the process of challenging research is based on a cyclical procedure in which observations always return backwards to explore the first idea.

Definitively, an experimentation of this type would lead back to the central problem of the different conceptions attributed to "art" and "technique". Art and technique are in a one-to-one relationship in the Walter Gropius' "Total Design", which we need again. Digital innovative strategies are not in contrast with this view. On the contrary, they can become a useful help, transforming free drawings into measured precision matrixes of possibilities of predictable solutions and, with the benefit of technologically advanced systems, it is possible to provide enough visual information for technological details.

Design technology needs aesthetic research and technological solutions, and should always be integrated, bearing in mind the idea that they could give expression to technical solutions in order to be more appreciated by people. It also reminds us of Gropius ideas for the appearance among the field of theoretical moments and of creative moments, as it is difficult, in the approach of Gropius, to distinguish a theoretical moment from a creative desire. So, while students' methodology may seem, at a first appearance inappropriate, under the theoretic point of view, it reveals, on the contrary, to be apt to the design goals.

Conclusion: From nature to city. Value of land/nature – creative nutrition– circular society [A.R.]

The idea of a circular society aims at dialoguing with the much more widespread idea of circular economy. "Circularity", as an innovative tool, cannot be successful or effective unless the social and economic systems are activated in parallel. To achieve this goal, it is necessary to give voice to innovative tools, able to respond to the need for creativity. For this reason, it becomes necessary to reactivate the direct and productive relationship of social significance with nature in all its aspects, and then disseminate

the awareness acquired in urban contexts. By drawing from the memory of places, we intend to make the historical experience that defines the culture of the territory alive, in order to build and share conscious and proactive behaviors, which can have a significant impact from a socio-environmental point of view. Overcoming of generational fractures finds an extraordinary field of realization in the recognition of the innovative value of “applied creativity”, specifically experienced by the students who have interacted with the LANDesign HUB

1. Nature- and food-driven culture, as the original source of the social structure, which is above all fragmented in the imagination of younger generations, can be used as a starting point, and then projected onto broader design dynamics. Reconnecting generations, which suffer today a deep fracture, bringing back to the natural origins the value of being together. Not least, this relational recovery can also have a significant impact from a medical-health point of view, as well as educational, affective, and relational one. Structuring a comparison with the productive and functional system, with impact on the world of work. Activating awareness of environmental issues, with a transversal, cognitive, operational and productive vision of concrete effects
2. Organize systematic cognitive exchanges among the culture of the places, also from a socio-relational-affective point of view, between different and/or distant territories. Disseminate information points in urban contexts, involving the world of communication, as well as the institutional world.
3. Prepare collaboration protocols, project guidelines also in the wide, local, national and European range, being aware that that the problems to be addressed do not exclude anyone and anywhere.

The objective cannot but be understood as socio-environmental regeneration, in the sense of sustainability: drawing skills and operational hypotheses from experts, such as: sociologists, designers, architects, engineers, economists, agrarians, veterinarians, urban planners, artists, communicators, doctors, in specular relationship with the productive world.

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Visual-Virtual Landscapes

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Abstract

In the evolving landscape architecture, technological advancements, particularly AI and multidimensional representations, offer profound new methodologies for understanding and designing our environments. As we delve into their capabilities, we witness the juxtaposition of wide-scale territorial data analyses with granular site-scale insights. Notably, innovations such as behavioral mapping are illuminating previously unseen patterns of human activity. However, the sheer magnitude of data from these tools presents challenges in practice. The shown examples underscores the necessity of harnessing these technologies not as mere replacements but as augmentations to our natural design intuition. A harmonized blend of the old and new paves the way for more sensitive, contextually relevant design paradigms, promoting a landscape that's a cohesive blend of its many components.

Abstract

Nell'architettura del paesaggio gli avanzamenti tecnologici, in particolare AI e rappresentazioni multidimensionali, offrono nuove metodologie per comprendere, progettare e intervenire sull'ambiente. Esplorandone le potenzialità, si osserva la giustapposizione di ampie analisi dei dati territoriali con dettagliate sperimentazioni alla scala del sito. In particolare, innovazioni come il behavioral mapping stanno rivelando schemi di attività umana sul territorio precedentemente invisibili. Tuttavia, l'immensa mole di dati ottenuti da questi strumenti pone delle sfide sul piano operativo. Le esperienze riportate evidenziano la necessità di utilizzare queste tecnologie non come semplici sostituti, ma come supporti all'attività progettuale. Una integrazione armonizzata di sensibilità complementari apre la strada a paradigmi di progettazione più sensibili e contestualmente rilevanti, promuovendo un paesaggio come sovrapposizione coerente dei suoi molteplici componenti.

Introduction

Within the realm of landscape representation, the domain of digital technologies unveils various novel or evolved modes of portrayal: from simulations to virtual/augmented reality and computational analysis models.

More precisely are emerging landscape representational forms that fuse objective topographical drawing with interpretive images influenced by cultural and subjective parameters. The outcome of this approach, bridging the historic gap between topographic representation and scenic views, exists at the crossroads of the humanities and the exact sciences, probing connections between the quantitative and qualitative aspects of space. Such intricate interactions become possible with the abundance of digital graphical outputs derived from the extensive processing of territorial data.

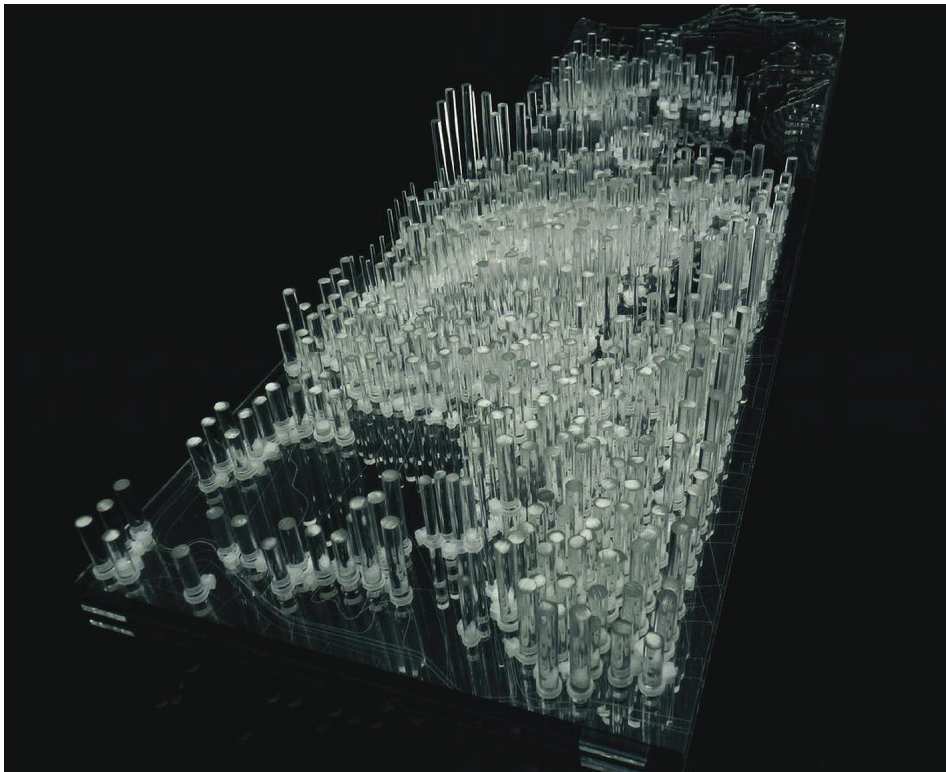


Figure 1. *A 3D physical model that integrates water runoff and collection areas into the topographical landscape. It visualizes water intensities across geographic locations and size them based on volumetric input. (Image credits: O. Mikhaleva, J.Chia.*

This approach to landscape description, and its subsequent design transformation, revolves around the relationships among data, geometry, and space through parametric modeling. It primarily aims to enhance the visualization physical facts, aligned with the processes of which they may be seen as a snapshot. This can be framed as “visual representation(s) of all the measurable forces that may influence, steer or regulate the work of the architect,” (Lootsma 1999).

This approach, whose evolution leans on technological advancements, can be

broadly understood as a cultural consequence of environmental movements that have led to a perception of the environment as an ever-evolving entity with various landscape manifestations. Within this conceptual framework, landscape design unfolds as process-based strategies influencing diverse systems – ecological, socioeconomic, cultural, technological – resulting in landscapes characterized by a multitude of open-ended outcomes. Consequently, the discipline of landscape architecture has evolved to conceive our environment as a co-creation of multiple, intelligent agents. Landscape design, utilizing process-based strategies, taps into the potential of these varied intelligences within the environment, co-shaping connected future configurations. From point, computational design, through its interdisciplinary nexus scientific and artistic thought via computation, enables a synergistic understanding of the interacting mentioned elements.

In this paper, our objective is to survey contemporary experiments on digital landscape representation, delving into the avant-garde practices that employ AI and sensory technologies in data recording. This includes the processing of new data, as well as the innovative interpretation of existing, resulting in novel forms of representation. Such representation methods have the power to infuse and enrich the landscape design process in unprecedented ways, offering fresh insights and perspectives.

Case Studies

Today, processing and representation tools such as computer vision techniques are already extensively utilized in landscape drawing and analysis. Computation methods have been applied across various facets to enhance map-making workflows, as seen, for example, in vegetation mapping via NDVI. Data mapping and landscape visualization have been the focus of many experiments by research labs, one notable example being the ETH Zurich Landscape Modeling and Visualizing Lab. Directed by Christophe Girot, this lab pioneers point cloud modeling methodologies for large-scale projects.

Beyond mapping the physical attributes of landscapes, this text aims to explore instances where AI and machine learning are employed to identify and automate the mapping of patterns derived from multi-layered tangible and intangible landscape-related information. Advances in AI and machine learning indeed allow for the interrelation of varied data types in ways previously unimaginable. For instance, these technologies can be deployed to analyze human perceptions of their environment, integrating them into a scientific approach for a more profound understanding of their potential significance.

Building on the link between a city's visual character and the behavior of its inhabitants—as demonstrated by social science literature—several studies have sought to examine the correlation between these aspects, experimenting with AI-assisted processing and representation strategies.

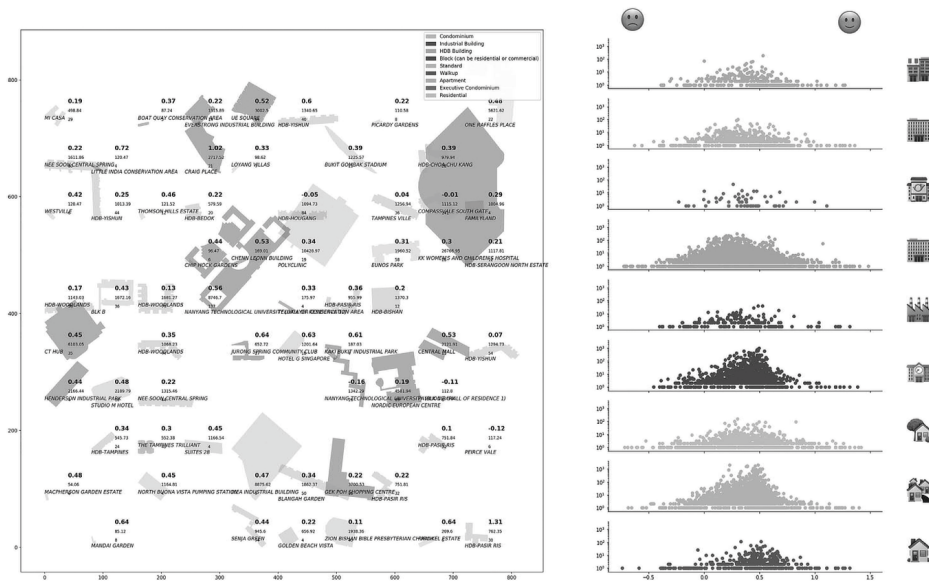
Moreover, machine learning techniques can explore and depict facets tied to an even more human-centric projection of cities. These facets delve into the directly observable interactions and emotional connections users have with their built environment. Traditionally, a designer's keen observation and experiential understanding are pivotal in gauging how individuals will interact with and respond to specific spaces. However, as pointed out in "AI as a Collaborator in the Early Stage of Design," such judgments are limited by a designer's past interactions, making them susceptible to biases and errors due to small sample sizes (Joice 2021). Consequently, there's a growing interest in harnessing

vast volumes of user feedback and leveraging AI to bridge the gap between architectural structures and user sentiments.

For instance, the “Street Score” project developed by the MIT Media Lab employs an algorithm to predict the perceived safety of a streetscape. This algorithm was crafted using training data from an online survey that garnered contributions from over 7,000 participants.

Another illustrative experiment is conducted by S.C. Joice in Singapore. Here, social media messages were correlated with urban building configurations. Specifically, building plot outlines were extracted from the city map and matched with a comprehensive collection of public Twitter messages dispatched in Singapore over a span of three years. Each tweet was associated with its proximate building plot, amassing a collective message corpus for each structure. Subsequently, these messages were converted into word vectors. This exercise yielded an expansive set of abstract word vectors to discern patterns across building types. This intricate dataset was then projected onto a continuous space, enabling the clustering of building messages based on similarity in sentiments or content. This mapping technique allowed a comparative analysis of messages, allowing for insights into buildings with analogous sentiments, even if they bore vastly different architectural designs.

The resulting map was generated considering spatial and the social data for each building: the Relying solely on social sentiment for training yielded a map reflecting pure public sentiment about the buildings. Overlaying this with building footprints unveiled architectural styles that elicited similar sentiments. In the final phase, by converging both spatial and social data into a singular map, the interplay between architectures and the experiences they invoke in users was vividly depicted.



This approach can be further enriched by integrating the temporal dimension. In another research, the MIT Media Lab employed a similar methodology, but incorporated time-series street-level imagery instead of static snapshots, thereby providing a foundational data source for mapping changes over time (Naik et al. 2017). Utilizing time-lapsed Google Street View, the team gauged alterations in the physical aesthetics of neighborhoods across five U.S. cities. By juxtaposing the resultant map with economic and demographic data, AI drew correlations between the observed transformations and the defining traits of neighborhoods, aiming to discern which characteristics forecasted neighborhood enhancements. The synergy with other geospatial data underscores that the merit of deploying computer vision and machine learning algorithms in cartography transcends merely supplanting human repetitive data processing. It paves the way for a profound analysis and offers a novel lens to comprehend the physical realm.

Landscape is as deeply intertwined with the dimension of time as it is with space, with the former exerting a significant impact on the latter. The recurrent daily and weekly rhythms shape patterns on the landscape some consistent and others unforeseen. In envisioning a landscape in constant evolution, data and computation empower us to be more attuned to its ongoing emergence and remolding. They furnish us with enhanced tools, amplifying our intuitive prowess and our capability to transmute information into well-defined abstract frameworks for spatial creation.

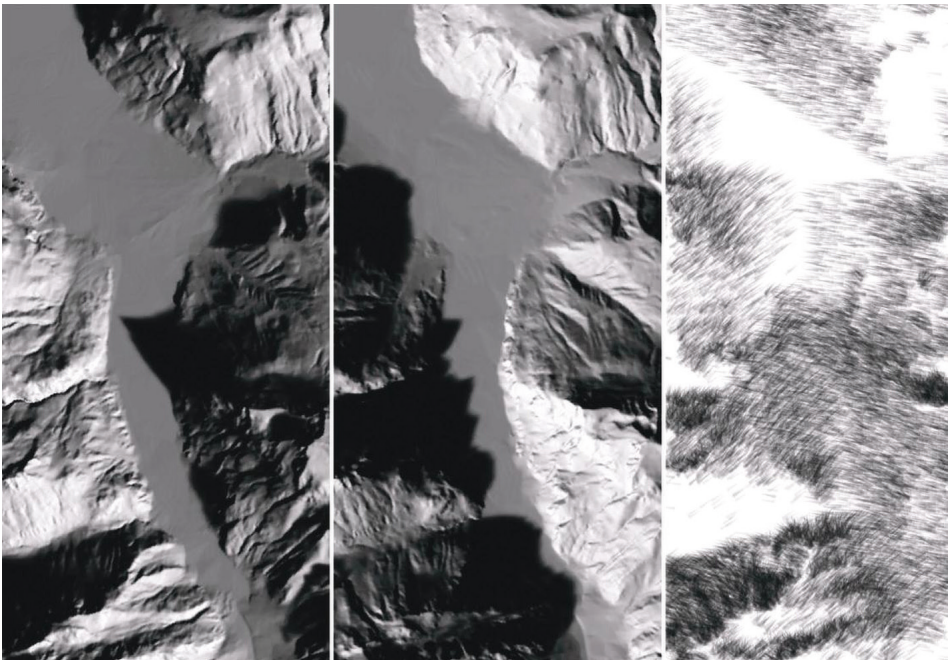


Figure 3. Analysis of the valley of Reuss: the direction and duration of shadows cast in landscape, determined by the sun's position during the equinox. (Image credits: W. Novak, T. Roidis).

Another domain where AI and machine learning hold the potential to unveil novel interpretive perspectives is the search for concealed physical structures within landscape imagery. These are assimilated in landscape design as “signs” or foundational traces, revealing the landscape’s semantic structures upon which the design is grafted (or

superimposed) in a process of critical synthesis. As humans discern signs within an image, filtering visual information according to their cognitive frameworks, specific AI algorithms can be trained to identify and emphasize latent traces in the images provided to them. This remains an open field for research; we will touch upon the most salient examples of algorithms employed, such as deep dream, neural style transfer, autoencoder, and GANs (Generative Adversarial Networks). Deep dream, as conceived by Mordvintsev et al. in 2015, was originally devised to probe what a neural network sees upon receiving a specified input image. It iteratively modifies the pixels of an input image to amplify the activations of one or multiple feature maps. As a result, the patterns associated with the chosen feature maps begin to surface. Within such algorithms, optimization converges with the trained neural network to produce an image that mix the abstract attributes of a style image with the tangible characteristics of a content image.

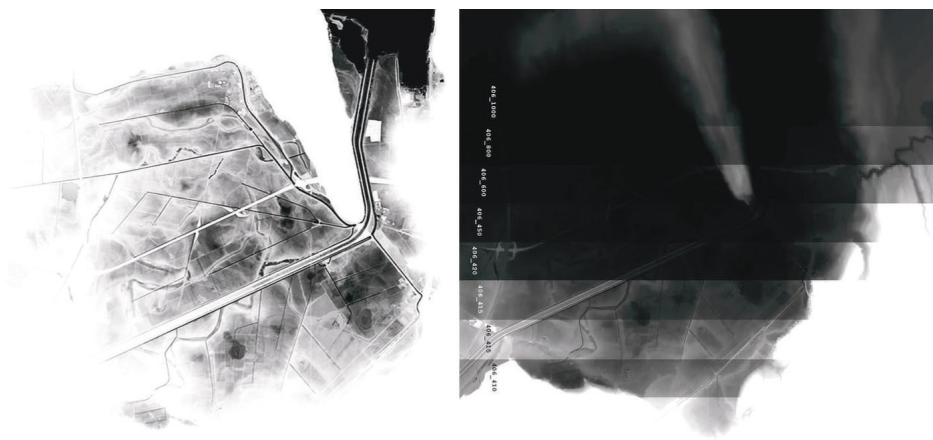


Figure 4. Analysis of a plain site topology developed using a logarithmic mapping process to emphasize the site's micro-topography. The resulting layers, at 2-meter intervals, uncover the historical hydrological evolution of the site. (Image credits: A. Komninos and M. Hasegawa.)

Beyond merely highlighting specific signs, or sets and combinations of signs (i.e., patterns), generative models are adept at mastering the distribution of a given dataset, consequently learning to derive novel constructs from it.

While numerous experiments exist that harness machine learning and AI for landscape architecture at a territorial scale, there's a noticeable lack in experimentation as the scale becomes more localized. Primarily, this can be attributed to the lack of dense, high-resolution data available for smaller scales. Additionally, many architectural practices may not have the expertise or resources required to execute these complex computational analyses. Nevertheless, at the smaller, more site-specific scale, there have been some notable experiments to map landscape perceptions and usage patterns. One particularly significant dimension to explore at this scale is user surveys which measure behavioral patterns or site-specific preferences. For instance, the XL Research and Innovation Lab at SWA Group stands out in this context. Their innovative approach involved experimenting with machine learning to gain a more refined understanding of spatial distributions of people within public spaces, aiming to discern emerging patterns in social behaviors. Using ten newly built public sites in New York City as a testbed, they gathered video footage of each site. This footage was then processed using machine learning algorithms

to detect and track the movements of individuals. The outcome was a set of pedestrian heat maps which underlined areas of frequent or infrequent usage within each site.

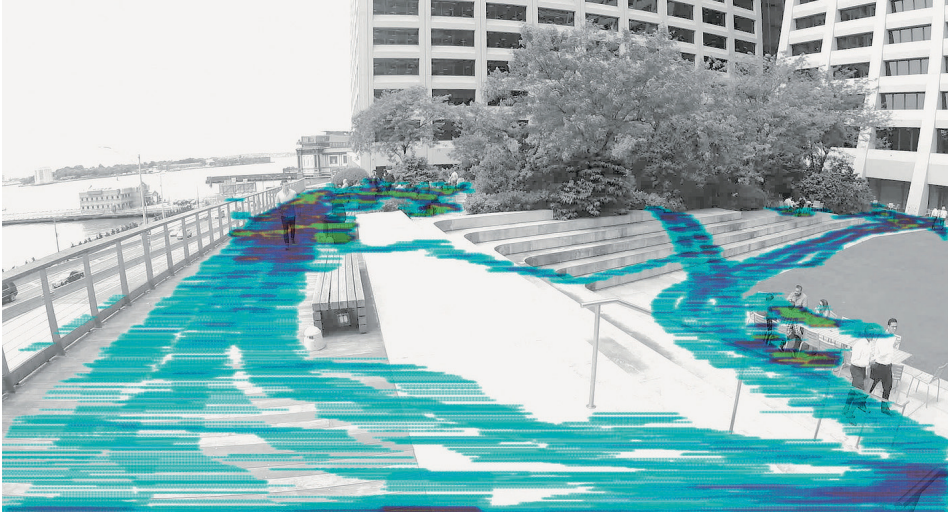


Figure 5. Heat map developed using machine learning, illustrating the spatial distribution of people at Elevated Acre. (Image credits: Emily Schlikman).

The power of computational approaches is not limited to discerning patterns; they can also offer generative insights that can serve as input for projects. Historically, our proclivity has leaned towards analyzing system data at a territorial scale, emphasizing energy and material efficiency predominantly at smaller scales. Yet, the exploration of human activity and urban form patterns at the scale of blocks and neighborhoods proves equally compelling. It becomes imperative, then, to evolve our methods, homing in on these smaller scales, or perhaps even eschewing traditional notions of ‘scale’ for a more fluid representation — one with heightened precision. Truly committing to the realm of human perception and engagement necessitates navigating new, and frequently unruly, urban datasets.

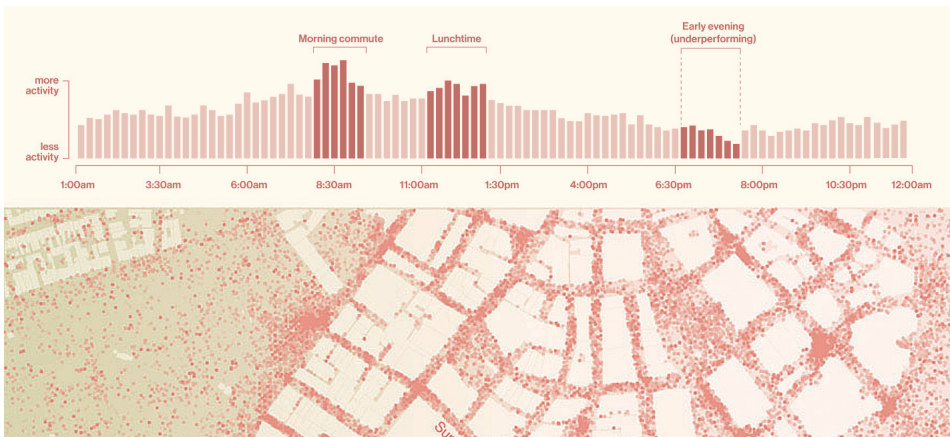


Figure 6. A graph and map illustrating data density, which represents activity levels during a typical 24-hour weekday in Boston’s Downtown. (Image credits: Supernormal studio).

However, the rapid advancements in technology extend novel opportunities: data from mobile devices and an array of sensors can be sourced at the site design scale; moreover, informal geo-referenced data can be meticulously harvested and retooled for practical applications (E. Christoforetti et al., 2018).

Conclusion

The ongoing experimentation in architecture and landscape reveals an abundance of data awaiting visualization, offering unprecedented patterns related to immaterial dimensions that could serve as compositional elements. However, many of these visual representations remain in their nascent stages — they are initial transpositions of data that, procedurally, have not been seamlessly integrated into the operational flow of design. The challenge lies in how to refine these visualizations, making them true instruments of design, and how to use these representations effectively as inputs within the design practice. This challenge must be addressed lest these remain mere academic pursuits.

Yet, amidst this technological evolution, it's essential to underscore that these advancements will not supplant the role of the designer in the act of creation. Design, intrinsically, is tied to expressions of critical culture and human logic. Computational tools now serve as an artificial enhancement of our innate ability to grasp context. The objective is not mere automation but enriching the design process with contextual inputs, translating them into pertinent and significant design outcomes — outcomes that critically reconnect with our social and natural milieu. This approach fosters a heightened sensitivity in the design process, imbued with enhanced sensibility and cognitive tools. While these graphic interpretations are abstract models aiming to decode data and forecast design solutions, it's pivotal to recognize that the graphical outputs project into a design dimension, assuming a unique aesthetic operability.

Successfully pinpointing ways to represent aspects of reality in an actionable manner has the potential to pave the way for innovative design sensibilities that can shape the outcome of projects. As James Corner articulates in the introduction to *Representing Landscapes Digital*, representation is inherently “both analytical and generative” (Amoroso 2015). Such tools, simultaneously, serve dual purposes: they act as conduits for exploration, and they foster new ideas steering the design and spatial functions towards the introduction of fresh forms and concepts.

The evolution of these new modalities of interpretation, processing, and depiction can lead to the establishment of new frameworks that are both constructive and evocative of innovative spatial formations. These are objectively birthed from a foundation of figures, facts, and raw data, wielding an undeniable persuasive power. However, it's essential to understand that the hallmark of these emerging representation spaces shouldn't be a rudimentary objectivity, as often touted by superficial definitions of realism. Instead, the emphasis should be on achieving optical consistency.

This form of consistency embraces the craft of comprehensive description, offering the fluidity to transition between various visual traces. To unleash their generative potential, symbols and layers must synergize, adhering to a distinct optical and semiotic cohesion. Such cohesion becomes tangible only by leveraging representational techniques that highlight parallels and indicate novel intensities. This ensures that the two-dimensional

imprint is malleable, discernible, translatable, and can be superimposed — permitting seamless transitions from layer to layer. Ultimately, this creates an actionable space, facilitating the visualization of ground as a spatial organizing tool and guiding the cyclical journey from object to map to territory, punctuated with continual feedback and fine-tuning.

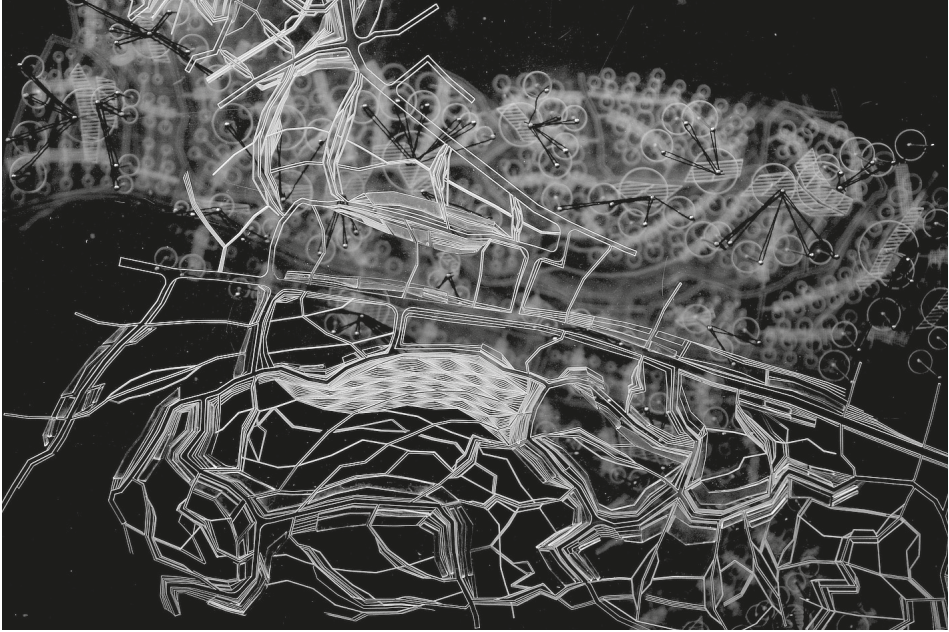


Figure 7. A layered model where the bottom layer represents the correlation between productivity and land accessibility of agricultural plots. The top layer showcases the newly designed road network complemented by the integrated water system. (Image credits: Z. Qianyu, Z. Yizhang, L. Yunyun).

Modern multidimensional representations indisputably serve as potent tools for investigation and understanding. However, they come with an inherent risk: they can immerse the designer in an intricate space, which might elude the comprehensive, illuminative gaze that more traditional representation methods can offer.

This underlines an enduring need to perceive drawing as a functional tool—a medium of synthesis capable of gathering and showcasing information through graphical depictions. Such depictions, by their essence, should facilitate and steer towards an enhanced and deeper grasp of the reality and the interrelations among its components. Herein lies the paramount importance of drawing's inherent synthetic ability. This ability manifests in the reduction of vast pools of information to a more digestible scale through strategic factor combinations and the semantic synthesis of conventional symbols.

It's akin to possessing a new set of eyes, allowing us to discern traces previously invisible to us. Furthermore, it grants access to novel shared insights. However, the intention isn't to be overwhelmed by this barrage of new data. Instead, we advocate for integrating these novel information sources within a revamped and nuanced design process. This inclusive approach paves the way for the creation of more attuned and pertinent value systems. These very value systems, defined by their unique methods and criteria, breathe life into new formal avenues for design. There's an imperative to

continually probe representations that adeptly project this vast influx of new information onto the design dimension, ensuring it translates effectively into locally resonant design and planning results.

All these efforts culminate in an aspiration for a condition where the forms, status, and functions of components that constitute a landscape are consistent and seamlessly integrated components. Any environment becomes a manifestation of the people that will inhabit it and the climatic relations ensuring the wellbeing of its users. This represents a balance, a delicate tension between the myriad forces and behaviors shaping the landscape. A landscape we must constantly strive to depict in innovative ways.

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Design & Craft: the (re)discovery of Made in Italy identity

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Abstract

The article proposes an investigation of the relationship between the design system, traditional applied arts, and local culture in the Italian scene of the last decade. Multiple exhibitions, publications, events, and collaborations initiated by designers in synergy with the traditional production fabric, in fact, seem to confirm the potential of a profession in continuous transformation. The contemporary urgency to link innovation to the local-traditional dimension implies a change in approach, away from the conventions and stereotypes long associated with the “handmade.” In this context, the paper explores the role of the design discipline as an activator-facilitator, with reference to the Mediterranean area. The objective of the operation is realized in the codification of a potentially virtuous process that validates the role of design as an element of innovation, in line with a production sensitive to local cultural and material resources. The phenomenon, referred to by the writer as “Design & Crafts”, is read as a spontaneous neo-movement. It is an area of experimentation within the design system, found both in design culture and theory and in the recent material production of objects.

Abstract

L'articolo propone un'indagine sul rapporto tra sistema del design, arti applicate tradizionali e cultura locale nel panorama italiano dell'ultimo decennio. Molteplici mostre, pubblicazioni, eventi e collaborazioni avviate dai designer in sinergia con il tessuto produttivo tradizionale, infatti, sembrano confermare le potenzialità di una professione in continua trasformazione. L'urgenza contemporanea di legare l'innovazione alla dimensione locale-tradizionale implica un cambiamento di approccio, lontano dalle convenzioni e dagli stereotipi a lungo associati al “fatto a mano”. In questo contesto, il documento esplora il ruolo della disciplina del design come attivatore-facilitatore, con riferimento all'area mediterranea. L'obiettivo dell'operazione si concretizza nella

codifica di un processo potenzialmente virtuoso che avvalora il ruolo del design come elemento di innovazione, in linea con una produzione sensibile alle risorse culturali e materiali locali. Il fenomeno, definito da chi scrive “Design & Crafts”, viene letto come neomovimento spontaneo. Si tratta di un ambito di sperimentazione del sistema design, riscontrabile sia nella cultura e nella teoria del progetto, sia nella recente produzione materiale degli oggetti.

Introduction

The paper starts from the observation of the existence of a broadening of the field of contemporary design understood as the result of forays into other sectors among which, without a doubt, handcraft stands out. This phenomenon, found internationally, is of particular interest to Italy, a country where ‘handmade’ has its own tradition universally perceived as excellence and an element of value (including economic). The recourse to craftsmanship, evident in the works of many young designers active in the last decade, is read and interpreted as a parallel path to that taken by industrial design, the field of actions of Italian masters and their students, witnessed by increasingly frequent intersections with the manufacturing sector and the diffusion of an ethical and aesthetic sensibility that reactivates and makes attractive the concept of handmade. A direct consequence of this is the evolution of the figure of the designer (and creator) of objects, as well as the new relationships between products, processes, materials, and places. The return to craftsmanship, which can be interpreted as a parallel road to that traced by industrial design in the last century, appears particularly evident thanks to several elements such as: the diffusion on the market in the last decade of hybrid products, born from the intertwining of design and craftsmanship, sensitive to the protection of the relationships between geographies, manufactures and creativity; the constant propagation of events aimed at promoting the storytelling of the newborn project-objects; and the dissemination of a transversal scientific literature that investigates the peculiarities of a profession that, through an experimental approach, in recent years proves to be a true bridge between disciplines (Didero, 2016).

The frequent collaborations between the Italian masters of making and the new generation of designers unveils a new vision of the concept of the handmade, re-actualized and (above all) attractive. The direct consequence of this phenomenon is represented by the evolution of the figure of the designer, not only a product designer, but also an interpreter of the specificities of places, materials, and processes. Aware of the urgency covered by the theme of sustainability, the design system traces new paths (Gambardella, 2020, p.95) acknowledging in craftsmanship an important resource to draw on. A change of approach develops, away from the man-industry dichotomy, in which the design culture recognizes the manufacturing sector as having a role of peculiar importance in reference to reducing the impact on human capital, landscape and planet (Molteni, 2021, p.76). And if the *Paris Agreement* (Official Journal of the European Union, 2016) calls on the international community to achieve the infamous ‘net zero’ by 2050, the possibility of designing without losing the identity of the genius loci (Bassi, 2017, p.79) may represent a starting point for the diffusion of a creative-manufacturing reality parallel to that of industrial design. In this context, the contribution explores the role of design as an activator-facilitator, decodes the conceptual and formal transformations

taking place within the Italian design system, identifies and systematizes the constellation of designers who have initiated synergistic collaborations with the local manufacturing system, and investigates the products born from the relationship between artisanal know-how, designers' personal traits, and control of the production chain.

Methodology

Methodologically, the paper follows logical steps. Starting with historical reconnaissance, and a description of the state of the art, it proceeds with the involvement of five experienced Italian curators. Annalisa Rosso, Alice Stori Liechtenstein, Domitilla Dardi, Federica Sala, and Paola Carimati support the framing phase of the survey and contribute to the identification of Italian designers under 40 who have been protagonists of the main forays between design and craft in the last decade. Their involvement is crucial, as it helps to closely observe the changes taking place and allows to give voice to the new generation of curators and design experts. Next, all identified figures are interviewed. In this way, products, and experiences consistent with the phenomenon being investigated are brought into the system. The technical and practical field based on the cultured use of materials, the development of tactile relationships and the enhancement of manual skills represents the flagship of Italian excellence and constitutes the main structure of the research. Next, possible future scenarios are documented, sensitive to the transformations of the discipline, open to further development in tune with international culture.

At the beginning of the last century, craftsmanship was the main system for product development, but as the years passed, its role changed, and industrialization seemed to take over. From that moment on, a logic takes off that crucially constrains the evolution of the discipline. The craftsman is primarily concerned with the development of prototypes commissioned by third parties and rarely could collaborate, interpret and design together with the designer. But if that approach could be unhinged today by recognizing a different role for the manufacturing sector, what might happen to the design culture? A public reconnaissance about craft was carried out for the first time in 1995 at the Milan Triennale by Ugo La Pietra, a historical figure of reference in Italy on this sector. He curates the conference *Fatto ad Arte*, four days dedicated to an overview of the discipline in our country that is still not well identified. It is an event that involves academics and design historians with the aim of focusing on the evolution of the culture of making in Italy. The exploration of an area that is not art and not industrial design is born on this occasion. A process is initiated that pushes the 'handmade' to grow strongly in the theoretical debate and in the practice of the designer by linking itself to the new conditions of the world and the market. A generation of young designers contributes to the diffusion of 3D printers, self-production grows, and in Italy historical, social, and territorial diversities prove to be an added value (of considerable importance) in the process of recovering know-how.

A few years later it is Richard Sennet who investigates this field of research. His book *The Craftsman*⁽¹⁾, dating back to 2008, is considered one of the first texts dedicated to this controversial relationship between craft and culture. Beginning with an analysis of the deeper meaning of «work done in a workmanlike manner», the author focuses

(1) Sennett's book, published in 2008, spans the present and the past. It compares the ancient workshops where Raphaels were formed, or Stradivarius polished and the modern laboratories where the Linux system is fine-tuned. The author invites us to discover how the mind-hand-desire-reason synergy works, which made the Western world great and perhaps can restore wisdom to it today.

on the craftsmanship process and dwells on the motivational drive that drives him to produce a work that is perfect in form, consistent with technique and sensitive to the peculiarities of the material. Contemporary society can draw inspiration from the desire for perfection typical of the good craftsman and the characteristics that denote his passion for quality work, his desire for improvement in the practice and deepening of techniques, his rootedness in socially recognized communities of practice (Sennet, 2008, p.34). Many events that have sprung up in the last decade, based on the desire to hybridize the design system with the path of the artistic crafts, seem to be inspired by these considerations.

An example of this is Operæ, the Turin fair dedicated to independent and collectible design, designed to bring the public and professionals together around projects that share a special attention to material, process and production technique. Moving on from the economic sector, it is impossible not to mention the book *Futuro Artigiano: l'innovazione nelle mani degli italiani*⁽²⁾ by Stefano Micelli, a best seller that was awarded the XXIII Compasso d'Oro in 2014. With a critical and analytical slant, the author offers an overview of the role and perception of craftsmanship in Italy, accentuating the political and educational weaknesses that have denoted the education system for several decades. But how to revive today that «heritage of knowledge today too little valued and how to trigger a new dialogue between the culture of doing and politics?»⁽³⁾

The Internoitaliano project, presented in 2012 by designer Giulio Iacchetti, seems to try to give an answer to this question: a set of artisan workshops distributed throughout the peninsula together with which he produces furniture and accessories inspired by the Italian culture of living, «born with care and happiness» and for this reason ready to «go beyond time» (Ricci, 2021, p.3). All the products made represent the Made in Italy taste and tell of an authentic Italianness, consisting of people, traditions, and skills, all sensitive to the sustainability of processes. But the concepts investigated by Micelli seem to suggest new design cues to the online marketing and sales system as well. A neuralgic example of this is the e-commerce Artemest, a marketplace founded in 2015 by designer Ippolita Rostagno and manager Marco Credendino. The platform, designed to relaunch Italian 'savoir-faire' on the international market, registers over 1100 artisans involved and sells products in 70 countries around the world.

But continuing the roadmap, and taking a small step forward, in 2016 it was Fondazione Cologni dei Mestieri d'Arte that proposed, in collaboration with Living - the interior, design and lifestyle magazine of *Corriere della Sera* - the *DoppiaFirma* format, still active today as part of the Fuorisalone in Milan. The project, conceived with the aim of increasing the contaminations between the design system and the tradition of the great Master of Art, proposes capsule collections of products born from the exchange between a designer and a small manufacture of excellence. Similar mission to that proposed *Best of Italy*, a project signed by the Coincasa brand in collaboration with Elle Decor Italia or the exhibition-event *Homo Faber*, promoted by the *Michelangelo Foundation for Creativity and Craftsmanship*⁽⁴⁾ in 2018 at the Venetian Island of San Giorgio. On the

(2) Micelli's book, published in 2011, describes many Italian realities in which know-how continues to be an essential ingredient of quality and innovation. He describes the many ways in which it is possible to decline to the future a legacy that deserves to be proposed on an international scale.

(3) S. Micelli (2011) *Futuro artigiano. L'innovazione nelle mani degli artigiani*, Venezia: Marsilio Editore, p.192.

(4) The Michelangelo Foundation for Creativity and Craftsmanship is an international nonprofit organization, based in Geneva, that celebrates and preserves craftsmanship and strengthens its connection to the world of design, hospitality, and the arts.

latter occasion, the *Giorgio Cini Foundation* hosts an exhibition dedicated to the finest European craftsmanship, records the participation of 62500 visitors and nearly 500 artisans. More than 40 lectures are curated during the event, the first review in the world of such magnitude, and the will of the curators be involved seems to be able to be summarized in the words of Johann Rupert, co-founder of the foundation: «to recognize that human talent, unique and unrepeatable, is capable of generating balance and beauty»⁽⁵⁾.

Exactly aligned with the concept of the EDIT Naples project, unveiled in October 2018, straddling curatorial project, industry fair, residency and brand. The idea, proposed by Domitilla Dardi, curator and historian of design, and Emilia Petruccelli, entrepreneur, and owner of the design store MIA Gallery with offices in Rome and Saint Tropez, is to offer visibility to auteur design, enhancing the dynamics between the design system and production. Here, too, craftsmanship seems to appear as a chance for recovery, a turning point, an opportunity through which to glimpse new possible future scenarios, and the profession of designer increasingly resembles the polyglot figure of the director, the astute figure of the strategist, the innovative figure of the technologist and the prescient figure of the planner (Anceschi, Botta, 2010, p.19). After all, «in the Italian tradition, the sense of enterprise is linked to the magic of the impossible, and therefore to the initiatory, symbolic, alchemical culture: from the Etruscans to the Romans, from Leonardo to Cagliostro, all the way to Mazzini, the power of the initiatory journey-just think of Garibaldi's Thousand-has always borne fruit. Here, too, transforming the lead of the years we have lived in the gold of a sustainable and happy future may be the only emotional engine to be shared to move a country that appears immobile, and which has plunged-in image and reality-into the second division»⁽⁶⁾. These words, taken from the text *Verità e bellezza. Una scommessa per il futuro dell'Italia* by Francesco Morace and Giovanni Lanzone, suggests an interesting reflection about the possible future developments of Made in Italy design.

Just as Milan, Turin, Ivrea, Pisa, and Brianza in the mid-twentieth century witnessed the birth of a new Renaissance for the country, today it is possible to hypothesize the beginning of a new season. That ability showed by the artisans and designers of the 1950s to mix design visions with the needs of the industrial system, today may suggest the application of an 'Italian model' to contemporary needs. Today, «the search for a method, common to designers and fashion designers, as well as the objectification of a working practice for entrepreneurs and communicators, are the focus of a debate that has moved from the particular of the individual case study to the deeper creative, narrative and methodological issues»⁽⁷⁾.

Many historians and critics of the discipline wonder about the future of design, about the role of multidisciplinary, and about the need to develop greater awareness of phenomena currently in the making. Trying to understand what is happening and will happen in society, the economy, technology and culture is of utmost relevance to a designer concerned with that particular form of the future that is innovation, as well as with the changing (and shifting) characteristics, needs or desires (real, induced, unknown and so on) of the people who will use the artifacts (Bassi, 2017, p.76). The study attempts to shed light on the contemporary scenario in the making, the scene of experimentation

(5) J. Rupert (2018). Homo Faber. Crafting and more human future. Exhibition guide, Venezia: Marsilio Editore, p.9.

(6) F. Morace, G. Lanzone (2010) *Verità e bellezza. Una scommessa per il futuro dell'Italia*, Varese: Nomos Edizioni, p. 19.

(7) A. Cappellieri (2007) *Moda e Design: il progetto dell'eccellenza*, Milano: FrancoAngeli, p. 57.

by the younger generation of designers. To do so, it makes use of the collaboration of five expert curators, careful observers of the transformations taking place and direct directors of some of the forays that hint at the possible coordinates of an Italian neo-design.

The designers identified, interviewed, and catalogued are: Agustina Bottoni, Antonio Ariò, BAM, Cara Davide, Domenico Orefice, Duccio Maria Gambi, Elena Salmistraro, Federica Biasi, Federico Peri, Francesco Meda, Giacomo Moor, Gio Tiroto, Giuseppe Arezzi, Guglielmo Poletti, Kiasmo, Lucia Massari, Marino Secco, Martinelli Venezia, Matteo Cibic, Matteo Di Ciommo, Matteo Pellegrino, Roberto Sironi, Sara Ricciardi, Serena Confalonieri, Simone Crestani, Stories of Italy, Valentina Cameranesi Sgroi, Vito Nesta, Waiting for the bus e Zanellato Bortotto.

All are interviewed about their education, interest in craftsmanship, the encounters-projects most tracing to the purposes of the individual path, the techniques, and types of processing experienced, the perception of production geographies and their connection to contemporary design. The designers seem to move in a direction that is attentive to the value of districts, the sustainability of processes and the protection of the cultural specificity of products. Their approach tells of a willingness to imagine different worlds of different ontologies, a pluriverse where local, independent experience and practices go hand in hand with equally independent, open, and distributed technology (Maffei, 2021, p.30). Through knowledge aggregation and interdisciplinarity, young professionals seem ready to spend their skills on difficult terrain, framing interesting cultural aspects not only in current events, but also to the collective memory of future generations (Bettini, 2016, p.62). The collaborations reflect a marked capacity for dialogue between the present and the past, as well as between contemporary visionariness and historical peculiarities. In addition, the use of raw materials that can only be sourced locally, incentivizes the reduction of logistics-related pollution, validates the sustainable contribution of the operation, and contributes to the mutation of the design-production-distribution-consumption arrangement.

The phenomenon, dubbed by the writer *Design & Crafts*, turns out to be a “parallel path”, ready to intertwine and coexist with industrial design revealing intimate facets of the most authentic Italian production background. After all, «emotion is never complete if you reason only about the product, it becomes so only when you manage to contextualize it: and Italy remains the most powerful context as an aesthetic and emotional landing place for the globalized market. (...) The world desires Italy, the only country that can contrast the American dream with an equally powerful model: the Italian way of life»⁽⁸⁾.

Conclusion

The paper proposes new strategies of action inscribed within an unprecedented path of design, parallel to the industrial one, ready to (re)bring attention to productive districts, enhancing the ‘savoir-faire’ kept between the folds of territories and interweaving new economies, a greater valorisation of cultural and territorial resources, the training of schools, the role of academies and awareness towards sustainability issues.

By studying the present situation and the experiences of contemporary designers, a change of approach is imagined with respect to handmade in Italy and its impact on culture and design. The analysis considers the emergency associated with CO2 production,

(8) F. Morace, G. Lanzone (2010) *Verità e bellezza. Una scommessa per il futuro dell'Italia*, Varese: Nomos Edizioni, p. 25.



Figure 1. pottery turning in the workshop.

resource scarcity, waste proliferation, and the current energy and economic recession.

The design system, starting from the present conditions, can encourage widespread production in the territory, interweaving design and crafts and enhancing cultural and territorial resources, without necessarily excluding industry. Moreover, design culture can imagine unprecedented training paths for schools of arts and crafts based (also) on collaboration with academies and universities. The goal is to ensure the dissemination of techniques, methods, and experiences to Generation Z. By spreading a new awareness related to the craft system, stereotypes can be broken down by promoting new thinking that is open to possible future advances. It is not enough to study the transformations to anticipate what may happen in the coming years. Projects, exhibitions, and experiences confirm the spread of a neo-movement ready to recognize the territory as a resource to draw on, toward greater sustainability, attention to production processes and impact on human capital, the landscape, and the planet (Molteni, 2021, p.76). The combination of contemporary vision and historical expertise brings attention back to certain elements that have always nurtured much of Italy's competitiveness, such as high-quality, brand reputation and product differentiation (Giunta, Rossi, 2017, p.70). They also express a change in approach that involves a shift in the design-production-distribution-consumption structure. The use of locally available raw materials promotes a reduction in logistics-related pollution and validates the sustainable contribution of the operation. At the same time, the cooperation adapts to the slower pace of craftsmanship and allows designers to learn about the materials, techniques, and background of the many local artisanal workshops.

So, if the designer really represents *«the artist of our age»*, as Andrea Branzi states

in the text *Pane e progetto. Il mestiere di designer*⁽⁹⁾, because he responds to the human needs of the people of his age, helps them solve certain problems independently of stylistic preconceptions or false artistic dignities derived from the divisions between the arts (Munari, 1966, p.28), the sampling of designers and the analysis of their respective experiences confirm the need for a profound change (even in universities). The phenomenon involves scientific research, technological application, and creativity of an entire generation of professionals who, consciously, are tracing an important direction of neo-design made in Italy. Italian industrial design, fundamentally, never departs completely from the manufacturing sector. The design sector - similarly to the fashion sector - is based on artisanal realities that still constitute a well-defined social group of more than four million people. These are people who have lived for many years sheltered from public opinion and politics. There was no shortage of important successes, but they were never communicated. But today the dynamics have changed. Products are no longer just objects; they bring history, culture, technology, and art. It is essential to tell the storytelling that accompanies the making of products well, to initiate processes and collaborations with universities, museums, trade associations, and research centers. It is necessary to (re)think about the way Italy presents itself to the world and to increase the perception of the handmade imagining «a cultural proposal capable of putting Italy at the center of an international debate about artisan work. The start and consolidation of such a cultural proposal, however, implies a medium- to long-term time horizon. From a business point of view, the time frame is tight; it needs to be done now. It is necessary to think about how to exploit promotional and distribution platforms to bring Italian production linked to artisan expertise into a new light»⁽¹⁰⁾.

Following Micelli's thinking in *Futuro artigiano*, one can imagine a (re)reading of Italy's historical and cultural background. To do so, it is necessary to leverage the aspects that make the productive fabric unique. In this way, collaborations between artisans and designers can be transformed into a concrete method of conscious (re)starting, ready to allow Italian design thinking to consolidate in international markets. But how to revive, in an economic sense, a heritage of knowledge that today is too little valued and how to trigger a new dialogue between culture of making and politics? (Micelli, 2011, p.18). It is essential that the recognition of Made in Italy products be strengthened. Giving value to the characteristics that constitute its main distinguishing features and knowing how to focus on the Italian ability to transform the particular into the universal, which is one of the great foundations of Italian success.

One of the decisive factors within manufacturing districts is the complex system of skills that encourage the transmission of knowledge.

By sharing among operators and gaining awareness regarding the fact that a large part of the country's economy is based on the manufacturing network, nostalgic urges can be abandoned, local economies can be reactivated, and neo-design made in Italy can be confirmed within international business markets.

(9) *Pane e progetto. Il mestiere di designer* is a collection of reflections in the form of a dialogue, on the relationship between education and the design profession. The author, a designer and researcher, reconstructs with forty-six designers from the national scene the path from learning to the genesis of one's own professional identity. The book was born with the need to build a tool of knowledge for young people entering this happy but difficult profession and aims to be material for reflection in the definition of an Italian design identity.

(10) S. Micelli, (2011) *Futuro artigiano. L'innovazione nelle mani degli artigiani*, Venezia: Marsilio Editore, 178.



Figure 2. borosilicate glass blowing in the laboratory.

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The survey of historical architecture: a cognitive, cultural and territorial project

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Abstract

The practice of surveying architecture and the environment is unequivocally linked to the cognitive process of the state of affairs according to a specific design activity with a critical and methodological approach. The aspects of historical-iconographic analysis, explored to the maximum in the analysis of the treatises, of the narration through images and of the transformative-urban consequences of the places, are considered as the first phase of approach to the survey project, a project that involves themes related to reading, to the perception, size, urban and territorial organization, economic, social and sustainable reality of cultural heritage, investigated according to innovative digital methods.

The research places at the center of the project the scientific and educational implications on the survey of villa fabric in the Ligurian territory, with focus on a case study: Villa Gavotti della Rovere in Albisola Superiore.

Abstract

La pratica del rilievo dell'architettura e dell'ambiente si lega inequivocabilmente al processo conoscitivo dello stato di fatto secondo una specifica attività progettuale di impostazione critica e metodologica. Gli aspetti di analisi storico-iconografica, approfonditi al massimo nell'analisi dei trattati, della narrazione per immagini e delle ricadute trasformativo-urbane dei luoghi vengono considerati come prima fase di approccio al progetto di rilievo, un progetto che coinvolge tematiche connesse alla lettura, alla percezione, alla dimensione, all'organizzazione urbana e territoriale, alla realtà economica, sociale e sostenibile del patrimonio culturale, indagate secondo le innovative metodiche digitali.

La ricerca pone al centro del progetto le ricadute scientifiche e didattiche sul rilievo del tessuto di villa sul territorio ligure, con focus su un caso studio: Villa Gavotti della Rovere ad Albisola Superiore.

Introduction [G.P.]

The theme of the Villa, linked to metric, geometric, and chromatic relief, is the subject of study in this contribution, as part of a broader research of educational innovation on the survey intended as a cognitive project on the territory. The different architectural typologies, the plastic or painted decorations, the new garden space, the monumental dimensions of the villa, and the relationship with the city in which the complex is inserted, are all factors that identify the model of patrician residence in the moment of maximum splendour of the Genoese aristocracy, between the sixteenth and seventeenth centuries. On an architectural level, the size of the villa defines the magnificence of the client; while the artists' works aim to transport the visitor into the different myths recreated through paintings or the use of plastic stuccoes. The function of the garden is different, where the connection between the artistic choices and the political role of the client is less evident, and, in addition to responding to the classic canons of decoration, it must satisfy needs such as comfort, pleasure, and enjoyment of beauty. In the green space of the building, the myth is approached differently than in the interiors: not using two-dimensional painting and symbolic references, but recreating the place of the narrative itself, eliminating the boundary between fantasy and reality. There is a substantial heritage of historic villas in Liguria, often in degraded and/or forgotten conditions whose redevelopment could lead to the creation of cultural itineraries.

The Council of Europe promotes the "Cultural Routes", the enhancement of historical routes. In Italy, there are twenty-nine routes, which touch architectural complexes and historical parks that are part of the UNESCO World Heritage Site. Throughout the Liguria region, there are many points on which there are villas and gardens connected by urban roads and paths along the hillside. During the nineteenth century, Alassio and the surrounding areas attracted the attention of English tourism and thanks to this we owe the construction of about twenty dwellings with adjoining parks on the slopes of the promontory. Another group of historic villas is grouped along Via Adelasia, whose great promoter of building development was Thomas Hanbury⁽¹⁾. All the nineteenth-century buildings respect the characteristics of the landscape and also the botanical species introduced in the new gardens, which fit perfectly into the context. The terraces, mule tracks, and olive groves are not modified. In nearby Bordighera, the iconic homes are Villa Bischoffsheim or Villa Etelinda, dating back to the late nineteenth century, Villa Margherita, the private residence of Queen Margherita of Savoy, and the current Town Hall designed by the architect C. Garnier in 1886⁽²⁾. In the east, the Gulf of Lerici is home to religious and civil buildings of great architectural value. Villa Marigola, built during the eighteenth century by the Olandini family, has one of the most celebrated gardens in the region, overlooking the Gulf of Poets. The residence of Mary and Percy Shelley who in 1890 involved Arnold Bocklin, a Swiss painter, for the creation of a

(1) Sir Thomas Hanbury was a British philanthropist, businessman in China, founder of the famous eponymous Gardens.

(2) Jean-Louis-Charles Garnier (6 November 1825 – 3 August 1898) was a French architect. In 1848 he won the Prix de Rome of the French Academy of Sciences which allowed him to stay in Rome. In 1852 he went to Athens. These years will have a strong influence on his architectural production. Returning to Paris in 1854, he worked with Théodore Ballu and Eugène Viollet-le-Duc. In 1861 he was a still unknown architect when he won the competition for the Opéra national de Paris, creating the Opéra Garnier which would remain his most emblematic work and to which he dedicated 14 years of his life. In 1874 he became a member of the Academy of Fine Arts. He was also the author of a vast scientific production, publishing numerous texts on Greek archaeology. His work, which has become a symbol of the Napoleon III style, reveals a neo-baroque temperament with eclectic and overloaded decoration.

wood with limestone concertations in the upstream portion of the garden. The current form dates back to 1926 by Franco Oliva⁽³⁾ and was commissioned by the naval engineer Gio Batta Bibolini. Other valuable structures, also in the Gulf of Poets, are Villa Padula, Villa Cochrane with its park of cypresses, holm oaks and eucalyptus, Palazzo Doria, and the nineteenth-century Villa De Benedetti. Not only Levante and Ponente but also the regional capital is home to very interesting architecture: the settlements of sixteenth-century Villas. This theme encompasses the phenomenon of birth and development, and subsequently the urbanization and industrial transformation of the current district of Sampierdarena. The development took place along two main axes: the one that connects the mouth of the Polcevera with Capo di Faro, overlooking the sea, while the second internal one includes the reliefs of the Promontory, the Belvedere, and the Hill of Angels.

Between the end of the fifteenth century and the beginning of the sixteenth century, following the acquisition of plots of land by local noble families, the construction of dwellings with great architectural and landscape prestige began, in harmony with the “palace-cultivated land-garden” system; Over time, this will become one of the most popular places for holidays.

The rich historical cartography of Sampierdarena testifies to a multiplicity of settlement, landscape, typological, and architectural values, as well as the decorative and constructive details of open spaces and closed volumes. The appurtenances of the palaces are enriched by fish ponds, nymphaeums, and fountains. The current Via Daste is home to the “Alessian triad”, ancient and architecturally valuable villas whose characteristics are often related to those of Alessi: Villa Grimaldi known as the Fortress (1565), Villa Scassi nicknamed the Beauty (1560) and Villa Lercari, known as the Simplicity (early second half of the 1500s). Other elements of prestige in Genoa date back to the early twentieth century, thanks to the presence of Gino Coppedè who uses typical elements of the English garden adapted and reinterpreted to the Genoese landscape. The villas or castles are perfectly integrated with the landscape from which they emerge as focal points, concentrated in Castelletto, Centro, and Corso Italia. Coppedè built different types of houses: castle buildings such as the Mackenzie, Bruzzo, Turke, Coppedè and villas (Villa Canali); villas such as “country cottages” Villa Martini and Villino Cogliolo or “mountain chalets” Villa Delle Piane and Villino Bozzano, Villa Maria Cerruti; finally, the Renaissance taste also finds space in Villa Cerruti, Villa Canepa, Villino Queirolo and Palazzina Profumo.

This study focuses on Villa Gavotti_Della Rovere located in Albisola and has included several areas of interest: analysis of the Albisola plain, from a morphological point of view and of the historical-urban evolution with in-depth studies on Via Della Rovere; identification of the details of aristocratic residences, gardens, and parks in Liguria; Subsequently, the themes of representation and architectural survey are addressed. Particular attention is paid to the façades and decorative details of Villa Gavotti Della Rovere; the color plan dating back to 2012 in which the main building is not inserted but the former appurtenances (stables and sheds) transformed into homes⁽⁴⁾, has made it possible to develop an initial study on the reconstruction of the decorations and the original chromatic relief of the complex. The decorations of the façades of the entire historic residence have been created through a perceptual perspective, a sort of “trompe-

(3) Franco Oliva (1885 – 6 November 1952) was an Italian architect and engraver.

(4) “Relation to the Colour Plan of Via Della Rovere”, Municipality of Albisola. Cards number 01, 03, 05.

l'œil⁽⁵⁾ that deceives the observer by making him perceive all the frescoed decorations as three-dimensional. A study and sampling of the chromatic and design values of the façade was also carried out, the chiaroscuro, the painted shadows, and the different shades were identified. As far as the monumental garden is concerned, archival historical-iconographic and bibliographic research and relief have highlighted the theatrical character of the space as well as a place of pleasure and myth. The planimetric schemes, the network of paths, the different botanical species, the water systems, the ornamental apparatus, and the use of nature as a decorative artifice have been identified. Four different galleries open onto the imposing park, each dedicated to a season. On the north side, there are spring, summer, and autumn decorated with frescoes and stuccoes where it is visible how nature is projected onto the closed spaces of the palace. On the southern side, to represent winter, there is a real artificial cave in an enclosed space, an image of creation and the mystery of nature meet in this place entirely covered with stalactites, shells, and corals from nearby Bergeggi.

Finally, a cultural itinerary has been drawn up, as Villa Gavotti_ Della Rovere is not the only aristocratic residence located between the two Albisole (upper and lower). There are three other complexes: Villa De Mari (restored and now used as a private residence), Villa Farragiana, owned by the municipality of Novara (one part of it is a museum, the other is used for events), and Villa Balbi from the point of view of the decoration on the façade the most interesting (private apartments).

Methodology [G.P.]

The research is an analysis of its dual value of historical-iconographic investigation and reworking of the consolidated historical structure within the stratification of the city. Precisely for this reason, the principles of semiotics applied to the city and architecture are explored. The evaluation of the relationship between new and old and the reading of morphology are approached with a critical sense applied to the experiences during the inspections, which highlights the identity aspect of the places. From the *Genius loci* comes the need for an ability to read the different characteristics that distinguish languages as representation and communication of the different types of settlements, starting from the historical maps linked to the identification of the historical-urban evolution up to the perceptual aspect of the context¹. A good analysis and a good project derive from the knowledge of the territory. Study and research on this element lead to the acquisition of useful tools to deal responsibly with the management of the urban and architectural environment to be created or preserved, not only from the point of view of artistic peculiarities but also social and cultural. The space of the project becomes a place of dialogue between the present and the past.

There are different approaches through which the territory is analyzed. The chronological analysis is carried out through the use of historical sources, such as cadastral and archival research, bibliographic studies, and descriptions of past events. These approaches allow the comparison between the current state of a place and the historical structure, the understanding of the architectural and urban development of the territory, and the identification of permanences in the urban fabric.

(5) A genre of painting aimed at representing material reality in such a way as to arouse the illusion of three-dimensionality

Structural analysis is defined as research that relates the natural and anthropic systems of a territory. The study of natural elements will focus on hydrology, geomorphology, exposure, vegetation, etc.; while the anthropic investigation will analyze the incidence of human activities on the territory: the agricultural, settlement, and public green systems and therefore a knowledge aimed at the protection of the “landscape” in its broad logic of natural and anthropic landscape. The Ligurian territory is characterized by multiple settlements of villas, which have developed and shaped themselves on the shape of the landscape itself, on the building system, on the paths, and the typically terraced crops.

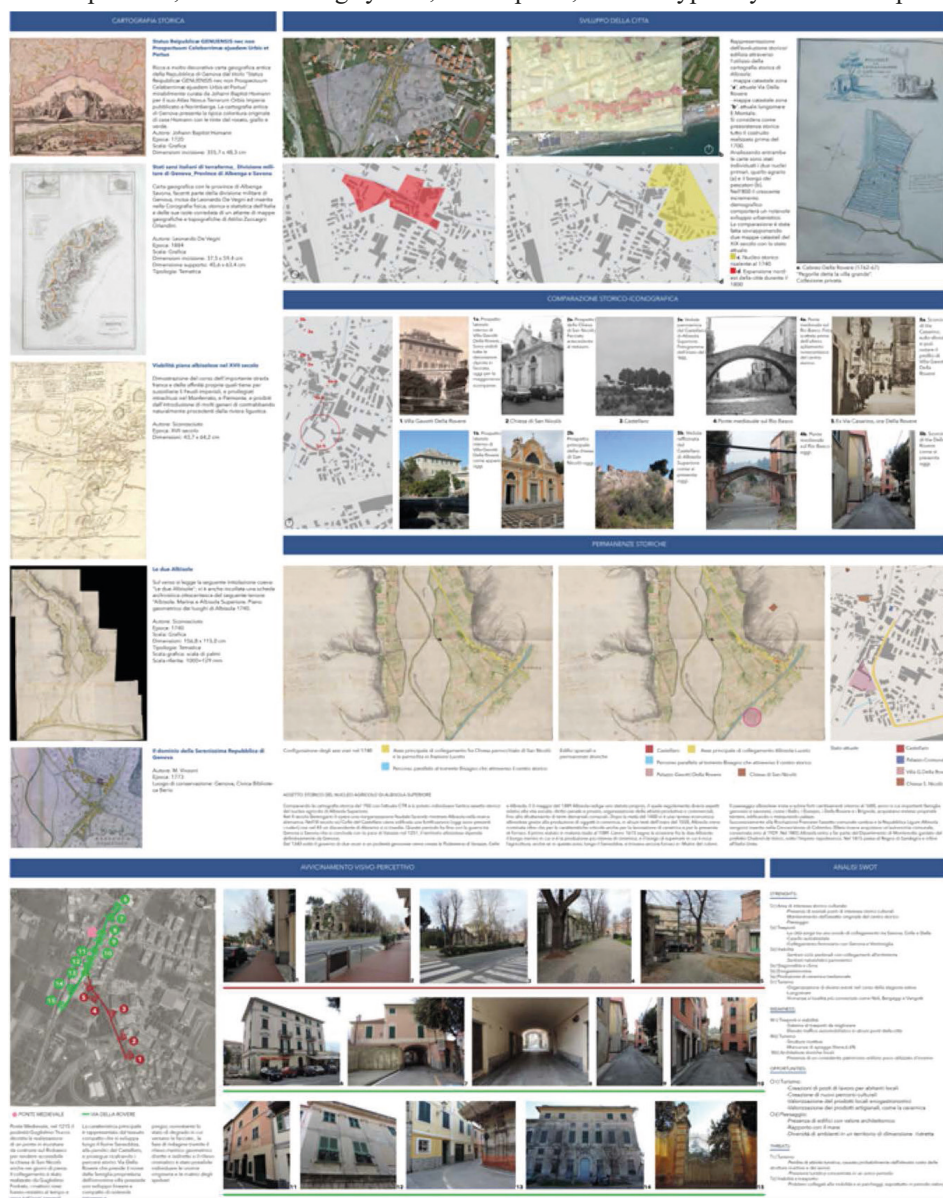


Figure 1. Historical-iconographic and visual-perceptive analysis (Authors's elaboration).

Although this system originated in the Middle Ages, it was only between the fifteenth and seventeenth centuries that it found its greatest expansion and maturity; The landscape is redesigned by placing new systems of villas, vegetable gardens, and gardens on large portions of the hillside.

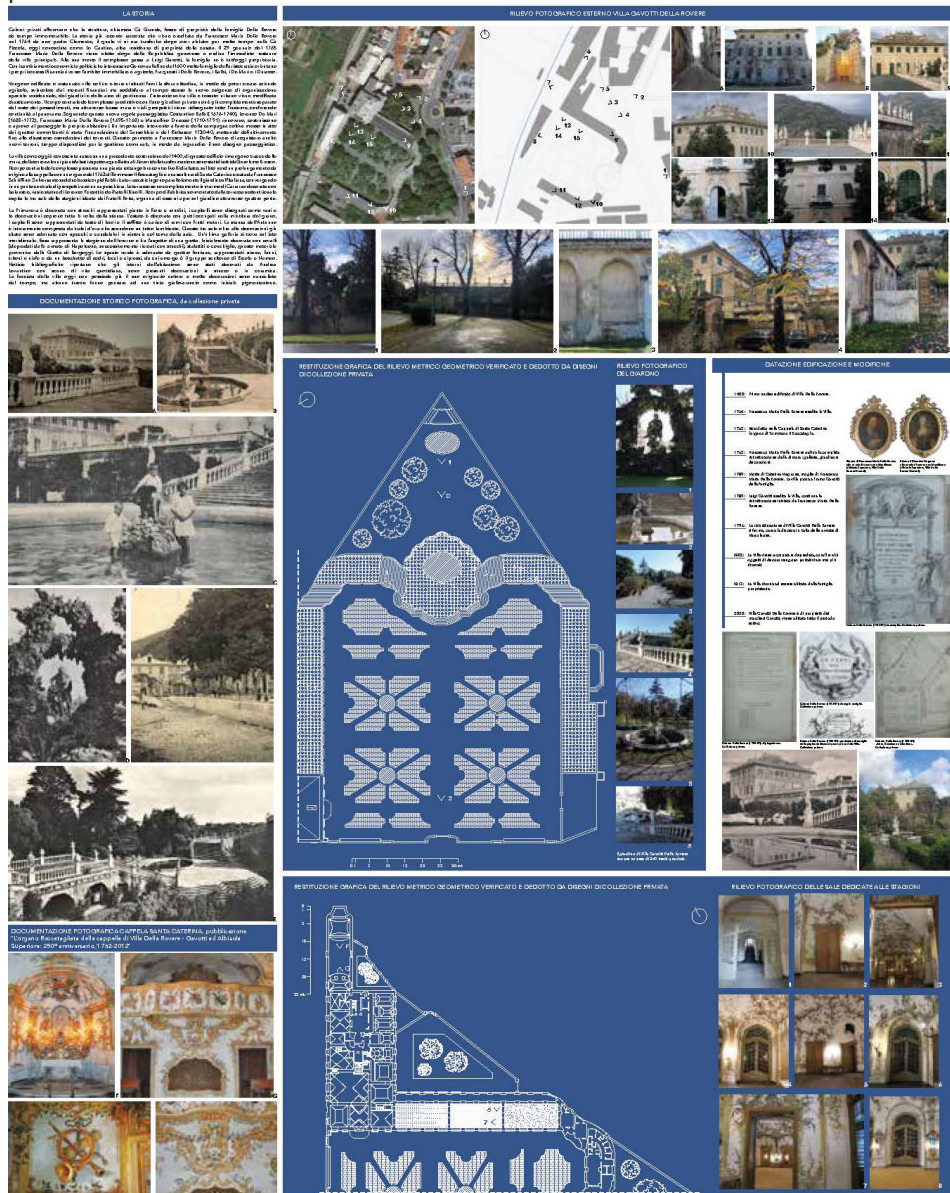


Figure 2. *Archive investigations and verification of existing surveys from private collections (Authors's elaboration).*

The new arrangement of these elements constitutes the recognizable part of the territorial organization and control of the rural property. The residences, together with their gardens, parks, and cultivated spaces, have been able to establish a close connection

with the morphology of the territory, the characteristics of the places in which they have been inserted, and the natural landscape, important elements for the definition of the identity of the new panoramas and the historical-cultural enhancement. The villa is no longer just a palace but a set of places characterized by a close relationship, in addition to a central body where domestic and daily activity is carried out, structures are built, attached, or inserted in the perimeter of the house, with recreational or reception purposes such as galleries and green spaces or consecrated areas, private chapels. The villa is centrally located in the rural area and is limited by the garden which in the most important cases is transformed into a wood, the gardens expand on several levels through terraces, stairways, or small squares; The plants are included in the green space, and they are in continuity with those present in the agricultural landscape such as olive trees, citrus fruits, apricots or generic fruit plants. The consequentiality between the garden and the rural landscape, in some cases, is still clearly visible today, despite the progress of residential settlements. Usually, the villas are articulated in systems, which are consolidated around the patrician residences of related families or with the same belonging to noble clans; in the Albisola area, there are four examples of this organization: Villa Gavotti-Della Rovere, Villa Balbi, located in Albisola Superiore and Villa Farragiana and Villa De Mari in Albissola Marina.

Ligurian villas can be divided into two different types: the first with the purpose of a family holiday home if the residence is on the Riviera, in which the main nucleus of the villa, or the palace, becomes the place where the power of the family is represented; The second type is the villa-farm, where the owner resides during the harvest period, which has the task of taking on the function of a cultivation center. From 1400 onwards, noble residences became more and more present in the area, to the point of creating the matrix of the landscape system. In the Genoese area, architectural maturity arrived between the fifteenth and sixteenth centuries, in the areas of Sampierdarena and Albaro. In the first area mentioned, the settlement of Villa, with the consequent urban and industrial development, has developed along two lines, one overlooking the sea (where there are the “Alessian” residences) and the other along the strip behind the coast. The conformation of the territory, the long beach, the richness of the vegetation, the proximity to the city, and the socio-economic conditions have given rise to the “palace-cultivated land-garden” settlement systems, an agricultural-settlement distribution throughout the territory. “About this patrimony, four major periods have been identified:

- XIV and XV centuries: agricultural-settlement development;
- XVI century: transition from agricultural land to villa settlement;
- Late eighteenth and early nineteenth centuries: substantial changes to the road layouts, with the opening of new carriage roads that cut through the gardens of the villas, to facilitate traffic towards the upper Polcevera Valley and the Po Valley;
- XIX and XX centuries: large road infrastructures that lead to a process of urban expansion, which takes place by clogging many vegetable gardens and gardens, linked to the transformation of the delegation into an “industrial village”, with the strengthening of the shipbuilding and metallurgical sector in the western part of the city⁽⁶⁾.

In Savona and the Tigullio area, the villa systems were consolidated in the 1700s, in

(6) G. Pellegrini, An environmental urban survey for the recovery project of the historic city: the fabric of Villa di Sampierdarena in Genoa, in *DisegnareCon*, Digital Scientific Journal 2008, University of Bologna.

which the close relationship between the palace and agricultural properties was highlighted. As a result of urban growth, many elements of the villa systems disappeared, such as the labyrinth of Villa Gavotti_ Della Rovere in Albisola, which was eliminated to allow the construction of the road connecting it with the Voltri district. Today we find several cases of conservation of villa systems, some are perfectly intact, others have been dismembered and only partially safeguarded, and of others, only a few traces remain, which in any case allow us to recover legibility on the territory. Direct observation, archival research, and a sensitivity towards the historical buildings belonging to the territory can bring out the design apparatus of the façade decorations and in general the architectural complexity of Villa Gavotti Della Rovere in Albisola Superiore (SV), through a direct study of the structure: drawings, measurements, and photographs on site, as well as color sampling in the less degraded points of the façade.

Iconographic, bibliographic, and archival research have made it possible to reconstruct decorative details, such as the color gradation of the cantonals, re-constructed through the use of a historical photograph, or the decorations placed on the doors of the gallery of the seasons. From an IT point of view, software for photo rectification, RDF, and Perspective rectifiers are used. The motivation that led to the choice of the recovery of the pictorial decorations on the façade of Villa Gavotti Della Rovere is due to the need to highlight a particular case of great architectural and decorative value that represents a “historical” space that identifies a community and a territory.

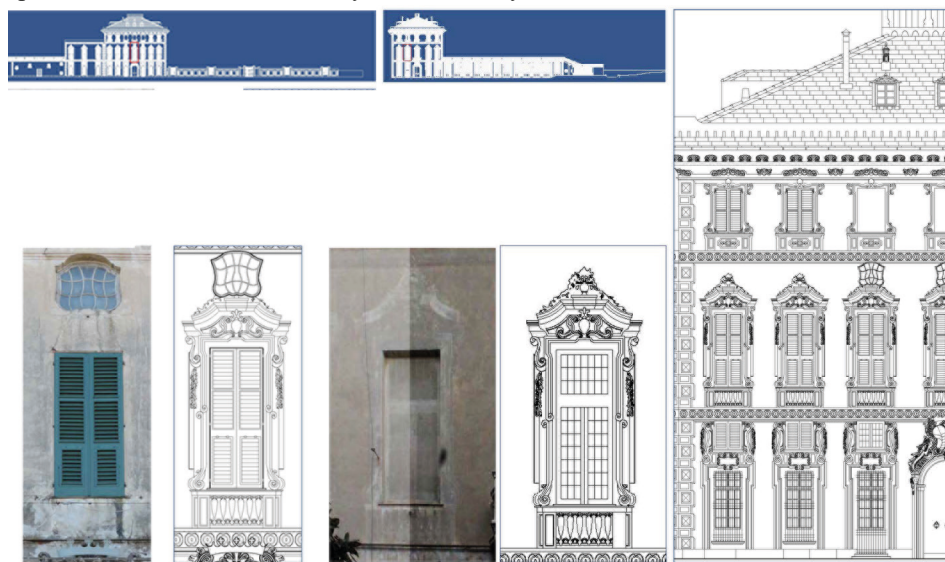


Figure 3. Study of the facade decorations through photo-straightening and photographic processing on the detailed decorative scheme. (Authors's elaboration).

The survey project [C.B.]

Carrying out an architectural survey means representing the work in question from all points of view, formal, spatial, constructive, and dimensional, through the use of measurements, historical research, technological knowledge of the artifact, and the graphic reproduction of the same. Surveying also means searching in architectural work for the elements

indispensable for the recognition of a precise organism. The survey must be able to notice the elements that distinguish a particular building from other similar ones and through observation understand the original parts of the structure and the transformations it has undergone. The survey, in its wide use aimed at research, design, conservation, retrieval, and management of data, is developed in four main phases: reconnaissance of the object to be detected and choice of survey methods; direct detection; graphic representation of the notions acquired during the survey campaign; finally, the comprehension of the work through surveys, historical and bibliographic documentation, etc. The survey project serves to understand the architectural artifact in its entirety, not only the formal and dimensional values but also the cultural ones. There are three different types of surveys: direct survey, instrumental survey, photogrammetric, and computer surveys, all of which have the same purpose of representing information relating to an architectural artefact, a fraction of a city, or a larger territory through a drawing. The choice of the method to be used is dictated by the formal qualities and the type of information to be obtained from the work under consideration. Direct surveying is integrated with other types of surveys. The photogrammetric survey was carried out with cameras that allowed the extraction of information useful for the return of the prospectuses. The large amount of information and a high level of precision ensured the relief of wall textures or chromatic points of a building. This method, combined with aerial photogrammetry, allows the survey of roofs and large plans of urban centres. Finally, the integrated survey makes it possible to combine digital and analogue elements.^{xxx} The survey of Villa Gavotti-Della Rovere was initially carried out using the direct methodology and then integrated with the photogrammetric methodology. This technique is the determination of the arrangement of points in real space starting from the positions of the corresponding points on a photograph. Programs dedicated to straightening digital photographs were used. The software, after capturing a frame in digital form, requests the coordinates of specific points and performs the straightening. The elevations and many details present in Villa Gavotti have been photo-straightened using RDF (Digital Photogrammetric Straightening) and Perspective Rectifier.

The color and details of Villa Gavotti della Rovere [C.B.]

A two-faced architectural component, the façade demarcates transience from the outside, a place where it contributes to forming the urban character of the street or the larger city, and the interior of the building of which it is a part, indicates its typology, representative intentionality or dimensions, constituting an explanatory scheme between social functions, aesthetic canons and the stylistic taste of the client and designer. This research deals in detail with the analysis of the façades of Villa Gavotti Della Rovere, in the form of decoration, ornament, and symmetry with particular attention to the design composition of the façade. The façade, like the whole house, is in Ligurian Baroque style. With the advent of this architectural movement, the façades were transformed from public monuments to scenic backdrops of urban space. “The best thing will undoubtedly be to ensure that those parts of the building that are most in contact with the public or must be pleasing to guests are as decent as possible: as is the case with the façade, the vestibule, etc.”⁽⁷⁾

(7) Alberti, *L'Architettura*, IX.I, p. 782

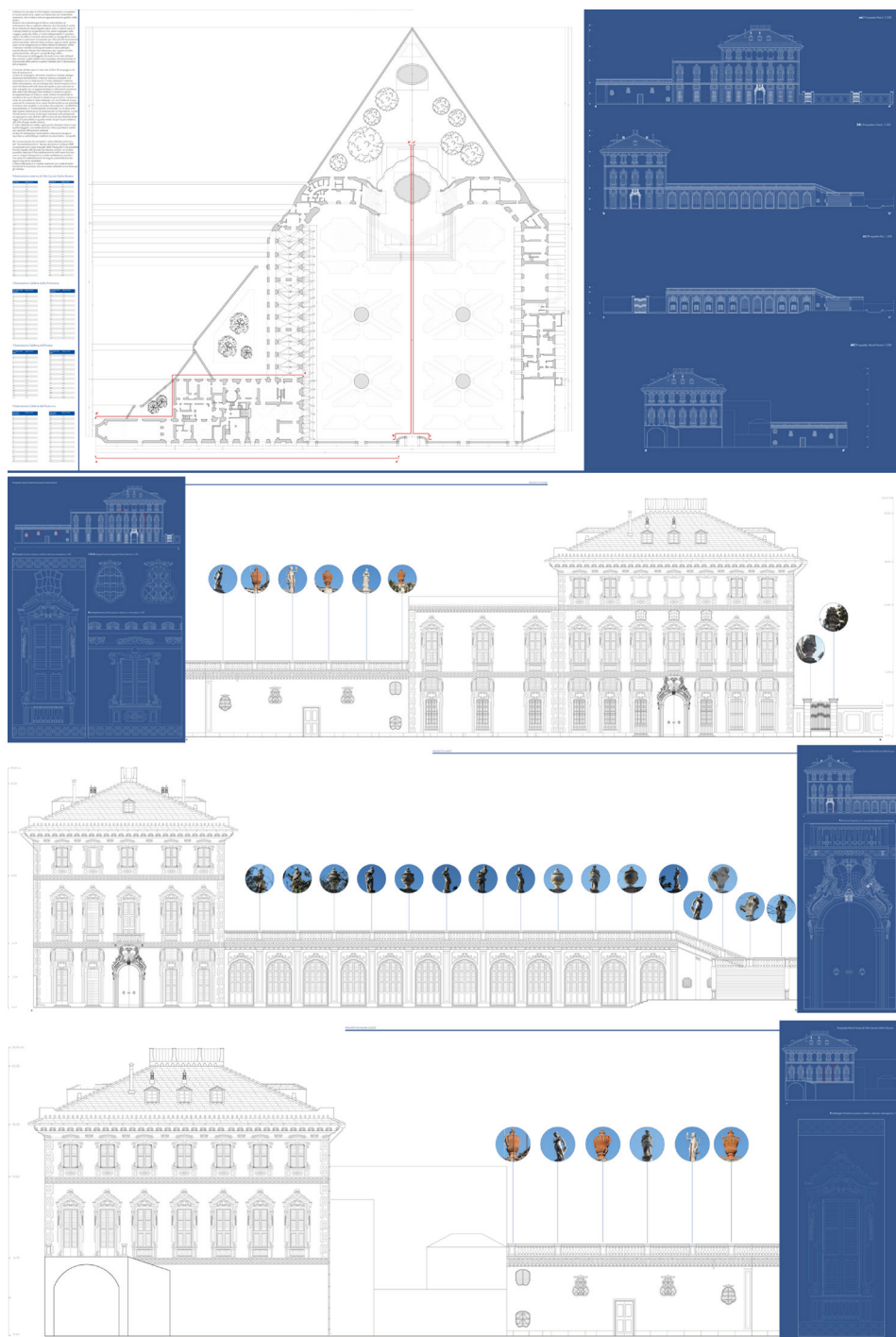


Figure 4. Graphic restitution of the integrated survey of the Villa Gavotti della Rovere complex. (Authors's elaboration).

Another way to know and understand the representation of an architectural façade is through the consultation of the cabrei. Family archives are based on a patrimony that develops in parallel with its management. Through the transversal reading of various documents, it is possible to reconstruct the tastes of the time and the formal changes that took place on a property.

In this case, the cabreo⁽⁸⁾ “Ignography of the buildings and houses of the Most Excellent Mr. Marquis Francesco Maria Della Rovere located in the contours of the two Albisole and Savona with the names of their respective neighbors”⁽⁹⁾ is dated around the middle of the eighteenth century: one hundred and twenty-eight sheets that contain plans, elevations, and sections of all the assets between Albisola and Savona⁽¹⁰⁾. The book consists of an initial part called “Explanation” with the index of the tables and the legend of the agrarian symbols; This is followed by the drawings of the family’s possessions, in the first place the villa located in Albisola: here are represented the agricultural appurtenances, the garden, the plants, the elevations and the sections. Each sheet has a cartouche different from the other where the title of the table and the technical specifications or references to other pages are indicated, the surfaces are expressed in Genoese spouts⁽¹¹⁾.

The façades of Villa Gavotti Della Rovere are painted with lime-based paint, and traces of yellow ochre remain only in some places; This type of mineral finish for exteriors adheres to the substrate on which it is applied due to the effect of chemical reactions. After painting, all the frescoes that decorate the façades were made, thanks to the signs of the “days” it was possible to reconstruct all the decorations that made up the façade in Ligurian Baroque style. The first façade analyzed is the one that directly overlooks Via Della Rovere, extending for a total length of one hundred and forty-one meters. The initial part consists only of the chapel dedicated to St. Catherine, which has five openings of a particular shape adorned with a frescoed frame, plus a sixth opening consisting of a door with a shaped marble profile. There are also painted a pilaster and a decoration that runs through all the stringcourses of the house, other elements that recur entirely on the façade are the slate slabs, always with the same height but of different sizes in terms of length (due to various substitutions). On the roof, there are balustrades, since the roof of this part of the villa corresponds to the terrace of the neighboring area. The profile of the structure continues with an element consisting of two floors and fifteen meters long; In addition to the ever-present elements such as slate and decoration, there are two ashlar on opposite sides of the length and two different types of decorations that adorn the openings. On the ground floor, three windows and three mezzanines are joined in a single fresco by a series of frames and volutes in turn embellished with floral elements. The three windows on the upper floor are also framed with volutes and green elements, but their peculiarity lies in the painting of the false balustrades as if they were French windows with balconies. It is precisely in this decoration that we find the principle of the façade used as a scenic backdrop. Then follows the central body of the dwelling which has the same ashlar described above on the corners and is divided into three levels of height. On the entrance floor, two openings with marble window sills and their respective mezzanines are frescoed with the same decoration as the corresponding floor of the

(8) Cabreo List of properties belonging to large ecclesiastical or seigneurial administrations.

(9) The term ignography or ichnography is a disused counterpart of plant.

(10) Private Archive; Antola, 2011, pp. 152-180, EAD., 2012; Rollers, 2012.

(11) Ancient measuring unit in use in the district of Genoa, equivalent to 2.977 m and 8.8625 m².

portion of the house previously described; Then there are two French windows with their respective openings and mezzanines that are not real but only painted.

Centrally is the portal with concentric plastic and painted decorations that characterize all the stringcourses of the villa but by a series of “continuous waves” of increasingly smaller sizes. The owl’s beak that concludes the moulding of the roof is also painted, the roof is made up of slate slabs fifty-nine centimetres by fifty-nine centimetres overlapping for two-thirds. The last seventy-seven meters of the perimeter are composed of walls, in the middle there is the main gate while four openings spaced one from the other each frame a sculptural element. All the decorations described have been designed using a perceptual perspective. This means that each decorative element has a vanishing point but at the same time for each of them the vanishing point changes so that when the observer approaches or moves away from the entrance, the frescoes always give a sense of correct three-dimensionality following the position of the observer. Passing through the main gate of the villa you have access to the courtyard, circumscribed between two architectural structures.

On one side there is the internal façade of the house, twenty meters long and with a height of three floors. The façade is identical in all decorations to that of the north façade, differing from the previous one only in a few details. The first discrepancy can be identified in the number of openings that make up the façade, if previously there were seven now there are five, the plan of the structure has a rectangular shape; Starting from the left, the second column of openings is completely frescoed: none of them is a real window, that of the last one - coat of arms - with marble frames and mortar decorations. Two infill windows conclude the decorations on the ground floor.

The upper floor has seven windows adorned with the same elements as its previous counterpart mentioned except for the three central openings to which the vases have been replaced with three windows of a similar shape to those on the façade of the chapel.

On the final floor, there are seven windows, three of which are centrally infilled, also frescoed with frames and volutes, the balcony is not composed of balustrades but of a square decoration.

The roof is articulated on a frescoed shell, not with the circular shapes of the surface, it is painted in such a way as to seem open, and the silhouette of a figure can still be glimpsed.

On the main floor in a central position, there is the only real balcony of the whole structure, not like the others completely painted. Also present on this façade is the lateral perspective ashlar and all the decorations are regulated by the perceptual perspective. A slender structure of a single story is grafted onto this architectural group, the roof of which constitutes the terrace of the main floor of the villa.

This complex houses three galleries dedicated to the Spring, Summer, and Autumn seasons; twelve doors, with double projecting cornices, and as many pilasters regularly divide the façade overlooking the main garden, on each opening there is a painted panel with a double frame and decorations similar to those present throughout the villa.

Exactly on the opposite side, there is the last gallery dedicated to Winter with the same decorations but only three doors, the remaining nine openings are transformed into windows of a particular shape. All the window sills or steps leading to both galleries are marble elements. The need to carry out an Urban Environmental Chromatic Survey arises from the need to know the current state of the urban sector of reference, highlighting all

the operations that have contributed to the creation of the current image of the city. Often the disastrous result is the result of autonomous choices that are not coordinated and supported by a line consistent with the urban text that an ancient center requires. During the analysis phase, several incongruous episodes emerged:

- total lack of colour detection before performing invasive interventions;
- choice of colours that are inappropriate for the context;
- choice of materials for the basement of buildings incongruent with the territorial area in question (e.g. stone);
- insertion of incongruous external elements: signs, fixtures, lighting, etc.;

The phases addressed during the study of the Albisola Superiore Center can be summarized in a few points:

- site inspection and photographic documentation;
- historical analysis;
- direct chromatic relief;
- architectural survey;
- graphic rendering of the survey carried out;
- cataloguing of colour and details.

The research was done by comparing literary sources, known facts and events, photographic documentation, and previous studies; the photographic documentation and drawings enclosed in the private cabrei of the Gavotti family proved to be of great importance.

“The knowledge of the object of study includes the on-site inspection with the vision and the data collection campaign: evaluation of the points of view and visual planes of approach, of the road axes, of the shaded and sunny areas, of the shades of the environmental colours and derived from buildings nearby, adjacent, facing the classification of the pavements, and the toponymy.

Together with the study of all the various components, which is generally conducted in the context of a careful territorial/urban analysis, the need to identify the most characteristic elements of the place is contemplated in the context of a more careful “chromatic” analysis of the places. But how to proceed with the reading of all those elements identifiable as being part of the so-called “identity” of a territory? To highlight the “objective” aspect beyond the subjective interpretation, it is necessary to establish a method of expressing these elements, in which it is possible to distinguish the subjective judgment from that which will be presented as objective as possible.”⁽¹²⁾

Villa Gavotti Della Rovere is located in the first historic centre of the Municipality of Albisola, this area is classified as residential “conservation and redevelopment”. According to some municipal documents, the buildings in this street have been classified into three macro categories: A, a building heritage of great historical interest and high decorative chromatic value; B, buildings of valuable historical interest and decorative apparatus that have not been entirely degraded; C, incongruously finished historic homes.

Renovations in recent dates have completely covered the first plaster using a cement strip or with a layer of plastic plaster.

These interventions quickly deteriorated, leading to peeling, detachment, and fall of the original plaster. Architectural elements such as steps, window sills, or portals are

(12) G. Pellegrini, F. Salvetti, Analysis, reliefs and cataloguing of the chromatic values of the ancient center of Albenga. The knowledge project and the operational phases, p. 15, Alinea Editrice, Florence 2012

made of slate, sandstone, or white Carrara marble. The façades should all be painted in traditional colours, in particular, the earth deriving from iron oxides with other metals, such as Pompeian red, ochre, green earth, golden yellow, etc.

In some cases, the façades have been repainted with particularly saturated and incongruous colors concerning the indications in the colour plan drawn up by the Municipality. On many buildings, including the appurtenances of Villa Gavotti Della Rovere, former stables, and sheds, there are evident traces of painted decoration.



Figure 5. *The survey and chromatic restitution of the main façade of Villa Gavotti Della Rovere (Authors's elaboration).*

Conclusions [G.P.]

The term “Cultural Heritage” identifies the materialization of memory, it is a broad concept that includes the set of cultural materials that a community shapes in a given historical period. The creation of cultural heritage is a social process that involves all the components of a society: tradition, memory, power, and identity.

The research aims to contribute to the discussions in the emerging cultural landscape on new design and technological methodologies in the field of tangible cultural heritage, on the study of intangible cultural heritage that characterizes a place and distinguishes it to the point of identifying it in the European and global context, on new requirements and strategies to preserve cultural heritage and its transmission aimed at enhancement.

The recovery of the decorative design apparatus and the structural diagnostic survey are issues that the research in progress is also studying, connecting new techniques and new materials, such as the two-component components used for the consolidation and

restoration of painted facades given the high mechanical resistance.

The term “Cultural Heritage” defines a vast field of study opportunities, in which techniques and materials can be used in different fields related to architecture.

Scientific panoramas not yet explored and new realities can appear in the technical debate among researchers constructively and innovatively.

The discussion on the new technologies of investigation, the new materials and new techniques used in the recovery and conservation of tangible cultural heritage (architectural objects that are part of the UNESCO list and not), the protection of places of culture, and the innovation that can be identified in local Italian and European traditions are all ideas to continue the development of the line of research related to the cognitive issues inherent in the survey.

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Signs of memory in contemporary architecture, signs in the memory of contemporary architecture

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Abstract

Do we have a memory of contemporary architecture? Do we know how to decipher all its signs, all its traces? Paradoxically, in some cases, the answer is no. Contemporary architecture has memory of the architecture of previous periods. In some cases, the forms of architecture, structures, construction details are new but the materials are traditional. This occurs especially in the architecture of the early 20th century. In particular, some studies conducted within the Restoration Workshops and some research carried out as specialisation theses investigated this period and analysed some of these architectures. This research was followed up with specific university research and collaborations with national and international research centres.

In this article, the research carried out on a number of dams between Liguria and Piedmont at the beginning of the last century is considered in particular. Imposing hydraulic structures for the creation of artificial lakes were designed and built in various Italian contexts between the end of the 19th century and the first half of the 20th century. Often these structures are real works of hydraulic engineering. They are very daring structures with very high performance and with very daring systems. But with what materials were they made? Research carried out in Northern Italy in particular has shown that very different positions can be identified in a period from the end of the 19th century to the first half of the 20th century. In some cases there are achievements still anchored to tradition with a large use of aerial lime mortar, sometimes hydraulicized with particular additives (pozzolana, iron slag, cocciopesto) and/or hydraulic lime mortar. In other contexts the use of cement mortars prevails.

The study presented here aims to investigate the reasons behind these choices, also in the light of archival documentation. In particular, the dams analyzed were: Molare dam, Lago Figoi dam and Galano Superiore and Inferiore, Castello dam, Sampeyre dam, Brossasco dam, Traversa San Damiano, Saretto dam, Osiglietta dam, Giacopiane lake, Lago Lungo dam, Lago Bruno or Lavezze dam, Badana dam, Val di Noce dam

and Molato dam. The collaboration with the CNR also intends to investigate the real performance of these mortars; so that some samples of different composition and age will be analysed. In fact, with the same stress and similar performance required of the material (e.g. good resistance in a humid environment), lime-based mortars do not always show inferior characteristics compared to cementitious ones. The study therefore aims to be a contribution to the knowledge of this extraordinary material, lime, which has greatly characterized historic masonry and which, unfortunately, in some periods and in some contexts has been supplanted by different materials, cement (but not always in height of expectations).

Abstract

Dell'architettura contemporanea abbiamo memoria? Sappiamo decifrare tutti i suoi segni, tutte le sue tracce? Paradossalmente, in alcuni casi, la risposta è no. L'architettura contemporanea ha memoria dell'architettura dei periodi precedenti. In alcuni casi, infatti, le forme dell'architettura, delle strutture, dei particolari costruttivi sono nuove ma i materiali sono quelli tradizionali. Ciò si verifica soprattutto nell'architettura del Primo Novecento. Alcuni studi condotti all'interno dei Laboratori di Restauro e alcune ricerche portate avanti come tesi di specializzazione hanno indagato questo periodo e hanno analizzato alcune di queste architetture. Tali ricerche, poi, hanno avuto un seguito con ricerche d'Ateneo specifiche e collaborazioni con centro di ricerche nazionali e internazionali.

In questo articolo si dà conto in particolare della ricerca effettuata su alcune dighe tra Liguria e Piemonte dell'inizio del secolo scorso. Imponenti strutture idrauliche per la creazione di laghi artificiali vennero progettate e realizzate in diversi contesti italiani tra la fine del XIX secolo e la prima metà del XX secolo. Spesso queste strutture sono vere e proprie opere di ingegneria idraulica. Sono strutture molto ardite con prestazioni molto alte e con impianti molto arditi. Ma con quali materiali venivano realizzate? Una ricerca svolta in particolare nel Nord Italia ha mostrato come in un periodo che va dalla fine dell'Ottocento alla prima metà del Novecento si possono individuare posizioni molto diverse. In qualche caso si hanno realizzazioni ancorate ancora alla tradizione con un largo utilizzo di malta di calce aerea, a volte idraulizzata con additivi particolari (pozzolana, scorie di ferro, cocciopesto) e/o malta di calce idraulica. In altri contesti prevale l'utilizzo di malte cementizie.

Lo studio qui presentato vuole indagare sulle motivazioni che sono alla base di queste scelte, anche alla luce di documentazione d'archivio. In particolare le dighe analizzate sono state: diga di Molare, diga Lago Figoi e del Galano Superiore e Inferiore, diga Castello, diga Sampeyre, diga Brossasco, Traversa San Damiano, diga Saretto, diga di Osiglietta, Lago di Giacopiane, diga di Lago Lungo, diga di Lago Bruno o Lavezze, diga di Badana, diga Val di Noce e diga del Molato. La collaborazione con il CNR intende inoltre indagare sulle reali performance di queste malte; verranno infatti analizzati alcuni campioni di differente composizione ed epoca. A parità di sollecitazione e a parità di simili prestazioni richieste al materiale (ad es. buona resistenza in ambiente umido), infatti, non sempre le malte a base di calce mostrano caratteristiche inferiori rispetto a quelle cementizie. Lo studio vuole essere quindi un contributo alla conoscenza di questo

materiale straordinario, la calce, che molto ha caratterizzato le murature storiche e che, purtroppo, in alcuni periodi e in alcuni contesti è stato soppiantato da materiali diversi, cementizie (non sempre però all'altezza delle aspettative).

Introduction: The memory of contemporary architecture [D.P.]

Memory and contemporary architecture: in reality, the relationship between memory and contemporary architecture can be seen from a dual point of view. We can ask ourselves whether, and to what extent, we have memory of contemporary architecture and whether contemporary architecture, in turn, keeps memory of the materials, construction techniques, and signs of historical architecture that preceded it.

This is the reason for the title of this essay: Signs of memory in contemporary architecture, signs in the memory of contemporary architecture. Are there traces of previous historical architecture in contemporary architecture? Or is there a total caesura, with a radical change in techniques, materials and forms? These are the questions that come as a consequence of the first part of the title. They seem obvious but they are not. As for the second part of the title 'signs in the memory of contemporary architecture' we equally have questions that we would like to answer. This is the architecture chronologically closest to us and therefore the answer would seem trivial. But it is not. In this research, we want to ask ourselves first of all "what do we remember?" Only of specific architectures? Only of specific periods? Only of certain types of architecture? Only of those considered worthy? Do we also have memory of "minor contemporary architecture"? Or do we only have memory of 'auteur' contemporary architecture? And then again? Which memory are we talking about? Memory of construction methods? About the use of materials? On the tricks of the trade? About the uses of these architectures (sometimes diversified, even if in very short periods of time)? Or do we also include the memory of all the intangible heritage that these architectures have? The memory of oral sources?

As we can see, the questions are manifold. Paradoxically, contemporary architecture, even though it is the architecture closest to us, is in some ways the architecture we know least about.

Methodology [D.P.]

In order to fill some knowledge gaps on contemporary architecture, several actions have been undertaken.

Since 2013, a number of thematic studies on contemporary architecture have been undertaken within the Restoration Laboratory of the DAD (Department of Architecture and Design) of the University of Genoa. Basically, the work, which took place throughout the year, was aimed at investigating and studying in detail the materials used, the construction techniques adopted, the degradation of the materials and the stratifications identifiable on these architectures (sometimes limited interventions but sometimes

substantial transformations)⁽¹⁾. Other studies were then carried out with specific degree⁽²⁾ and specialisation theses in Architectural and Landscape Heritage (formerly the School of Specialisation in Restoration of Monuments)⁽³⁾. These initial reflections on ways of getting to know contemporary architecture were followed by specific research projects⁽⁴⁾ whose main objective was the archaeological reading of contemporary structures: with these research projects, an attempt was made to highlight the specificities of analysing contemporary architecture, the differences with historical architecture, the limitations and complexities. The aim of all this is to develop “ad hoc” reading and analysis tools specific

(1) Among the studies carried out within the Restoration laboratories, of which she is the owner, from 2013 to date there are 14 works on architecture from the first half of the 20th century : Scalinata Borghese a Genova (1910): studi e ricerche, of Giuri V., Guasco T., Luzzatto G., Macchiavelli G., Majocchi F., Guidi Di Bagno E.S. and Studio sui Bunker della prima e della seconda guerra mondiale di Monte Moro (Ge), of Belloni A., Chia M., Firenze S., Maccioni D., Passarello L., Fang X. in Laboratorio di Restauro B aa 2013-’14, Ex Ristorante S. Pietro: un’architettura di Mario Labò (1935-’38), of La Fauci A., Meloni A., Motzo P., Satta M., Tedeschi T., Zaami S. e Cinema Teatro nazionale a Molassana (Genova 1937) dell’Ing. Ravera, di Manco L., Zerah E., Orlandini A. and Colonia Fara a Chiavari (Ge) di Camillo Nardi Greco 1935-’38 of Follesa R., Malvezzi V., Vignola N., Sanguinetti G. in Laboratorio di Restauro B aa 2014-’15, Studio dei Bunker di Punta Bianca (1920) (La Spezia) of Braconi L., Furfaro F., Galati G., Ottonello S. and Studio della Puerta del Sol a Alassio (Anni Ottanta del XX secolo) of Cellura G., De Moro F., Liva L., Nattero T., Orefice A., Sobrero G. in laboratorio di Restauro B aa 2015-’16, La colonia di Rovegno di Camillo Nardi Greco (1933-’34) (GE), of Caraffi I., Curtopelle L., Musso F., Righetti A., in Laboratorio di Restauro B aa.2016-’17, L’ex casa del Fascio a Recco (GE), di Bruni S., Fronni L., Petanaj E., Ruijie Y., Veloz D. and La casa del soldato a Genova Sturla di Luigi Carlo Daneri (1938) (GE) of Bussani C., Chiappini A., Chirone D., Dighero A., Garipey M. del Laboratorio di Restauro B aa 2017-’18, Edifici del Novecento a servizio della cava di Visone (AL), of Cereghino R., Montaruli I., Revello E., Rivara F., Sobrato E., in Laboratorio di Restauro B, aa 2018-’19, Ex Ospedale Psichiatrico di Quarto : l’ingresso (1930-’33)(GE), of Allais A., Analdi G., Chiavez B., in Laboratorio di Restauro B, aa 2020-’21, La stazione di Ospedaletti degli Anni Trenta (IM), of C. Villa nel Laboratorio di Restauro B, aa 2021-’22 and Ex Ospedale Psichiatrico di Quarto: la parte centrale e la grande Cappella (GE), di Damiano S., Fabbri L., Parodi L., Sanchez Sanchez O. in Laboratorio di Restauro B aa 2022-’23.

(2) Among the master’s and bachelor’s theses, 10 theses focusing on artefacts from the early 20th century have been pursued in the last ten years: La casa sulla cascata di L.W. Wright: manutenzioni e restauri, relatori S.F.Musso, D.Pittaluga, of L. Leonti a.a. 2007-’08, La “Nuova” Pescheria (Mario Braccialini 1933) , Riscoperta dei valori architettonici e culturali di strutture industriali del primo Novecento. Studio storico e diagnostico per il progetto di inserimento del Mercato del Pesce nel circuito del Porto Antico di Genova, of Di Biaso A., Rolla C., relatore L. Napoleone, co-relatori D. Pittaluga, S. Gabrielli, tesi triennale del Corso di Laurea in Restauro Architettonico, a.a. 2010-2011, Facoltà di Architettura, Università di Genova, L’ingresso all’ex Ospedale Psichiatrico di Pratozanino: da Camillo Nardi al Museo di Outsider Art, of Montaldo C., Zacchino T. D., relatore D. Pittaluga, correl. W. Scelsi, N. Lorefice, a.a. 2013-’14, Dipartimento di Scienze per l’Architettura, Laurea magistrale in Architettura, Università di Genova, La chiesa dell’ex ospedale psichiatrico di Cogoleto e i dipinti al suo interno di Gino Grimaldi, di Berta M. F., relatore D. Pittaluga, correl. P. Bensi, F. Foce, tesi di laurea Magistrale, Scuola Politecnica, Università di Genova, a.a. 2014-’15, Strutture per il cinema tra il XIX e il XX secolo: uno studio per il recupero della loro memoria, di L. Manco, tesi triennale per il corso di Restauro Architettonico, DSA, Università di Genova, relatore D. Pittaluga, correl. A. Gazzola, C. Serra, a.a. 2014-’15, Analisi per il restauro architettonico di villa Riva (la villa novecentesca del Rovelli, di E. Macchiavello, tesi di laurea Magistrale, relatore D. Pittaluga, correl. V. Piquerez Dipartimento DAD, Università di Genova, a.a. 2017-’18, Bunker Monte Moro, riqualificazione urbana e territoriale, di Firenze S., tesi di laurea magistrale in Architettura, DAD, Università di Genova, relatore D. Pittaluga, correl. G. Lombardini, a.a. 2019-’20, Abitare la Resistenza. Architetti e Architettura nella Resistenza Partigiana in Liguria, di G. Di Placido, tesi di laurea magistrale in Architettura, rel. W. Scelsi, correl. D. Pittaluga, DAD, Università di Genova, a.a. 2019-’20, MOAG. Arte e Follia nel museo degli invisibili a Pratozanino, di Pastorino M., tesi di laurea magistrale in Architettura, DAD, Università di Genova, rel. D. Pittaluga, correl. Andriani C., a.a. 2020-’21.

(3) Postgraduate theses from the School of Specialisation in Restoration of Monuments (now the School of Specialisation in Architectural and Landscape Heritage) include: these of Angeli M., Blonda M., Dellavedova P., Laddago M.L., Poletti M., Teruggi S., Proposta di conservazione dell’ex Sanatorio Regina Elena di Savoia, Legnano (MI), relatore prof. S. Musso, scientific support for high archaeological analysis D. Pittaluga, Università degli Studi di Genova, Facoltà di Architettura, a.a. 2004-2005, published under the title Un nuovo approccio per lo studio e la conservazione di un padiglione del ‘900. Solarium est Ex Sanatorio Regina Elena di Savoia – Legnano (MI), in G. Biscontin, G. Driussi (eds), “Conservare e restaurare il legno. Conoscenze, esperienze, prospettive, Proceedings XXV Convegno Scienza e Beni culturali (Bressanone, 23-26 giugno 2009), Venezia, pp.195-204, and Rachelo R., Acquisgrana A., Brunengo F., Restauro e riuso dell’ex dopolavoro di Ferrania, rel. S.F. Musso, correl. D. Pittaluga, a.a. 2020-’21 Morandi M., Restauro e valorizzazione della Diga di Molare. Perché non accada più: il disastro della Diga di Molare, rel. S.F. Musso, correl. D. Pittaluga, a.a. 2020-’21.

(4) University Research Projects for which she was scientifically responsible and which partly addressed the issue of 20th century archaeological analysis: PRA 2014-’16 Archeologia dell’architettura e cantierie di restauro, PRA 2018 Conservazione e restauro: metodiche di analisi e strategie di monitoraggio, PRA 2019 Conservazione e restauro: metodiche di analisi e strategie di mantenimento del patrimonio materiale e immateriale, PRA 2022 L’archeologia dell’architettura per le strutture del XX e XXI secolo. Conoscenza per il restauro con J. Antonio Quiros Castillo, Ordinario di Archeologia Universidad del Pais Vasco / Euskal Herriko Unibertsitatea, Facultad de Letras, Departamento de Geografía, Prehistoria y Arqueología, area de Arqueología.

to this type of architecture. The following describes a work that follows the methodology used in the other studies listed above. The work concerns an early 20th century structure: the Molare dam. The study is emblematic both for the object itself and its characteristics, and for the outcome of this study: in fact, a number of questions on materials emerged from the research, which led to the planning of further research.

Restoration and enhancement of the Molare dam. ‘So that it never happens again’: the Molare dam disaster [M.M., D.P.]

The thesis in question, developed as part of the Specialisation Course in Architectural and Landscape Heritage at the University of Genoa, focused on a work of great engineering: the Molare dam (or as it would be more correct to say “the Molare dams”). This complex has a particular history, with lights and shadows: the first dam still visible today shows an imposing structure and noteworthy construction details, but only limited material evidence remains of the second dam, the one that actually caused the disaster. The thesis, therefore, focused on examining all the surviving elements, the main dam still visible and inspectable in its parts, and the architectural artefacts related to this complex. The research includes a thorough historical study of all documents with an understanding of what worked well in this complex system and what was underestimated and mismanaged.



Figure 1. *Molare Dam , territorial framework (Source: Morandi 2020)*

Undoubtedly, the complex as a whole constitutes an important piece in the history of structural engineering, both for its positive elements (the main dam that is still visible today in its grandeur and beauty) and its negative ones. The point of view with which it was analysed is a strong multidisciplinary one: construction details, structural details, material components were studied. The landscape ensemble in which this structure is set was also viewed. Moreover, precisely because of the complex affair of which, despite itself, this imposing work of engineering is the protagonist, the various economic costs and socio-cultural values that it has had and still has were also examined.

For a better understanding of the whole affair, some technical details are attached below.

In 1899, Prof. Ing. Luigi Zunini, Rector of the Milan Polytechnic, published a series of projects for the hydroelectric exploitation of the waters of the Upper Orba Valley: among them, the Bric Zerbino Dam (better known as the Molare Dam) appeared for the first time (1914). The project considered damming the torrent with a gravity dam at Ortiglieto, to form a reservoir with a reservoir capacity of 9.50 (hm³) and a maximum reservoir level at 313.0 (m a.s.l.). The surface spillway with a 78 (m) long straight threshold was capable of discharging 400 (m³/s) and was detached from the dam. The spillway threshold was at elevation 310.5 (m) above sea level.

The main dam at Bric Zerbino was gravity walled with a slightly arched plan with a radius of 200 (m) and internal cavities (cores) filled with dry material. With their own weight, the cores contributed to the gravity function, while the concrete structures were responsible for stress resistance. The geological report by Prof. Salmoiraghi (1899) judged the foundation soil to consist of hard, compact rock. The work was equipped with Heyn siphons for flood discharge and a bottom outlet: the discharge capacity was estimated at 553 (m³/s).

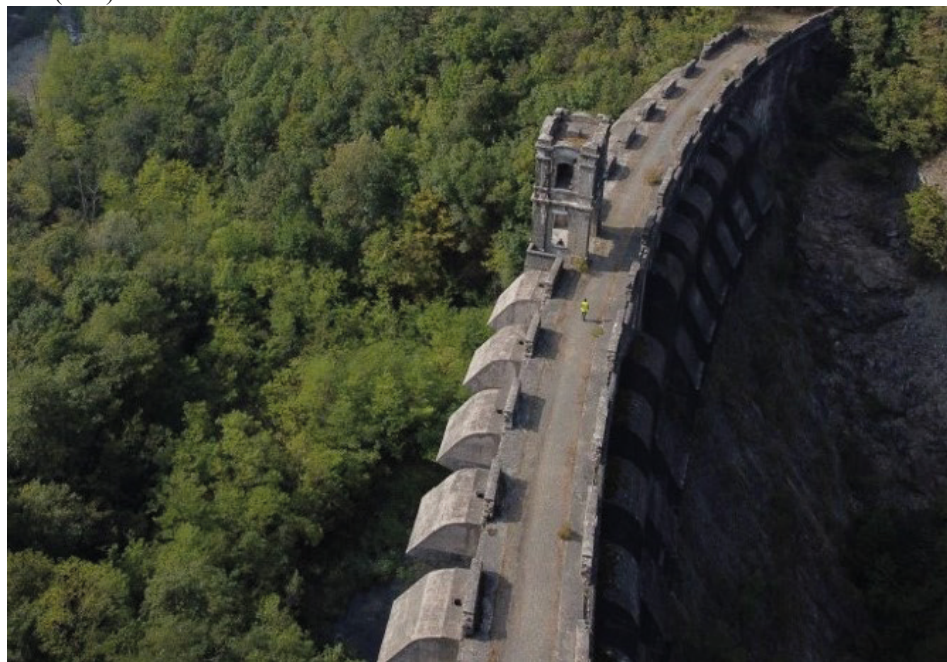


Figure 2. Molare Dam, detail of the architectural structure (Source: Morandi 2020)

Once the concession to exploit the waters of the Orba had been obtained and work had begun, engineer Gianfranceschi presented a variant to the project to increase the useful capacity of the reservoir to 16.15 (hm³) with a maximum regulation height at 320.0 (m a.s.l.) and a maximum reservoir at 322.0 (m a.s.l.). In order to increase the production of hydroelectric energy, when the Molare dam came into operation in 1925, the dams that were previously supposed to be one, suddenly became two: the second dam was inserted to dam Sella Zerbino, at the meeting of two ridges. Moreover, the raising of this second dam by a further 14 (m) compared to the original project generated a serious problem: at one point of the perimeter of the new lake, at Sella Zerbino, the natural embankment would have been lower than the maximum height of the reservoir, with the consequence that the water could have “overflowed”, pouring into the meander of the Orba stream. In addition, this second dam was designed and constructed in a hasty manner, without the support of adequate geological investigations that would have shown that Sella Zerbino was not made up of “solid rock”, with the consequence that the allegedly excellent quality of the saddle’s rocks meant that the secondary dam, instead of being built in reinforced concrete, was built by gravity. The variant substantially modified the Sella Zerbino dam from a regulated concrete sill with a 24 pairs of sluice gates turned into a buttress dam 121 (m) long at the top.

The opinion of the Servizio Dighe against the project was rendered in 1923 when the construction of the Bric Zerbino dam had by then reached the third rank of cores, located at 304.0 (m a.s.l.). In January 1924, the project was modified by eliminating the upper cores and the stability checks were redone by assigning the dry material of the cores a lower weight than the previous one: 1900 (kg/m³) instead of 2200 (kg/m³). The Heyn syphon batteries of the 1921 design were replaced by weir-type surface drains with an overflowing blade profile crest, arranged in two groups of 9. The total discharge capacity was 1000 (m³/s): 800 (m³/s) from the surface drain and 200 (m³/s) from the deep drains. The variant raised the maximum regulation altitude to 322.0 (m a.s.l.) and the maximum reservoir altitude to 323.0 (m a.s.l.). The reservoir capacity became 18 (hm³).

The design of the secondary dam, which replaced the previous buttress type with a straight-axis gravity dam, was delivered in May 1924. This choice was justified by the designer with the consideration that ‘the foundations had gone to such depths that healthy rock could be reached’. The new secondary dam had two concrete abutments and a central structure consisting of reinforced concrete slabs, supported laterally on spurs and inverted arches and inferiorly on diaphragms. The dam was equipped with three expansion joints: one in the central part and two at the shoulder attachments.

In addition, the surface unloaders of the main Bric Zerbino dam were replaced by 12 Heyn-type siphons with a trigger at 320.0 (m a.s.l.) and a total capacity of 500 m³/s. The deep outlet with a threshold at 295.5 (m a.s.l.) was completed in March 1925 by a bell valve. In July 1924 the detailed design of the manoeuvring chamber of the depletion outlet with intake at 280.0 (m a.s.l.) was presented. In 1925 the hydroelectric power station went into operation, while work continued on the completion of the dam’s ancillary works. In March 1925, the construction project for the deep outlet regulated by a Verrina-type bell valve capable of discharging 150 (m³/s) was presented. In October 1925, the design of the straight side spillway was presented with a threshold at 322.0 (m a.s.l.) and a 68 m long collector channel with a bottom at 320.5 (m a.s.l.) located on the right abutment of the main dam: its capacity was estimated at 110 (m³/s) with a lake level at 323.3 (m

a.s.l.). Following a flood that highlighted the insufficient capacity of the drains, a new side spillway project was presented in 1926 and went into operation in 1927. The final part of the sill was demolished for a length of 18 (m) and the bottom of the canal was lowered to 319.0 (m a.s.l.). In order to keep the maximum adjustment height unchanged, a set floodgate was inserted at the mouth of the spillway chute. In order to keep the maximum regulation height unchanged, a sector sluice gate was inserted at the mouth of the spillway escape chute, with the upper edge at an altitude of 322.0 (m a.s.l.). On 10 December 1927, the test certificate for the Ortiglieto plant was issued by the Servizio Dighe.

Two concrete dams were thus constructed: the main Bric Zerbino dam 44 (m) high and 145.5 (m) long. The flood discharges concentrated at the main dam: 12 self-levelling siphons (500 m³/s), 1 lateral spillway with collector channel 150 m³/s, a deep outlet with closed mouth from the Verrina bell valve 200 m³/s, a bottom outlet 50 m³/s. The cyclopean concrete secondary dam at Sella Zerbino was, on the other hand, 14.50 (m) high, approximately 108 (m) long and was “blind”.

On 13 August 1935, 364 mm. of rain fell in less than 8 hours: the lake level rose and the bell valve became blocked due to too much mud. The debris accumulated on the bottom further raised the reservoir and the secondary dam and the entire Sella Zerbino collapsed under the pressure of the water and mud, reaching the main dam and overtopping it. The wave descended towards Molare, reaching the village of Ovada and other hamlets near Alessandria. 111 people were killed, the Molare bridge on the provincial road and the railroad were swept away by the flood wave, houses and barns were swept away. The criminal trial established that none of the defendants had any responsibility in the event and they were, therefore, acquitted on the grounds that it was an unprecedented meteorological event, when, in reality, the causes that led to the collapse of Sella Zerbino were an unsuitable site, the absence of an appropriate geological report and the under-dimensioning of the drains. The different geological composition of the Sella Zerbino site generated movements in the ground that led to a sliding of the ashlar and the subsequent collapse of the dam and the entire Sella.

For the detailed study of the dam, the direct source was analysed: archive documents, bibliographic sources, maps, etc., but the direct source was also used: the dam itself. A detailed survey of the entire complex was carried out and material maps were made identifying all the materials used and noting the characteristics of the installation. This map was then compared with the map of degradation phenomena present on the structure. A high archaeological analysis then identified the small and large transformations that occurred after construction. This way of proceeding is the correct way to then arrive at the restoration project: a project in this case, conservative and strongly respectful of the historical structure.

Subsequent developments in the study of materials used. Analytical methodologies [D.P.]

The samples were analysed at the ISPC (Istituto di Scienze del Patrimonio Culturale) (ex ICVBC) - CNR laboratory in Florence by geol. Fabio Fratini. The following analyses have been carried out: 1) determination of the water accessible porosity and bulk density through the hydrostatic balance method in the samples M4 and M5, the only ones where it was possible to obtain specimens in a size suitable for the test; 2) observations at the

optical microscope in transmitted polarised light on thin section; 3) determination of the mineralogical composition through X ray diffraction (XRD) (X'Pert PRO diffractometer by PANalytical equipped with X'Celerator detector and HighScore software for acquisition and interpretation of data according to the following operative conditions: $\text{CuK } \alpha_1 = 1.545 \text{ \AA}$ radiation, 40 KV, 30 mA, $2\theta = 3-70^\circ$ (v. fig.6). The first results of these analyses were presented at the International Lime Conference (CIC-2023), 01-03/3/2023 in Marrakech, Université Cadi Ayyad- Faculté des Sciences Semlalia.

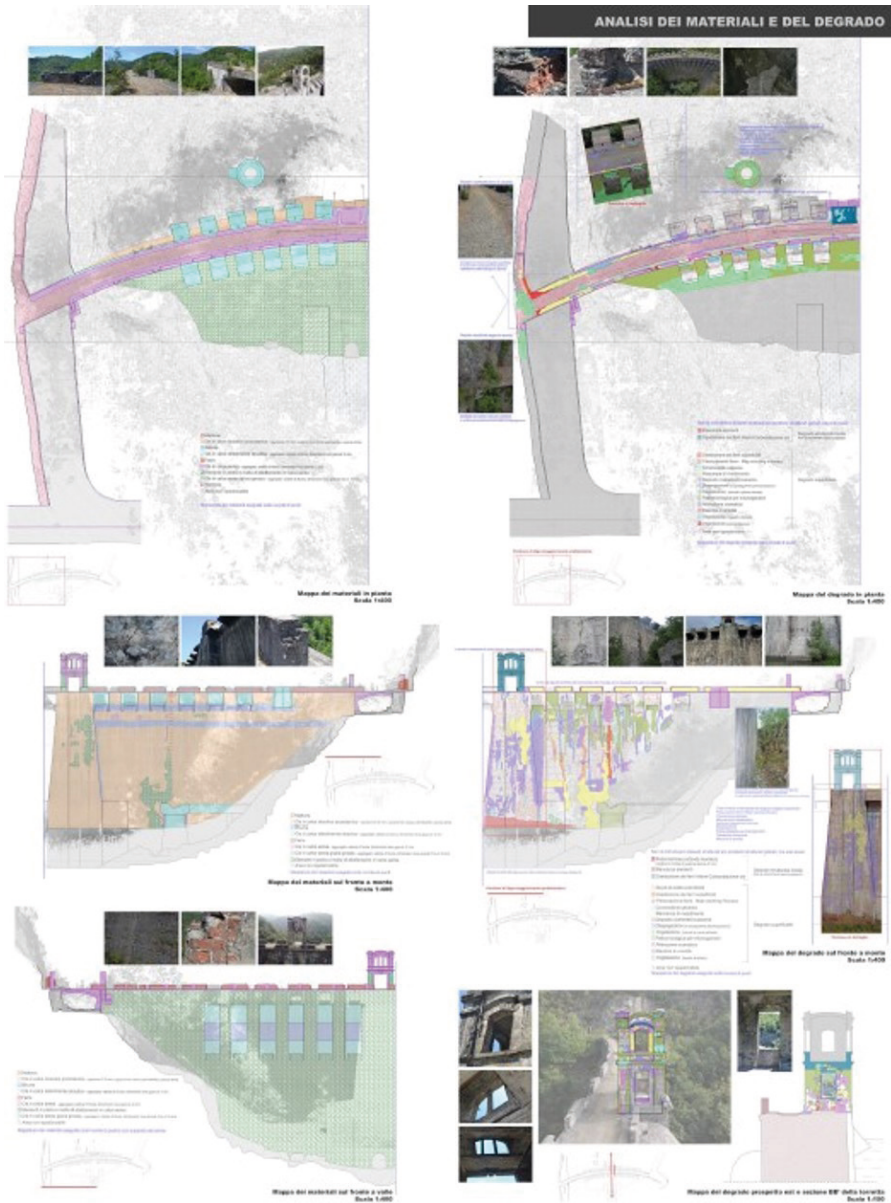


Figure 3. Molare Dam, Material and Conservation Condition Map (Source: Morandi 2020)

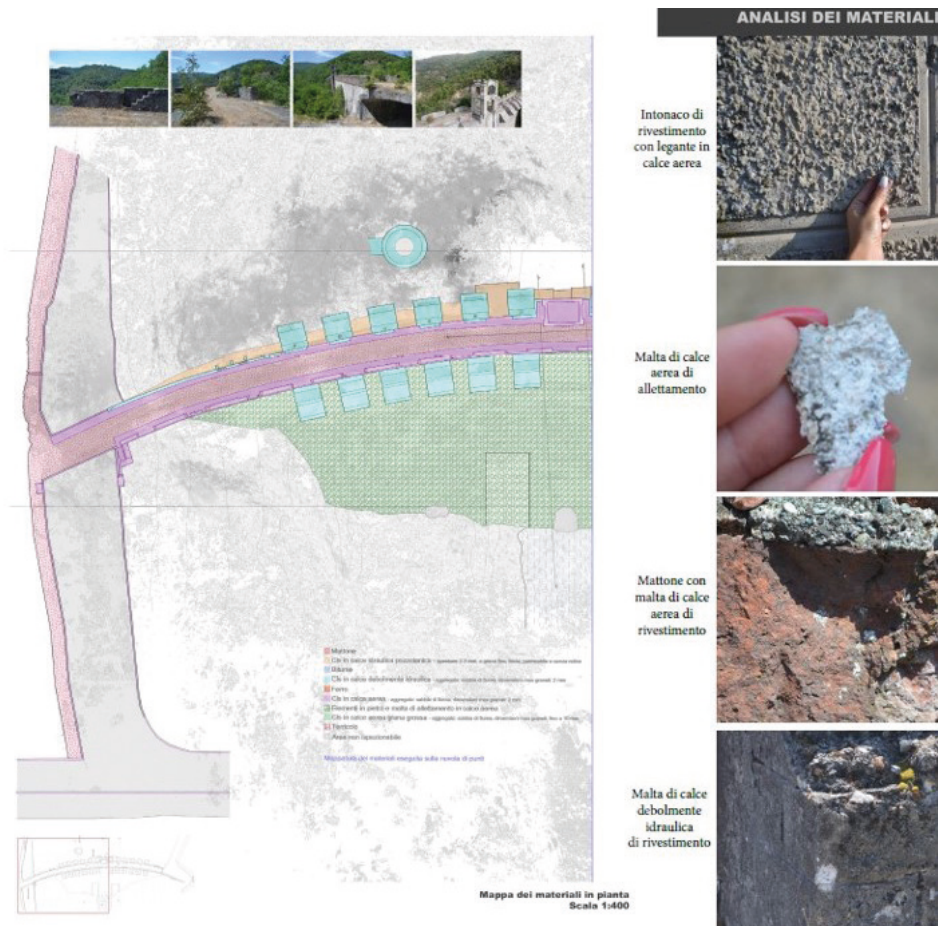




Figure 6. Molare Dam, sample n.2 (Source: Fratini et al. 2023)

Conclusion [D.P.]

With regard to the case examined, some initial conclusions can be drawn. The petrographic study of the mortars made it possible to verify that all the mortars were made with a hydraulic binder, evidenced by the presence of relicts of non-hydrated clinker. It must also be mentioned that the same type of hydraulic binder was not always used. This is indicated by the different amount of clinker relicts and may depend on a different degree of grinding of the clinker. We are speaking of clinker, thus of a Portland cement-based binder, although mineralogical analysis did not reveal the presence of C3S (alite). This may be due to the poor crystallinity of this compound. However, it is reasonable to state that the binder is a Portland cement taking into account the low porosity measured in the mortar specimens, which is lower than that of mortars made with hydraulic lime, the high cohesion and the colour of the binder itself. With regard to the aggregate, this is always of local origin, characterised by the presence of serpentinites, pyroxenes, feldspars, micaschists, albeit with some slight differences. River sediments were used as supply, as indicated by the good rounding of the granules. Concerning the mixtures, some show abundant binder and fine-grained aggregate (samples 3, 5), others abundant binder and coarse-grained aggregate (samples 2, 6, 8, 9), another one scarce binder and fine-grained aggregate (sample 4). Overall, all of these mixes are well mixed using the amount of water strictly necessary for adequate workability, as demonstrated by the low amount of macroporosity. Concerning the bricks, 1 and 7 show a low firing temperature (indicated by the high birefringence of the groundmass) and do not appear to be made from local material. On the other hand, sample 4, adhering to mortar 4, appears to have been fired at a higher temperature and also seems to be of local origin as evidenced by the presence of fired relicts of micaschists in the framework. Some questions are still open. In the period from the mid-19th century to the mid-20th century, we have different materials: air limes, hydraulic limes, hydraulised air limes, Roman cement, Portland cement and newly produced industrial cements. The analysis and correct identification are still being studied to this day. What tools can we still put in place? At present, it is planned to continue the research with SEM EDS analyses to recognise the presence of C3S and C²S in the non-hydrated parts. This will make it possible to clarify the real composition of the materials used, and in particular to specify whether the material used as a binder is lime or cement.

As can be seen from the case presented, especially in the first half of the 20th century, the operating methods and choice of materials have several controversial aspects: in some

cases, there is a persistence of materials still linked to tradition even if with contemporary forms. This is found in numerous other cases (Canziani Della Torre 2010, De Fornari 2020), at other times there are innovative materials and techniques but traditional architectural forms (PittalugaNanni 2016). The studies carried out in recent years, addressed during the year's work in the Restoration Laboratories, in the various theses and in the university's research projects, are trying to develop a sort of archaeology of architecture applicable to contemporary structures that will allow us to increase our knowledge of this complex period and that will allow us to better grasp the signs of memory in contemporary architecture and the signs in the memory of contemporary architecture in the future.

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3D Survey in Applied Gaming for the Cultural Heritage of Brixen

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Abstract

An increasing corpus of research and experimentation has shown interest in studying how applied-games constitute an effective resource for communicating and enhancing cultural heritage. Despite this, the production of these applications involves highly specialized skills and imposes prohibitive costs and timelines for implementation. The paper focuses on different strategies of production of 3D digital assets that could simplify the process of survey and restitution of architectures, on which virtual environments are based in applied games. This approach was the focus of the UID Summer School 2023 (scientific leaders Alessandro Luigini and Daniele Rossi), placing Brixen's cultural heritage at the centre of its investigations. The suggested method includes two main approaches, leading to two modelling protocols that were undertaken to define objects at the architectural and urban scales. Recent technologies (NERF), well-established acquisition methods in surveying (SfM) and architectural representation played a leading role. The common thread connecting the previous applications was to identify the fundamental narrative elements characterizing Brixen's heritage, preserving its recognizability and identity.

Abstract

Un crescente corpus di ricerche e sperimentazioni ha mostrato interesse nello studio di come gli applied-games costituiscano una risorsa efficace per la comunicazione e valorizzazione del patrimonio culturale. La produzione di questi applicativi, tuttavia, comporta elevate competenze specialistiche e impone costi e tempistiche di realizzazione proibitivi. Il contributo si concentra sulla sperimentazione di strategie per la semplificazione del processo di rilievo e restituzione dell'architettura, attraverso la produzione di asset digitali 3D impiegati nella realizzazione di ambienti virtuali dell'applied-game. Questo approccio è stato il fulcro della UID Summer School 2023 (responsabili scientifici

Alessandro Luigini e Daniele Rossi), che ha posto il patrimonio culturale di Bressanone al centro delle proprie indagini. Il metodo sviluppato ha previsto due approcci principali che hanno portato a definire due protocolli di modellazione intrapresi per la definizione di oggetti alla scala architettonica e alla scala urbana. In entrambe, hanno giocato un ruolo da protagoniste le recenti tecnologie (NeRF), ma anche i consolidati metodi di acquisizione nella prassi del rilievo (SfM) e della rappresentazione dell'architettura. Il *fil rouge* che ha permesso di legare i precedenti applicativi è stato quello di individuare gli elementi narrativi fondamentali che caratterizzano il patrimonio brissinese, preservandone la riconoscibilità e l'identità.

Introduction

A - The “edutainment” dimension of applied-games for heritage education [E.T.]

Applied-games have been demonstrated in recent decades to be a useful artistic and cultural tool that focuses on education as a form of playful entertainment, also known as “edutainment.” The mechanics of serious games attempt to respond to the educational needs of educational institutions, providing support in the student’s learning process, placed at the centre of a dynamic of heritage exploration and discovery (Luigini, Parricchi et al., 2020). Through interactive content, direct engagement has also become an important research topic in the museum field, where visit itineraries are increasingly designed to arouse curiosity about the museums themselves and their contents, broadening, more generally, awareness about historical, artistic and cultural heritage. An example is the projects on video games carried out by the National Museum of Science and Technology in Milan, which is committed to encouraging integrated and stimulating systems to convey experiences on scientific and technological themes. On the other hand, the National Archaeological Museum of Naples has produced the video game “Father and Son”⁽¹⁾, which allows people to visit the halls of the MANN, encountering works and artefacts related to the historical figures featured in the game. The second chapter of this videogame, again developed in collaboration with the cultural association TuoMuseo, has as its protagonist an employee of the museum, waiting to finish her studies in archaeology; the player is guided on a journey through the centuries, experiencing important chapters of human history and rediscovering the history of the city which this heritage refers to. Thus, a vision of schools and museums as laboratories of cognitive immersion is being thought about, where the ever-growing technological innovation encourages an interdisciplinary and intercultural perspective, helping to develop a greater awareness of the consistency of cultural and landscape heritage (Pescarin, 2020).

B -The development process and the representation of space in video games [E.T.]

A significant increase in operating costs involved over time the creation of high-end video games: a good-quality match made in 1995 could be developed with a budget of about \$1 million, but by 2006, production costs ranged from \$2.5 to \$4 million, with projections for future productions toward average budgets of \$10 million (Semprebene, 2020). Reducing production costs is now an issue engaging several interdisciplinary investigations,

(1) <http://www.fatherandsongame.com/>

including games-based learning. A brief industry analysis shows that the market has been articulated and expanded in recent years, mainly due to digital delivery and the spread of smartphones and tablets. Concerning applied-games, although there is a wide overview of video games already on the market set in Italy or that have taken inspiration from our territory⁽²⁾, in many cases, in designing products aimed at the communication of cultural heritage, the choice of modelling the environments does not reach a high degree of detail or philological coherence. This approach allows for effective immersion in a spatiotemporal topos; however, when dealing with identity architecture and elements characterized by greater complexity, these approximations could compromise the effectiveness of the applied-game. It is necessary to remember that the learning and knowledge process underlying serious games is closely linked to the communication of the identity character of the architecture, especially monuments, composing the urban spaces to be enhanced. When creating game settings, it is necessary to set an objective to avoid a vague or only perceptual representation of places but to aspire to their recognizability and peculiarity.

By these considerations, a focused differentiation of the video game environment modelling process, based on the historical, geometric, and educational study of specific digital assets, could optimize the process of setting creation, enhancing its popularizing potential and attempting to reduce the cost and production time effectively, inherent in the digital realization phase of the game environment. Such differentiation requires a high degree of multidisciplinary within the project team, as skills related to art history and architecture must be effectively associated with technical skills of setting modelling and a deep understanding of how game dynamics work, especially for the interactions between the player and the spaces to be explored. As Greta Attademo points out at the 42nd U.I.D. International Conference, our disciplinary field, can nevertheless make a fundamental contribution to video game studies, understood as a narrative form in which the drawing of space is practised as an indispensable mode for constructing a visual code of thought (Attademo, 2021).

C - Case study introduction: historical context and background on the cultural heritage of Brixen [E.T., P.R.]

The paper proposes a methodological path and experimentation for the draft design development of an applied game. The game's main goal is to enhance and promote the Church of St. Michele and its surroundings in Brixen (autonomous province of Bolzano, South Tyrol, Italy). The game, titled "The Mysteries of St. Michele," aims to unveil the church's history with its transformations and stratifications, thanks to the guidance of some of Brixen's most notable citizens who played a leading role in it. The initiative started from the research activities of the U.I.D.-funded Summer School, held from June 19 to 24, 2023 (scientific heads Alessandro Luigini and Daniele Rossi), where it was possible to use the host city, Brixen precisely, as a forge for experimentations between culture and new tools for the dissemination and promotion of cultural heritage. Art and culture are important resources within the city's urban development, combined with the small size of the historic core, making it a pleasant application case.

The Church of St. Michele is located in the heart of the old town, next to the Brixen

(2) Reference is made to the selection identified in the games map by IVIPRO (italian videogame program), available at <https://ivipro.it/it/italia-in-gioco/>.

Cathedral (Fig. 1). The interior of the church, which over the years has been the subject of several research projects⁽³⁾, is of particular interest. It is an important example of stylistic overlap, in which the present-day appearance and Baroque decorations are overlaid on the earlier configuration, hiding the late Gothic ogival vaulted system, which was instead the result of the church's reconstruction in the late 15th century. On the north side, near the church's apse, the 72-meter-high White Tower has become a characteristic symbol of the city. It was first built in the 14th century and used as the seat of the town's fire watchman, but it was destroyed by fire and rebuilt in Gothic style in the 15th century under the name "Black Tower". The current appellation comes from the 16th century when the top was painted white. The St. Michele's Church complex has an evocative place of worship, the Old Cemetery, estimated to date back to the late 10th century; used until 1792 as the town cemetery, it still preserves numerous tombstones placed under the arches along the perimeter walls, in memory of clerics and noblemen. Among them is the gravestone of a famous Brixen poet and storyteller, Oswald von Wolkenstein. The iconic "dead's lantern" stands in the middle, dated 1483. Moving from the bell tower, the square with the fountain is reached, where the bronze statue represents the patron of the Brixen church, St. Michele, killing the dragon.

The historical research on the construction of St. Michele's Church related to the inspections carried out in the White Tower, the old cemetery and the square in front of it immediately suggested the intention to rediscover these places in a different light, unveiling aspects not immediately known and visually encountered, as in the case of the false dome of St. Michele's Church. From the beginning, the aim was to enhance those less touristy and less known historical-cultural elements constitutive of the intangible heritage, as in the case of the "residence ceremony", a typical Brixen tradition performed in the museum of the White Tower, which provided useful inspiration for the beginning of the game.



Figure 1. *Facade of St. Michele's Church (photo taken by Lorenzo Taccioli, 2018; posted at <https://www.lorenzotaccioli.it>).*

(3) Luigin, A., Brusaporci S., Kofler W. et al. (2023), The Vaults of the Church of St. Michael the Archangel in Brixen Between Geometry, History and Missed Space, in *Nexus Netw*, J 25 (Suppl 1), pp. 165–174; Von Marzoli C., Rizzi G., Tecchia-ti U. (2016), Vom Sakralgebäude zur barocken Kirche. Archäologische Untersuchungen in der Stadtfarrkirche zum hl. Michael in Brixen, in *Der Schlern*, Jg 90, Heft 10, pp. 74–104.

Methodology

A- The Game Design Document as a filter on data acquisition choices [E.P., P.R.]

The proper realization of the applied-game (Fig. 2) starts with the development of a concept related to the object of study; with the drafting of the GDD (Game Design Document), we get the first guidelines to work on the artistic and technical aspects of the game: the graphic elements and styles are defined, the game scenario, levels and environments are developed, with due differences according to the set objectives (Semprebene, 2020). This document includes all the elements shaping the video game: story, characters, gameplay, sound, music, interfaces, and the project details, which are described and continually updated by the working team, reaching the design of the artistic idea. The GDD drafted structure consists of a fundamental prerogative for the efficiency of the relief campaign, especially when limited time is available.

Following an initial preparation of the guidelines, a preliminary survey was carried out, during was possible to identify the key architectural elements characterizing the area under study. In this phase, several factors were investigated closely related to each other, which directly or indirectly influenced the subsequent stages of work: the accessibility of the objects to be surveyed, their exposure, the presence of any disturbing elements (passage of people, vegetation, shadows, etc.) and the function that these elements may have within the user experience, foreshadowing the quality and quantity of the data that would need to be collected.

It was also possible to conduct an initial evaluation of the artifacts, in relation with their degree of geometric complexity, categorizing the objects according to their respective morphological properties; the degree of texture complexity, with particular attention to both the decorative aspects and the effects of the different types of degradation they presented; and the level of detail intended to be reproduced in the post-production phase, depending by the distance the object would be visible within the virtual environment.

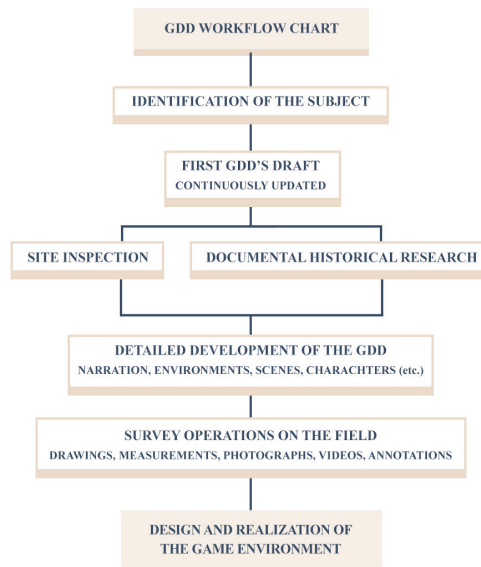


Figure 2. Graphic workflow of the development phases.

B - Scenographic design inputs and stylistic targets [E.P., E.T.]

Inside the GDD, the story's main events were indicated, briefly describing the protagonist and the beginning of his adventure in the play world. During his first night in Brixen, art historian J.W. unexpectedly awakens in the clock room of the White Tower, where he meets the Master Builder and learns the reason for being there: he will not be able to leave the St. Michele's complex until getting all its mysteries revealed to open an ancient hidden portal. The game is designed to be a first-person VR video game experience, with game dynamics suitable for audiences of all ages. The solution of each riddle introduces the protagonist to the next enigma, making the various game environments accessible (Fig. 3), such as the square with St. Michele's fountain and the old cemetery; the player is led to explore the places and learn about the history and characteristics of the various identity elements of the Brixen church complex.



Figure 3. Marking of playground areas based on the 2007 vector technical map of the city of Brixen, scale 1:5000, sheet 11163 of the 1:5000 union framework, from the Geocatalogue of the South Tyrolean Civic Network (public administration portal). <http://geokatalog.buergernetz.bz.it/geokatalog/#!home>. White Tower (1); Crossroads between street Ponte Aquila and street of S. Albuino (2); Old Cemetery (3); Interior of St. Michele's Church (4); Parrocchia Square (5).

The intention was to reason about a lesser-known aspect of the city, attempting to bring up the vibrations those places had transmitted during the survey, combined with the atmospheres experienced in a hypothetical visit to the church complex in its late Gothic period. The settings were conceived in a night lighting condition, characterized by an ethereal aura of mystery as if it were the protagonist's dream. One of the goals was to evoke the atmosphere of the old cemetery, where the lantern of the dead stands out among the handmade iron crosses and tombstones surrounded by the loggias (Fig. 4).

In this perspective, the study of light in space played a primary role, both in terms of artificial light sources and how the perception of natural light within the immersive experience of architectural heritage was envisioned. Once the overall framework of the representation objectives of the urban and architectural elements that would characterize the game was understood, it was possible to plan the approach to the survey campaign about the available tools.



Figure 4. Historical photo of the Old Cemetery in Brixen, with the lantern of the dead in front. From the Photographic Archives of the Autonomous Province of Bolzano, in the Planinschek Collectionc (https://archiviofotografico.provincia.bz.it/SLA_images/media/713).

C - Organization and distribution of the relief project [E.P.]

The survey campaign was planned according to multilateral acquisitions and aimed to collect geometric and chromatic data (Fig. 5), related to the previously identified distinctive artefacts through different application procedures:

- Neural Radiance Field (NeRF) system with Luma AI, for objects of small scale and characterized by the possibility of being able to be walked around at 360°; examples include the baptismal font inside St. Michele's Church, the lantern of the dead in the Old Cemetery, and the bronze statue portraying St. Michele the Archangel in the fountain located between St. Albuino Street and Ponte Aquila Street.
- SfM (Structure from Motion) system using photogrammetry with Agisoft Metashape for the highly characterizing elements of the game settings, for which it was necessary to obtain a rigorously oriented and scaled digital reconstruction: at this stage, it was extremely useful do not limit the survey in small spatial sectors, but to understand the architectural annexes of the selected elements. In this way, it was possible to use contextual parts in the restitution phase as a constraint to geometric modelling, as happened with the south facade of the Church of St. Michele, the tombstones next to the east-west loggia, and the whole north-south and east-west loggias, all facing the Old Cemetery.
- Laser scanning systems for the acquisition of large spatial portions, difficult to capture with previously used tools: regarding this case study, the earlier processed point cloud of the interior and exterior parts of the Church of St. Michele, including the White Tower, was provided by the Free University of Bozen/Bolzano.

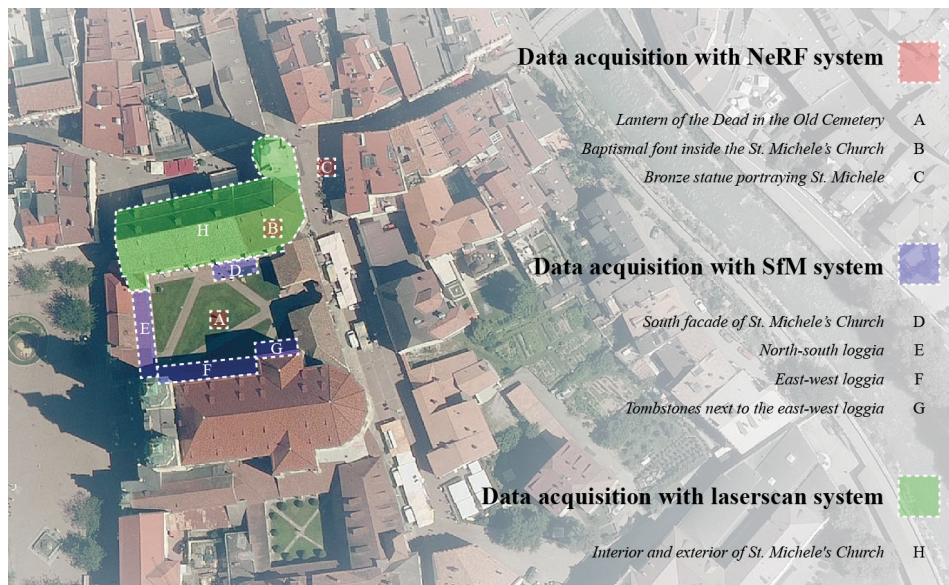


Figure 5. Planimetry image with correspondence between survey strategies and the artefacts to be acquired. Orthophoto 2020 from the South Tyrolean Civic Network geocatalog (public administration portal), sheet 11163b of the 1:2500 union frame.

D - Restitution of acquired data and matching of results in 3D digital space [E.P., E.T.]

In the post-production phase, different workflows were followed in parallel with the previously described inputs, using a tolerance that is not excessively tight towards the results and their respective errors resulting from the restitution operation. This principle is part of a wider systemic approach towards the survey project, which is calibrated in advance depending on the expected results. In this specific case study, it would have been considered a waste of time and resources to process the data according to the maximum resolution derivable from them (consequently containing the error to an order of a few millimetres). The adopted approach represents a compromise solution balancing multiple factors affecting the quality of the results: the degree of accuracy of the digital processing, the data processing time, the number of polygons in the 3D models and the resolution of the texture channels for subsequent model mapping. In accordance with the previous classification, the process then followed the following steps:

- From video to textured mesh with Luma AI NeRF system

Experimentation with the iOS open-source application Luma AI allowed for fast data acquisition by processing short videos, lasting about 90 seconds for the baptismal font, 160 seconds for the lantern in the old cemetery, up to 180 seconds for St. Michele's fountain; the footage was taken through an iPhone 8 smartphone, with a 12 mp lens, in HEVC (high-efficiency video coding) extension, at 30 fps. The recordings were made slowly, circling the objects with three different camera heights and keeping the same working distance of about 40 cm. Once the videos were uploaded to the online platform, the software took advantage of the artificial intelligence, taking about 10 to 15 minutes to generate a 3D model (NeRF), an interactive panoramic photo, and a video render (Fig. 6)

for each detected object. It was eventually possible to download a textured mesh of good quality for the intended objectives.

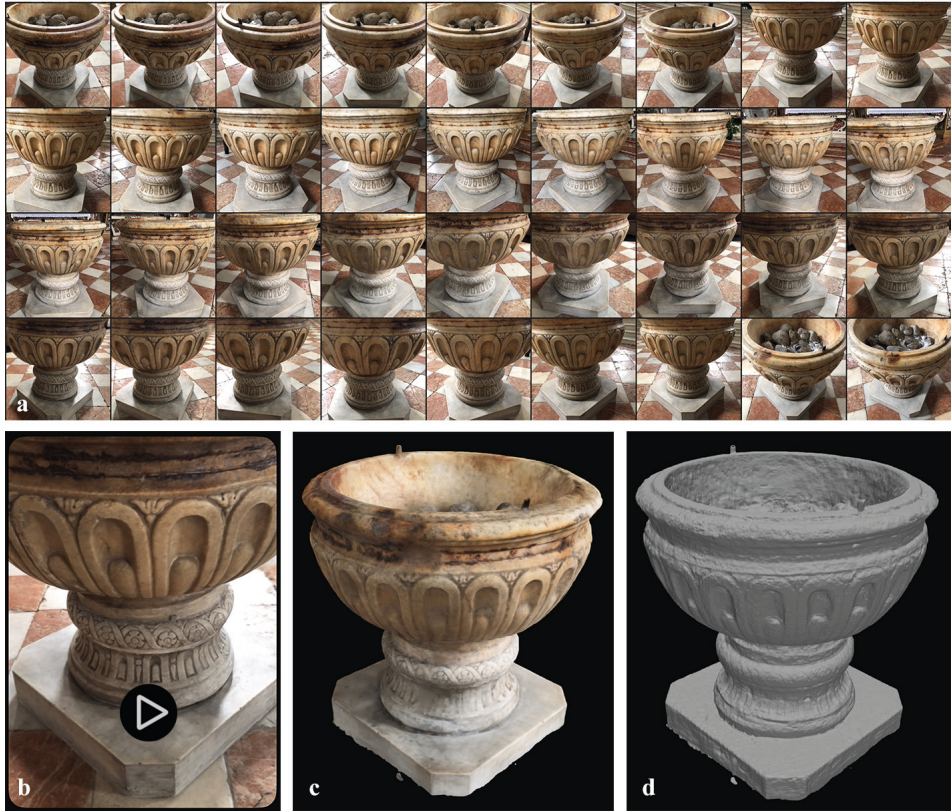


Figure 6. Acquisition and processing of data for the baptismal font. From the video recording (a), LUMA AI software produced: an interactive panorama (b), a 3D NeRF model (c), and a textured mesh (d).

- From photos to textured mesh with Agisoft Metashape photogrammetry

Acquisition surveys inside the Old Cemetery were carried out with a Pentax K-5 Reflex camera equipped with a 16.3 megapixel (4928 x 3264) APS-C sensor, 18mm focal length and an average working distance of 150 cm. A total of: 360 photos were taken for the east-west loggia, 424 photos for the north-south loggia, 56 photos for the tombstones next to the east-west loggia, 74 photos for the tombstones and featured objects placed in the south wall of St. Michele's Church. All acquisitions were taken from the ground (handheld) through a fixed shooting altitude (vertical baseline 160 cm) and equidistant station points (horizontal baseline 200 cm), with optimal lighting conditions (diffuse natural light), using pitch angles for each station equal to -60° , -30° , 0° , 30° , 60° ; and yaw angles equal to -45° , 0° , 45° , resulting in an average GSD of $0.04 \text{ cm/pixel}^{(4)}$. The photographs were processed within the software with average accuracy in the steps of sparse cloud, dense cloud, and triangulation; after which the meshes were decimated until the limit value of 1 million polygons per processed model was reached. At this

⁽⁴⁾ The sensor width of the camera in millimeters * height in meters * 100 / the focal length of the camera in millimeters * the image width in pixels.

point, texture channels size/count 8192 x 1 were calculated (Fig.7). All models were appropriately scaled and oriented in the workspace by inserting ⁴ markers for each set of photos, showing an average total error of 3.8 cm.

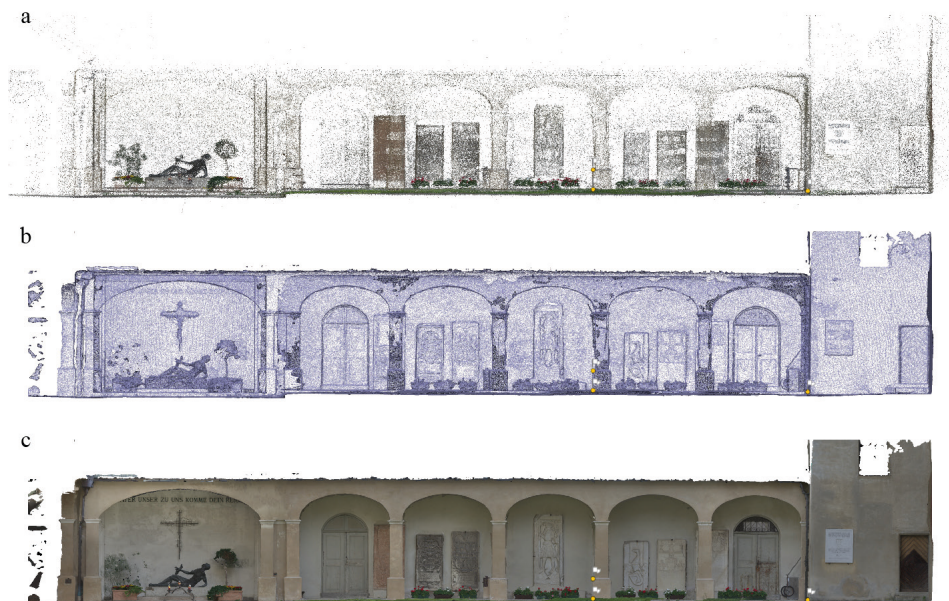


Figure 7. Data processing step from the set of 424 photos (.raw) of the north-south loggia. Tie points in medium accuracy (a), decimated mesh (b) and textured mesh (c).

- From Point Cloud to textured mesh with 3D laser scan process

The survey in the form of a point cloud of the St. Michele's Church provided by the Free University of Bozen/Bolzano was processed within the Recap Pro software, performing a data cleaning operation with the removal of the points captured during the survey, but not belonging to the artefact in question. Partial missing information was highlighted in some areas of the study, so it was preferable to perform a semantic

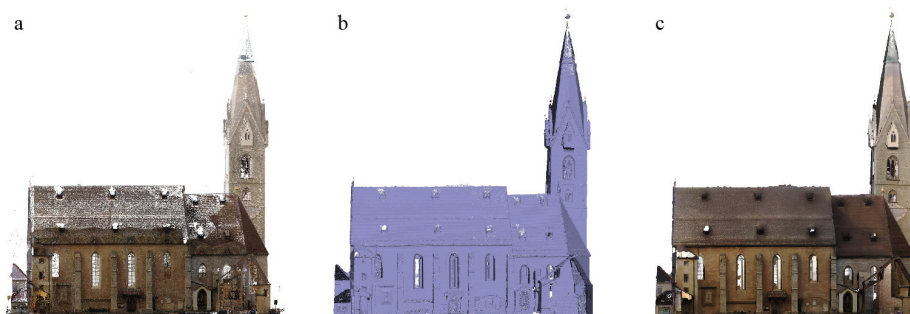


Figure 8. The data processing step from the new point cloud provided by prof. G. Nicastro of the Free University of Bozen/Bolzano. Pointcloud imported into Autodesk Recap Pro (a), decimated mesh (b) and textured mesh (c).

discretization operation of the architectural and constructive elements of the Church to make up for the missing portions effectively. After that, the different point clouds

were imported within the Agisoft Metashape software to proceed with processing the meshes (again, it was necessary to decimate the number of polygons) and the respective texture channels (Fig.8). Once the textured 3D models were exported from the respective software, a common database, coming from the geocatalogue of the Civic Network of South Tyrol⁽⁵⁾ (public administration portal), was used for the drawing of the 2007 vector technical map of the city of Brixen at a scale of 1:5000, sheet 11163 of the 1:5000 union framework was used. Through this operation, it was possible not only to work with a reference of planimetric measurements but also to structure the digital reconstruction using different areas (coinciding with the game playgrounds shown in Fig. 3) that could be later correctly arranged to avoid overlapping errors and inconsistency of geometries. On this vector base, imported into the McNeel Rhinoceros working space, the previously obtained 3D meshes were placed, allowing to define areas uncovered by the data and consequently needing to be modelled. The relevant areas to work on separately were identified: the indoor environment of the White Tower, the urban space located east of St. Michele's Church, the Old Cemetery, and the Parrocchia Square. For each identified area, a methodology was adopted that implemented the digital surveys in the form of textured meshes with NURBS modelling (Fig. 9) according to two types of usage: in some cases, the survey was implemented without making any changes, while in other cases, the survey was used as a constraint to the new geometric modelling, except for the sculptural and difficult to reproduce portions, which were carefully extrapolated and juxtaposed with the surfaces and polysurfaces drawn within the digital ambient. All details subject to new modelling were organized in the McNeel Rhinoceros layer browser according to a textural classification.

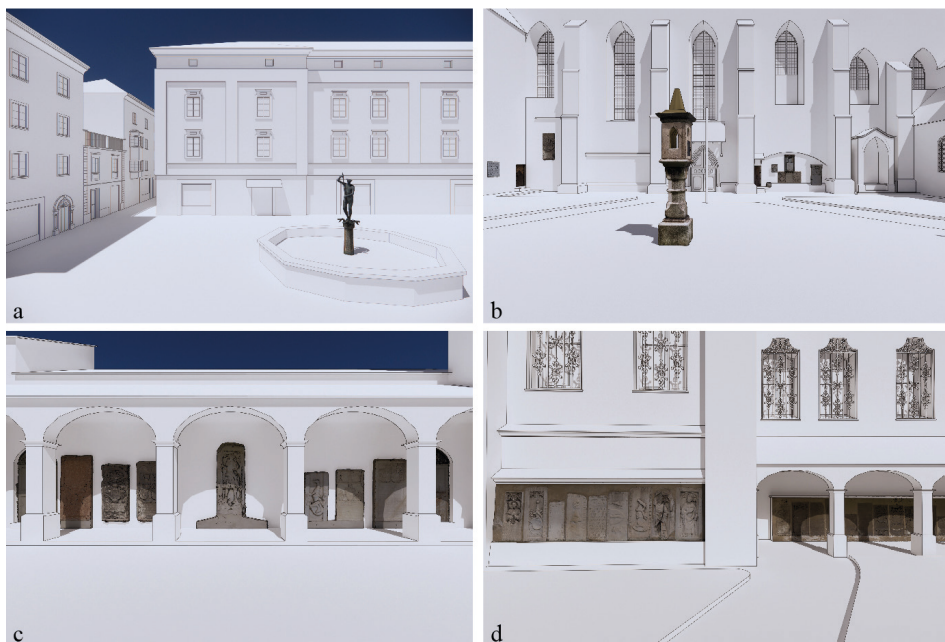


Figure 9. Integration of surveys with buildings' digital reconstruction concerning St. Michael's Fountain (a) and the Old Cemetery (b,c,d).

(5) <http://geocatalog.buergernetz.bz.it/geocatalog/#!home>.

E - Development of digital assets based on data acquisitions [P.R.]

In order to complete the game settings, it was necessary to model a large number of buildings in the urban context, not particularly significant with relation to the educational and cultural contents of the game but fundamental to guarantee the identification of the place through characteristic architectural elements. To achieve this, a dedicated modelling approach was adopted, based on the identification and approximate digital reconstruction of specific architectural units of interest, subsequently varied and recomposed to create a multitude of building types. The characteristic elements object of dedicated modelling were windows, doors, bowwindows and frames (Fig.10). The modelling of these digital assets was carried out on the basis of direct observation, with photographic support and in some cases using parts of an approximate photogrammetric survey as reference.



Figure 10. *A few examples of basic assets of recurrent elements in the architectural heritage of Brixen, modelled in Rhinoceros.*

Once a library of basic assets had been assembled, once again making use of the 2007 vector map of the city of Brixen, and verifying the general dimensions and characteristics of the specific buildings, the assets were arranged, suitably adjusting their dimensions, decoration and placement, on façade planes in line with the cartography. In order to achieve a greater coherence between the game setting and the physical space, the height of the façade planes, the number of windows and the presence of bowwindows were determined from photographs taken in the field, or again using approximate photogrammetric surveys.

Finally, some details were added to better characterise the individual buildings, such

as railings, decorations (Fig.11). This approach allowed large urban spaces to be modelled quickly, balancing the need to develop a simplified setting (for reasons of hardware capacity and timing) with the aim of guaranteeing a spatial perception congruent with the real one and a lexical and morphological characterisation of the city of Brixen.

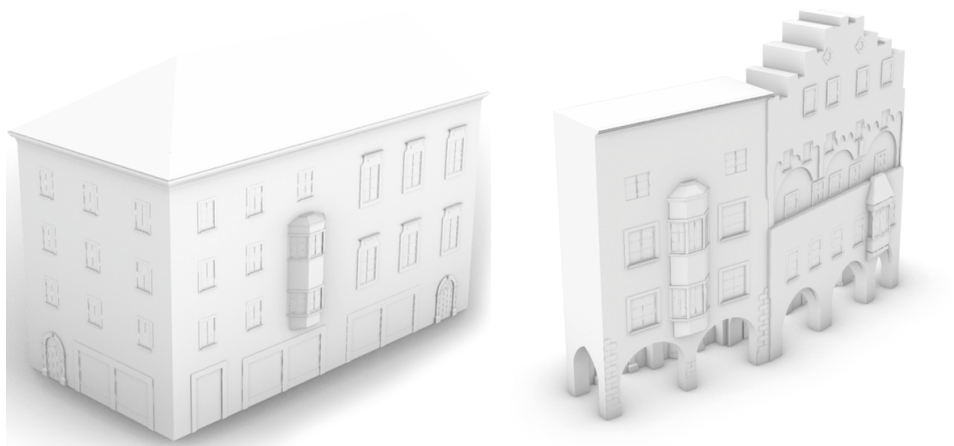


Figure 11. *Assembling basic assets with the addition of details for the creation of buildings, model developed by A. Lo Pilato.*

F - Addition of models, texture mapping and integration of complementary open source digital assets [E.P.]

Finally, the virtual scenes were enriched by assembling the digital assets, the facades and the characteristic architectural elements; the classification of layers by material was performed during this process. The texture mapping process for all the elements derived from NURBS modelling was carried out using the Epic Games' Archviz Application Twinmotion using Twinmotion Datasmith Exporter plugin for Rhinoceros. This choice allows a direct link between the McNeel Rhinoceros workspace and the Twinmotion workspace, making it possible to synchronously make geometrical changes to the digital model at any time, avoiding complex export processes of the three-dimensional model.

The selection of textures⁽⁶⁾ was made in accordance with the photographic documentation collected during the surveys, with particular attention paid to the characteristic features of Brixen's heritage. At this point, the virtual environments were integrated through the insertion of digital assets directly downloadable within Twinmotion, using both its native library and additional ones such as Quixel Megascans and Sketchfab. The use of these platforms, resulted in a significant increase in the degree of detail and consequently of the realism of virtual scenes. In order to give the designed experience the appropriate atmosphere (Fig.12), the lighting design was of paramount importance, both with regard to the setting of natural light at night and the artificial lighting. In this regard, the positioning of the directional lights (IES) and point lights was always accompanied by the corresponding insertion of a digital lighting asset.

(6) Textures PBR - Physically Based Rendering - have been used.



Figure 12. Representation of the different game settings. Interior of the White Tower (a), St Michael's fountain (b), Old Cemetery (c) [and interior of the Church of St Michael Archangel (d)].

Conclusions [E.P., P.R., E.T.]

Based on the results obtained, a methodological proposal is indicated here to optimise the design and composition workflow of the applied-game setting (Fig.13). The methodology is based on the principle of non-indifference of the survey and representation of space in the video game; in this sense, the first fundamental aspect of the proposed approach corresponds to an accurate analysis of the architectural elements that make up the game scenes. The architectures and monuments must be classified in order to distinguish which elements require (for educational reasons) the highest possible fidelity and which, on the other hand, contribute, through their characterisation, to the accomplishment of the scene, restoring the spatial perception of the place in which the narrative unfolds. In order to better frame this distinction, it is possible to refer to the identification of 'intentional monumental characters' (Scarrocchia, 2017), whose historical value is manifest and intrinsic to the specificity of the artefact, and of unintentional monumental complexes, which develop on an urban scale through the stratification of building types, decorative elements and recurring technological components of architecture. The value of the latter, for the purposes of this study, lies in the construction of an identity image of urban space, which through an adequate process of analysis and knowledge can also be replicated in an abstract and simplified form, in the absence of the absolute geometric and material coherence between the model and reality.

Once this distinction has been made, two different workflows can be followed. For heritage elements, it is essential to proceed with the photogrammetric survey or via NeRF, while for context elements a hybrid modelling can be performed, with the aim of realising a combination of digital assets closely linked to the place.

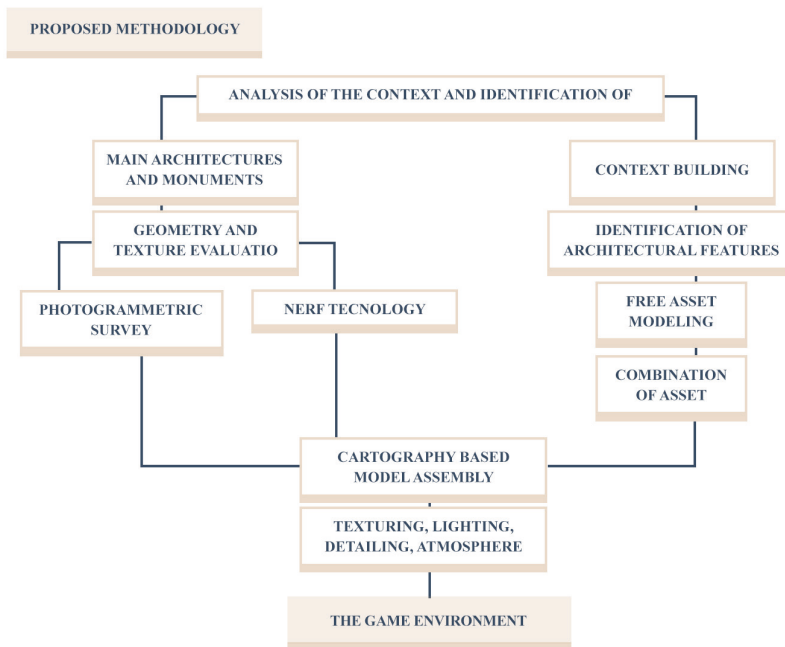


Figure 13. Visualization of the proposed methodology for the realization of applied game context aware environments.

The NeRF system, used through the LUMA AI application, proved to be an effective and affordable tool, allowing the production of high quality models for small or modestly sized objects; export as textured meshes and import into scenes did not present any particular problems. However, for larger elements or those that are mainly developed in planes, the traditional photogrammetric approach remains preferable, also in order to maintain greater control over the degree of detail to be obtained. Cartographic support is indispensable for the correct placement of all the assets realised and for the composition of the game scenes. The 3D models available on libraries such as Sketchfab or Megascan can be useful to improve the rendering of the setting, easily allowing the scene to be refined with details; however, it is necessary to emphasise that the search systems of these models do not provide an appropriate semantic classification with respect to cultural heritage. In this sense, a library of digital assets oriented to the production of serious games, characterised by a semantically richer information structure, could considerably facilitate the process of setting realisation, as well as guarantee the availability of already realised models for future projects in the same or related sites.

There are several aspects that could still be developed in the future along this line of research:

- the definition of standards in the realisation of digital assets, involved in the game dynamics
- the extension and application of the methodology to large indoor environments
- the structuring of protocols/workflows for the identification, classification and cataloguing of assets.

In conclusion, the experimentation conducted showed that, through an appropriate

methodology, it is possible to quickly and cost-effectively design applied-game settings, not sacrificing the quality of the product, the accuracy of the heritage elements and the recognisability of the locations (Fig.14).



Figure 14. Comparison of the digital reconstruction of the Old Cemetery between: photograph (a), geometric model (b) and textured model (c).

DESIGN AND REALIZATION OF THE GAME ENVIRONMENT				
WORK PHASE		RESOURCES	OBJECTIVES	RESULTS
PRELIMINARY ANALYSIS	SITE INSPECTION	OBSERVATIONS DIRECT SURVEY	IDENTIFICATION OF MAIN AND CONTEXT BUILDINGS	SURVEY PROJECT AND HERITAGE AWARENESS
	DOCUMENTAL HISTORICAL RESEARCH	DIGITAL ARCHIVES LITERARY SOURCES	IMPROVED KNOWLEDGE OF THE RELEVANT HERITAGE FEATURES	
DIGITAL ASSETS ACQUISITION AND MODELING	PHOTOGRAMMETRIC SURVEY	REFLEX CAMERA, AGISOFT METASHAPE	HIGH FIDELITY DIGITAL ASSET - ARCHITECTURAL ARTIFACTS	3D MESH TEXTURED MODELS
	NERF ACQUISITION	LUMA AI SMARTPHONE APPLICATION	HIGH FIDELITY DIGITAL ASSETS - STAGING ELEMENTS	
	FREE ASSETS MODELING	RHINOCEROS, PHOTOGRAPHY	BASIC ASSETS OF RECURRENT ARCHI- TECTURAL FEATURES	3D NURBS MODELS
DIGITAL GAME ENVIRONMENT STRUCTURING	CARTOGRAPHY BASED MODEL ASSEMBLY	GEOCATASTIC OPEN-DATA	COHERENCE WITH REAL ENVIRONMENT	GEOMETRIC DIGITAL MODEL
	TEXTURING, LIGHTING	RHINOCEROS, TWINMOTION	PHOTOREALISTIC FINISHING, ATMOSPHERE	TEXTURED DIGITAL MODEL
	COMPLEMENTARY DETAIL MODELS ADDITION	QUIXEL MEGASCANS, SKETCHFAB	MORE ENGAGING AND STIMULATING ENVIRONMENT	COMPLETE GAME ENVIRONMENT

Tab 1. Work plan: Project phases, resources, objectives and results.

Acknowledgments

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Intangible through tangible actions. For an integrated management of a UNESCO cultural landscape

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Abstract

Understanding the inherent values of a cultural landscape, such as those designated as UNESCO World Heritage cultural landscapes, also involves an appreciation of their intangible dimensions, shaped by the social component. In order to strengthen dialogue among people and enhance comprehension of the values underpinning a particular cultural heritage, two UNESCO cultural landscapes in Italy and China were selected as case studies due to the twinning of their managing bodies. Therefore, aiming to contribute to the promotion of cultural exchange in the realm of strategies and actions for their effective integrated management, a preliminary pilot project is proposed in this article. This project seeks to conceptualize an ideal bridge of light between the two mentioned traditional rural landscapes through an artistic exhibition designed to facilitate a dialogue between the values and attributes of these two rural worlds.

Abstract

La comprensione dei valori propri di un bene paesaggistico di tipo areale, come quello dei paesaggi culturali UNESCO, passa anche attraverso la conoscenza della loro dimensione immateriale, in quanto plasmata dalla componente sociale. Al fine di rafforzare il dialogo tra i popoli e la comprensione dei valori alla base di un dato patrimonio culturale, due paesaggi culturali UNESCO in Italia e Cina sono stati presi come caso studio, per via del gemellaggio dei loro enti gestori. Pertanto, intendendo offrire un contributo alla promozione di uno scambio culturale nel campo delle strategie e delle azioni per una loro effettiva gestione integrata, un primo progetto pilota viene proposto in questo articolo. Questi si propone di concettualizzare un ponte di luce ideale tra i due paesaggi rurali tradizionali citati, mediante un'installazione di tipo artistico volta ad instaurare un dialogo tra i valori e gli attributi dei due mondi rurali.

Introduction

In the process of valorizing any cultural asset, whether it be specific or regional, there is an increasing need to integrate the tangible with the intangible, as indicated by the Nara Document on Authenticity (UNESCO WHC, JACA, ICCROM, & ICOMOS, 1994, art. 7), a notion reaffirmed by numerous scholars (Bouchenaki, 2003; Karakul, 2011; McKandlish & McPherson, 2021). This integration becomes imperative as it is recognized that it is impossible to separate them within a narrative that is truly inclusive of differences and also takes into account the diverse voices of the communities for whom that particular asset serves as a backdrop for their lives.

In particular, the intangible aspect of heritage holds great significance, as its promotion leads us, the living, to gain a better understanding of current uncertainties, especially among the younger generations. The complexity of the contemporary era is marked by significant transformations, such as those associated with the epochal issues of climate change and migrations. From this perspective, World Heritage can assist in fostering reflections that counteract the sense of fragility resulting from the precarity, acceleration, and rapid obsolescence of objects and ideas. Therefore, a contemplation of themes such as immanence and identity would be both useful and necessary (Agnoletti, 2010). Understanding how these assets have been preserved over centuries or even millennia can suggest a broader, regional approach to their preservation, applicable to both specific and landscape-based assets. This perspective is also encouraged by the Convention for the Safeguarding of the Intangible Cultural Heritage of the United Nations Educational, Scientific and Cultural Organization (UNESCO), which, in its definition of intangible cultural heritage, encourages reciprocity and continuous interaction between the living and nature. In the following definition, “this intangible cultural heritage, transmitted from generation to generation, is constantly recreated by communities and groups in response to their environment, their interaction with nature and their history, and provides them with a sense of identity and continuity, thus promoting respect for cultural diversity and human creativity.” (UNESCO, 2003, art. 2.1).

In this regard, it is interesting to draw upon two productive cultural landscapes to carry out this reflection: the “Cultural Landscape of Honghe Hani Rice Terraces” (UNESCO, 2013), located in Yunnan, China, and the “Vineyard Landscape of Piedmont: Langhe-Roero and Monferrato” (UNESCO, 2014), in Piedmont, Italy (Fig. 1). Both of these sites have been recognized as cultural heritages, and in both cases, the intangible component is of great significance, having created the social fabric that has held their societies together over the centuries, albeit rooted in different cultural concepts related to the landscape. In the Italian site, it is the Management Plan itself that discusses the “... many festivals tied to the grapevine’s lifecycle ... This culture is part of people’s consciousness and is the backdrop for literary works written by authors ... such as Cesare Pavese and Beppe Fenoglio. Both of them describe the strong and ancestral relationship between Man and the land and the effort of working in the vineyards, emphasising the wealth of farming heritage entrenched in the area.” (UNESCO, 2014, p. 15). This popular heritage also carries with it stories of masks, ritual performers, and healers (Grimaldi, 2007, 2015) that intersect with popular faith and devotion to saints and the Our Lady, creating an intricate physical fabric comprised of votive pillars, chapels, parishes, and churches (Zanirato, 2012). In the Chinese context, “... even without formal authority, the traditional decision-

making power in local Hani ethnic group lies with the headman/tribal chief called ‘Migu’, in the ‘Mopi’, the spiritual leader who is believed to be able to communicate with Gods” (UNESCO, 2013, p. 36). Their cultural traditions “... such as Angmatu, Kaiyang Festival, Biyang Festival, Kuzhazha and etc. ... support the lasting of this unique ecological system” (UNESCO, 2013, p. 3).



Figure 1. left, the “Cultural Landscape of Honghe Hani Rice Terraces” (source: Ming Chen); right, the “Vineyard Landscape of Piedmont: Langhe-Roero and Monferrato” (source: Sandra Balbo).

In addition to the twinning agreement signed by the managing entities in 2019 (Associazione per il Patrimonio dei Paesaggi Vitivinicoli di Langhe-Roero e Monferrato, 2019), this twinning prompts reflections on the intangible foundation that unites the two UNESCO World Heritage sites, namely, the profound connection to the agricultural theme. Viewing it through the lens where the land sustains the continuity of life, the practical demonstration of various ways to respect it through ceremonial reverence, worship, and the technical and managerial approach to nature, it transforms into a culture worth imparting. These two sites have nurtured centuries-old cultures marked by a constant presence on the land, shaping it according to the specific needs of the predominant crop, which is grapevines in the Italian site and rice in the Chinese site. They are rural landscapes born from the predominant crops that make up the triad of vine-olive-wheat in the Mediterranean basin (Agnoletti, 2010, p. 30) and rice in the macro-areas of South, Southeast, and East Asia (Laborte et al., 2017).

The sense of generational belonging to these areas is rooted in the direct connection to the survival of that specific parcel of land, which imparts a sense of reciprocity, respect, and daily commitment. Now, this connection is waning due to a changing perception of the farmer-land relationship. Therefore, efforts must be made to restore the values that have sustained these World Heritage sites for hundreds of years, such as the integrated, non-invasive person-nature relationship, solidarity, and so on, by juxtaposing them with the current needs of these territories.

In recent years, there has been a gradual resurgence in understanding the relationship that binds human beings to nature. In the Italian site, this has been underway since the

1990s, driven by the rediscovery of the cultural values underpinning the interaction between the social component of the landscape and its physical characteristics (Settimini, 2017; Devecchi, 2019). In the Chinese site, on the other hand, there is an ongoing cultural process of individual-nature connection, coupled with an active rural development policy aimed at preventing excessive urbanization on one hand and supporting agricultural development to prevent rural abandonment on the other. It is a slow process marked by various attempts, where the preservation of the Chinese site is integrated into a territorial development plan.

Methodology

In order to enhance the sharing of the intangible values of the landscape specific to the two mentioned sites, the theme of beauty appears to be central. The projection of beauty as a means of conveying intangible heritage is crucial in fostering mutual understanding among peoples and preventing conflicts, as already outlined in the Preamble and Article 1, point 2.a, of the Constitution of the United Nations Educational, Scientific and Cultural Organization (UNESCO, 1945). It is a form of Eastern beauty communicating with the West and vice versa, aiming for cultural exchange and mutual appreciation.

In this way, the twinning of the managing entities of the two sites represents the first attempt at cooperation between a Chinese and Italian UNESCO site, respectively ranking second and first in the total number of UNESCO sites worldwide. As of September 2023, China possesses 56 sites designated as World Heritage, second only to Italy with a total of 58 (UNESCO, 2023). Therefore, this initiative holds great significance in terms of a potential integrated management approach, which also embraces mutuality as an approach, given that these assets are now World Heritage and must be open to the integration of practices and actions from beyond national borders. This is essential for understanding how cooperation can be achieved within both the potential and limitations. From this perspective, the two managing entities will need to work towards understanding each other's values, even within the legal and regulatory framework (e.g., adopting or implementing landscape and planning plans), social (e.g., implementing cooperative societies), and economic (e.g., innovation) contexts that characterize them. Thus, management should aim to strengthen multiple fronts, not just the more straightforward aspect of tourism.

In this context, a concrete initial step toward a first dialogue on the specific intangible values of the two cultural landscape assets could be the installation “Abbraccio di Luce” (“Embrace of Light”), developed by Repetto, Chen, and Aimar in 2019 and still ongoing (Aimar & Repetto, 2022). The central principle driving this installation is the pursuit of dialogue and understanding among peoples, as indicated in the Text of the Convention for the Safeguarding of the Intangible Cultural Heritage by UNESCO (UNESCO, 2003, art. 16), and in the founding principles of UNESCO (Meskell, 2013). It is based on embodying values such as openness, inclusivity, dialogue, and visibility, attempting to reconnect the North and the South of the world and communicate these values through a contemporary language to the new generations.

The “Cultural Landscape of Honghe Hani Rice Terraces”: the site area

Yunnan is characterized as a relatively economically disadvantaged region, supported by various Chinese initiatives aimed at combating poverty. Within Yunnan, one can find the Honghe Hani and Yi Autonomous Prefecture, which had a total population of approximately 4.5 million people as of June 2021 (Honghe State Bureau of Statistics, 2021, art. 1). In this area, some traditional artisanal crafts, such as embroidery and clothing dyeing, are still practiced by a local women’s cooperative. Often, it is the female workers who maintain the two-tiered water system, including communal reservoirs, to ensure that the rice paddies receive the right amount of water. This water system is a heritage passed down from their ancestors and was not established later through state initiatives.

Within this social context, it’s important to note that the Hani ethnicity does not possess a written language. All knowledge is transmitted orally, including their religious beliefs. In these beliefs, there is a profound reverence for natural elements, as seen in the so-called ‘Sacred Forest’ in the village of Azheke, where nature itself is the true deity, and entry is forbidden to anyone but the Hani people (Fig. 2). Members of this ethnicity also have their own songs, dances, and poetry, with the latter often being sung. These songs serve to pass down stories and events from the past, preserving them in the collective imagination.



Figure 2. ‘The Sacred Forest of the Village’, located in the Honghe Hani and Yi Autonomous Prefecture and included in the “Cultural Landscape of Honghe Hani Rice Terraces” World Heritage site (source: Ming Chen).

Therefore, in the installation “Abbraccio di Luce,” curated by Repetto, Chen, and Aimar (2019-ongoing), the key concept for its definition is the relationship it seeks to establish with the landscape.

Due to the water content in these terraced rice fields, the landscape is incredibly dynamic. It undergoes changes not only with the four seasons but also throughout the day, not to mention how different angles alter its perception. As flooded terraces, light reflects off the water, creating ever-changing patterns. Therefore, the first step is to understand the proper use of artificial light, including its intensity, tone, warmth, and consistency with the backdrop of the local Chinese landscape it intends to relate to.

The terraced rice fields of the Chinese UNESCO site extend across a mountainous terrain with an elevation difference of approximately 300 meters, ranging from 1500 to 1800 meters above sea level. There are many terraced areas, covering a larger area than what UNESCO recognizes as World Heritage, extending into four additional districts. The villages scattered throughout these rice fields are connected by a main road (Fig. 3). Given this context, the installation could potentially be located in the square in front of the Hani History and Culture Museum dedicated to the Hani minority, located in Kunming, in the Yuanyang district. From this location, one can already admire the rice terraces. Within the museum, there is already an exhibition space dedicated to the “Vineyard Landscape of Piedmont: Langhe-Roero and Monferrato” (UNESCO, 2014) site.



Figure 3. a typical Hani village in the “Cultural Landscape of Honghe Hani Rice Terraces” World Heritage site (source: Ming Chen).

Discussion

The Creation of New Landscapes: National and International Experiences

At the international level, there is a growing emphasis on hybrid initiatives that combine art (narrative) and technology (innovation) to enhance and connect sites of significant cultural and artistic value and to rejuvenate places with untapped potential.

This trend, viewed from a performative perspective associated with the narrative that

light can generate, can be traced back to the late 1960s. During that period, the 'Light & Space' movement emerged in California, founded by a group of artists, including James Turrell and Robert Irwin. This movement initiated research focused on sensory perception phenomena and the theoretical principles of phenomenology (Liuzzi, 2018). Within this context, subjective perception challenges one's consciousness, and the visitor becomes an integral part of the artwork, engaging them at a sensory and perceptual level. Turrell and Irwin, in their artworks, investigate the perceptual relationships of light between indoor and outdoor environments and how the viewer's vantage point and/or specific conditions influence the observer's perception. The 'Light & Space' movement, considered an evolution of Minimal Art from the 1960s and 1970s, gives rise to large-scale installations capable of engaging the audience in a sensory experience. Artworks are created that transform the every day into an exceptional event, as seen in Turrell's *Skyspace I*: a ceiling window in a white room that directs the viewer's gaze towards the sky, revealing all the infinite climatic and chromatic variables.

The immersive experiential artworks with a strong visual impact created and explored by artists such as James Turrell, Olafur Eliasson, and Anish Kapoor have turned "sensory stimulation" into an artistic pursuit, influencing the realms of contemporary culture and society. Beyond the attraction conveyed by a particular artwork, the viewer becomes engaged in a sense of the uniqueness of the moment they are experiencing.

The Danish artist Ólafur Eliasson expresses this concept as follows:

"In architecture and spatial arts, there has been a gradual understanding that the concept of an all-encompassing external 'vanishing point' (outside the body), seen as a common goal or perspective, has been fading away. This evolution has opened up the possibility of elevating an internal or personal vanishing point to a higher level. Consequently, we can relate more easily to space by relying on what I refer to as a 'reversed perspective viewpoint.' Since an internal or personal vanishing point can never be the same as another, as it resides within each of the diverse users, a higher level of personal experience can be considered." (Obirst, 2007, p. 21).

Art is, therefore, capable of stimulating elevated experiential levels, enabling the viewer to change their perspective, fostering new awareness, and envisioning new possible future scenarios.

In recent years, some installations seem to have been influenced in their concept by science fiction cinematography. Consider, for instance, the work "Portals," also referred to as a "Stargate" (inspired by the film of the same name directed by Roland Emmerich in 1994), connecting the cities of Vilnius, Lithuania, and Lublin, Poland. This portal was designed by engineers from the Creativity and Innovation Center at Vilnius Gediminas Technical University and was the result of collaboration between the Benediktas Gylys Foundation, the municipalities of the two aforementioned cities, and the Crossroads Center for Intercultural Creative Initiatives (Lento, 2021).

Both portals are equipped with large screens and cameras that transmit live images between the two European cities and aim to encourage people to reconsider the concept of unity. Their activation took place at the end of the pandemic in 2021, acquiring strong symbolic value. These two circular portals, located in the historical centers of Vilnius and Lublin, allow the respective citizens to see and interact with each other despite being over 600 km apart. Lastly, a variation of this theme is presented by immersive chambers, whose technological and dimensional evolution has involved the landscape, making them

landscapes in themselves. In this regard, there is also an Italian example of connections between territories through immersive chambers: “StargateBgBs” by the Giò Forma studio in 2023 (BresciaToday, 2022). These are two gigantic installations, towering up to 9 meters high, designed to symbolically connect Brescia and Bergamo, the European Capitals of Culture for 2023.

These symbolic gateways/portals, freely inspired by the science fiction film of the same name previously mentioned, are located in Piazza Vittoria in Brescia and Piazza Matteotti in Bergamo. They aim to connect the two cities through an immersive experience created using video screens and live streaming. Each portal displays real-time videos, creating a kind of digital window that transports those who pass through it to discover a specific location in the other city. The internal experience is complemented by an external one: a large mirror that reflects the viewer’s own city, enhanced with augmented reality effects, messages, and video-audio insights.

“Abbraccio di Luce,” the installation

Perception becomes meaning, and the landscape becomes a conveyor of new messages, establishing a new grammar of the human and cultural landscape. In this context, the project “Abbraccio di Luce” by Repetto, Chen, and Aimar (Fig. 4, left) finds its imaginative expansion. Here, design, art, architecture, and landscape become connectors of two geographically distant sites. The “Abbraccio di Luce” project involves two tetrahedral structures, equipped with luminous cannons at the top, designed to be experienced inside as immersive chambers. Its purpose is to connect the sites of Grinzane Cavour (Fig. 4, right), in the Province of Cuneo, Piedmont Region, Italy, and Azheke, in the Yuanyang County, Yunnan Province, China.

The Piedmontese site, being a serial property, consists of six components protected by two buffer zones. It represents a unique testimony to the history of viticulture and encompasses the entire range of technical and economic processes related to viticulture and winemaking that have characterized the region for centuries.



Figure 4. left, simulation with a scale model of “Embrace of Light” in the Umbrian Apennines in Volperino, Umbria, Italy (source: Diego Repetto); right, simulation with a scale model of Embrace of Light with the background of the Castle of Grinzane Cavour, Piedmont, Italy (source: Diego Repetto).

On the other hand, Yuanyang County in Yunnan Province is renowned worldwide for its stunning terraced rice fields that cascade down the slopes of the Ailao Mountains to the banks of the Hong River, the Red River. It features exceptional geometric shapes in its landscape, the result of joint efforts by the Hani ethnic minority, who over 1,300 years developed an irrigation canal system connecting the mountain forests to the terraced fields. This has contributed to the creation of an integrated agriculture system focused on the production of red rice. In addition to the significance of the agri-food economy, which is a common point between the two sites and has contributed to the uniqueness of their landscapes, the sharing of cultural values through participatory Land Lighting and Land Art initiatives, where new artistic and social values can be explored, represents a possible next step.

The “Abbraccio di Luce” project aims to contribute to international cooperation in the cultural and tourism sectors between the two UNESCO sites in Italy and China, fostering a dialogue through active cultural and creative exchange. The project involves the construction of two truncated golden pyramids, to be placed, respectively, in the Langhe-Roero and Monferrato macroregion, potentially in the square in front of Grinzane Cavour Castle, Province of Cuneo, Piedmont Region, Italy, and the other in front of the Hani History and Culture Museum, Yuanyang County, Yunnan Province, China. These two structures, positioned facing each other, each contain a projector strategically placed so that their beams of light ideally intersect in an embrace (Fig. 5).



Figure 5. simulation with a scale model of “Embrace of Light” in the Umbrian Apennines in Volperino, Umbria, Italy (source: Diego Repetto).

The external finish of the cladding, whether matte or reflective, is in a gold effect, symbolizing prosperity and fortune in the twinning of the two UNESCO sites. As the seasons change, as the hours of the day pass, and with varying weather conditions, the structure of “Abbraccio di Luce” harmoniously integrates with its surroundings, engaging in a dialogue with the context and creating ever-changing effects. This provides the hosting territory with a new perspective. Being two immersive chambers, these structures are innovative systems for experimenting with the perception of the landscape. Each structure provides real-time visibility into what is happening inside the other twin structures. In this way, the two sites enhance their ability to exist, becoming true laboratories for interpreting

the territory. They culturally and empathically connect individuals and places by sharing emotions beyond the constraints of physical space.

“Abbraccio di Luce” aims to foster a creative international dialogue between Italy and China with the collaboration of young artists, designers, and computer scientists from both countries, facilitating encounters and exchanges between diverse cultures. This work, blending Land Art, Land Lighting, and immersive art, embraces scientific and technological experimentation to create new symbolic values and activate the imagination. It promotes people-to-people connectivity and generates new forms of collaboration on themes of culture, science, innovation, and tourism among young individuals.

Conclusion

In conclusion, this research explores the intrinsic connection between tangible and intangible cultural heritage, emphasizing the need for integrated approaches to preserve and promote these invaluable assets. Drawing from the UNESCO definition of “Intangible Cultural Heritage” (2003), relational art connective systems provide the opportunity to transmit cultural values that strengthen a sense of identity and continuity from one generation to another. They encourage respect for cultural diversity, human creativity, sustainable development, and mutual respect among communities. The twinning of the Italian and Chinese World Heritage sites, the “Cultural Landscape of Honghe Hani Rice Terraces” in China and the “Vineyard Landscape of Piedmont: Langhe-Roero and Monferrato” in Italy, serves as a promising step towards mutual cooperation, sharing of cultural values, and fostering a deeper understanding of intangible heritage. Both sites exemplify the strong connection between people and their environment, with unique intangible cultural heritage elements. The artwork “Abbraccio di Luce” (Repetto, Chen & Aimar, 2019-ongoing) aims to align itself with this approach, emphasizing the need for an integrated management approach that transcends national borders.

The “Abbraccio di Luce” installation exemplifies the potential for art and innovation to bridge cultural gaps and create meaningful dialogues in a rapidly changing world. It is a testament to the power of intangible heritage to connect people, places, and emotions, transcending physical boundaries and enriching the cultural landscape. In this artwork, visitors become an integral and essential part of the piece, allowing them to engage in dialogue despite the kilometers that separate them, fostering new connections. In this case, art leads to cross-border common participation, where sharing symbolizes friendship among people. The immersive artwork mentioned thus becomes a vehicle for the intangible cultural heritages that characterize two important UNESCO cultural landscapes: the rice terraces cultivated by the Hani ethnic group in Yunnan Province, China, and the vineyard landscape of Langhe, Roero, and Monferrato in the Piedmont Region, Italy. It aims to contribute to the representation of the practices, expressions, knowledge, and skills of local communities.

In essence, this paper encourages a deeper appreciation of the interplay between tangible and intangible cultural heritage and the potential for collaboration in preserving and promoting these rich legacies for future generations.

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Expeditive integrated survey: The Castle of Terrarossa

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Abstract

This research lays its foundations on the scientific-disciplinary contents that concern the detection and representation of cultural and architectural heritage, capable of reconstructing the processes and historical transformations that affected the object of study. Analytical and synthetic act of knowledge of the reality of the geometric, design and chromatic values existing at different reading scales, as a control tool aimed at documentation and valorisation of the heritage from the urban scale to that of the single detail.

The study involved the testing of various advanced, integrated and rapid survey instruments in an urban environment. Specifically, the results of the survey of the Malaspina Castle of Terrarossa located in the municipality of Licciana Nardi in the province of Massa-Carrara are reported. The survey was carried out using terrestrial laser scanners and aerophotogrammetric drones for the comparison of the different types of instruments used and the results obtained.

Abstract

La presente ricerca pone le sue fondamenta sui contenuti scientifico-disciplinari che riguardano il rilevamento e la rappresentazione del patrimonio culturale e architettonico, in grado di ricostruire i processi e le trasformazioni storiche che hanno interessato l'oggetto di studio. Atto di conoscenza analitico e sintetico della realtà dei valori geometrici, disegnativi e cromatici esistenti alle diverse scale di lettura, come strumento di controllo volto alla documentazione, valorizzazione del patrimonio dalla scala urbana a quella del singolo dettaglio.

Lo studio ha previsto la sperimentazione di diverse strumentazioni di rilievo avanzato, integrato e speditivo in ambiente urbano. Nello specifico si riportano i risultati del rilievo del Castello Malaspina di Terrarossa sito nel Comune di Licciana Nardi in provincia di Massa-Carrara. Il rilievo è stato effettuato attraverso l'utilizzo di laser scanner terrestri

e aerofotogrammetrico da droni per la comparazione delle diverse tipologie di strumenti utilizzati e dei risultati ottenuti.

Introduction

The research falls within the methodology of the survey of historical building heritage through the integrated use of different types of instruments for the complete representation of a 3D model. The digital model is configured to be structured with further parameters highlighted by the historical, urban reading, morphology of the shape of the color and materials and criticism inherent to the functions. The case study presented in the paper is the survey of the Terrarossa Castle, Municipality of Licciana Nardi. The building appears to be inserted within a scattered urban fabric of medieval origin in the province of Massa-Carrara. The survey project which began with the first on-site inspections highlighted that some parts of the building were not accessible with traditional survey methods. The work conducted with the integrated use of the 3D static laser scanner and RPAS photogrammetry confirms the reliability of the approach. The tools were compared in the data acquisition, processing and return phases for their metrological precision of the 3D model, ease of use of the tools, costs of operations, usability and accessibility of the places.

Photogrammetry from RPAS for the acquisition of geometric and multiscale metric information and data is suitable for photogrammetric surveying in the architectural and detail field.

Case study

Territorial framework and historical notes

The feudal castle of Terrarossa in the municipality of Licciana Nardi (MS), built in 1581, is one of the largest existing residences built by the Italian noble Malaspina family. Located in the extreme eastern part of the village of Terrarossa, its main façade overlooks a square along the SS62 state road, the northern side overlooks the ancient village, the southern side overlooks land and the eastern side overlooks the Civiglia torrent.

The building, subject to restoration and reuse⁽¹⁾, with a project by the Municipality of Licciana Nardi, has been open to the public since 2011 as a documentation and promotion center for the territory, with rooms intended for conferences, cultural events and activities promoted by the municipality and the province.

The fortified historical complex, which extends over an area of 1250 square metres, is a building built on a composite square-shaped scheme with four corner bulwarks, the two overlooking the Civiglia stream are covered terraces, while the ones overlooking the SS62 road, have roof coverage. The three-storey building above ground consists of three buildings and a central courtyard. The presence of an internal courtyard, which is accessed from the main entrance, gives the plan a U-shape. The different heights of both the bulwarks and the lateral buildings are attributable to the incomplete construction of the castle (Fig.1).

The external façades, made up of river pebbles and squared stone at the corners, have

(1) The intervention in question involves the completion of the restoration and conservative redevelopment works of the Terrarossa castle, with a view to its reuse and evaluation in cultural terms. "Restoration and Reuse of the Terrarossa Castle: Porta della Lunigiana, Natural Library - Center for documentation and promotion of the territory" organized by the Municipal Administration of Licciana Nardi - <https://www.comunelliccianardi.ms.it/home-page-castello>

rectangular openings arranged on a symmetrical axis on the various floors, of which only some have retained the stone frame. On the main facade there is an arched portal made of ashlar sandstone blocks which gives access to the internal courtyard. The only decorative element is a sandstone cord that surrounds the entire building at the height of the first floor and concludes the slope of the lower part. The horizontal structures are made up of cross vaults made of river stone like the vertical structures. An exception in terms of materials is the pavilion vault with nails in the main hall, built of brick.



Figure 1. Identification of the case study: Malaspina Castle of Terrarossa – Municipality of Licciana Nardi (MS) (Author's elaboration).

The current SS62 state road does not follow the old route that entirely crossed the village, but intersects it, isolating the Castle from the original building context (Fig.2).



Figure 2. Overlay of Historical Map and Google Maps satellite image which highlights the maintenance of the surrounding urban fabric and the clear separation from the Castle for the construction of the SS62 State Road. Historical map in which part of the section of Terrarossa, Costamala and Canalescuvo (Terrarossa Community) is drawn, Municipality of Licciana Nardi, reduction scale 1:1250, survey and representation by Becattini Giuseppe 1826, Sheet 385_Co1I, State Archives of Massa, Leopoldino Land Registry (Author's elaboration).

The castle was born in the 16th century to replace the residential functions of an old medieval fortification, located on a hill overlooking the confluence of the Caviglia and the Magra. The remains of this ancient castle, originally characterized by the toponym *Terrarossa*, are today incorporated into a residential building called *Castelletto*. In the 12th century, a new settlement developed along the *Via Francigena*, in the plain below the old *Terrarossa Castle*, defined by written sources as *Borgonuovo*. This settlement, described in 1126 as surrounded by walls and equipped with a church dedicated to San Giovanni, develops on both sides of the road. Over time, *Borgonuovo* welcomed the population who originally lived around the medieval castle, inheriting its toponym: *Terrarossa*. Even in the 16th century, the two localities of *Borgonuovo* and *Terrarossa* were distinct in written documentation. In 1581 the independent fiefdom of *Terrarossa* was established and assigned to the Marquis of Pontebosio, Fabrizio Malaspina. The Marquis had the *Terrarossa Castle* built as his residence, adjacent to the *Via Francigena*, then Roman, and near the “*hosteria*” which functioned as an inn and commercial toll collector; this location is to be ascribed to strategic reasons and to the Marquis’s interest in the cultivation of mulberry trees and related to the breeding of silkworms for which the rooms on the ground floor of the building were intended⁽²⁾.

The Castle project was created following the quadrilateral scheme used for the Castle of Pontebosio. However, the imposing structure was not completed and was handed over to the Grand Duke of Tuscany (Fig.3).

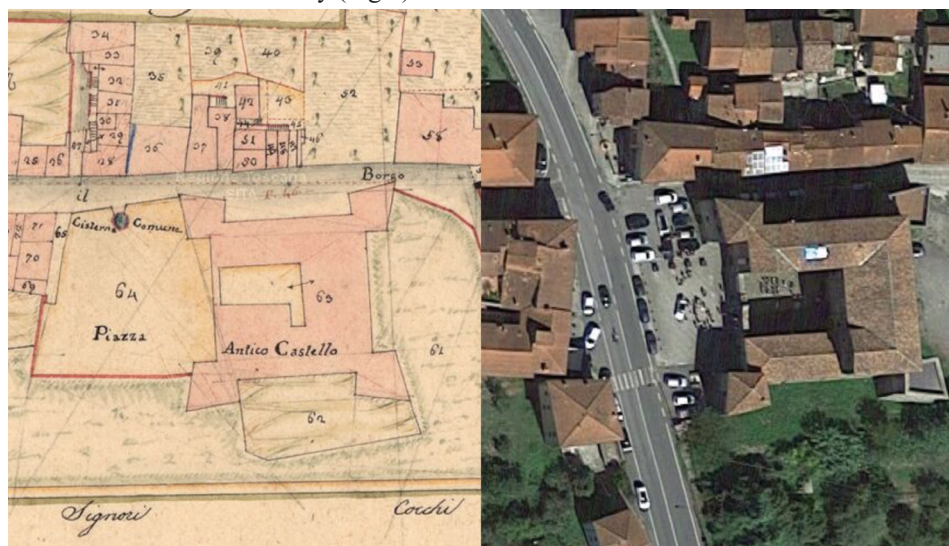


Figure 3. Comparison of the plan of the *Terrarossa Castle* in a cadastral representation from 1826 and satellite image from Google Maps; Excerpt from the survey and representation by Becattini Giuseppe 1826, Sheet 385_Coil, State Archives of Massa, Leopoldino Land Registry; reduction scale 1:1250. (Author’s elaboration).

The integrated survey with 3D laser scanner and drone aerialphotogrammetry

The development of the research had as its main objective the experimentation of different methodologies and instruments for rapid advanced surveying in an urban environment

(2) E. Branchi, *Storia della Lunigiana feudale*, Pistoia 1897; volume II da pag. 779 a pag. 821; E. Repetti, *Dizionario geografico fisico storico della Toscana*, Firenze 1843, volume V pag. 516-517-518; A. Zuccagni Orlandini, *Atlante geografico, fisico e storico del Granducato di Toscana*, Firenze 1832, tav. III Valle della Magra.

and its restitution in a 3D model. The tools were investigated by verifying the quality, quantity and correctness of the data, the timing required for the correct acquisition flow and according to the different methods. The reliability of the geometric metric data in the field of surveying is an essential aspect, which is why the reliability of the instruments is fundamental. The investigation aims to highlight the precision and accuracy in the restitution of the point clouds.

Specifically in aerophotogrammetry, the investigations were aimed at knowledge and improvement of piloting through manual and automatic flight missions with the use of Mavic Pro Platinum⁽³⁾ through the DJI go4 program and the D-Flight website. Metashape software was used to process the data collected.

For the survey using the static laser scanner, the Leica Geosystem BLK360 laser scanner was used⁽⁴⁾. Cloud Compare software was used to compare the point clouds. To evaluate the processing times of the survey during the acquisition phase, data acquisition was started at the same time through the use of RPAS (Remotely piloted aircraft system) and static laser scanner.

Aerophotogrammetric acquisition and data processing

The use of an RPAS requires verification of the feasibility of the flight with particular attention to the ENAC regulation⁽⁵⁾, type of scenario, safety analysis and any permits/authorisations. The identification of the site on the georeferenced maps, with geographical zones and expected flight limitations, ascertained that flight operations in the area under study are permitted up to the maximum altitude of 120m AGL.

The flight planning was divided into two sessions. The first manual in FPV mode for greater control of the instrument and immediate selection of photographic shots and the second automatic in waypoints mode previously set via a flight path in Google Maps for acquiring the coverage of the castle. For complete coverage of the image matching, the type of photogrammetric survey requires an overlap of consecutive images (overlap) along a guideline of 60-80% and an overlap of two adjacent lateral frames (sidelap) of 70%. To ensure post-flight data processing, aimed at satisfying an excellent correspondence of the real geometric metric data translated into a representation scale suited to the required detail, the flights were carried out with horizontal axes for the elevations and with nadir axes for the coverage maintaining a maximum equidistance of 5 metres. A series of shots with the camera oriented at 45° complete the acquisition operation of the entire castle in a dataset of 300 photographic shots. Acquisition times were approximately one hour.

The processing of the photographic shots within the Metashape software required a complete process of approximately three hours. The workflow included the insertion of control points to increase precision in subsequent alignment processing. Once the sparse cloud has been created, I start the process for the dense cloud by searching for the number of combined “calculate point confidence” depth maps for each point, the graph shows the reliability of the data. We note how the correctness of the cloud restitution is based on strong data. The textured model project starts (Fig.4).

(3) DJI Mavic Pro Platinum – Hasselblad cameras: Sensor: 1”CMOS, effective pixels 20MP; Lens: FOV approx. 77°, 35 mm format equivalent 28mm; Aperture: f/2.8-f/11; Max image size: 5472x3648; Photo: JPEG, DNG (RAW).

(4) Laser Scanner BLK360 Leica – Caratteristiche confrontate con il RPAS - Portata: da 0,6 a 60 metri; Velocità di acquisizione 360.000 punti al secondo; Accuratezza punto 3D = 6mm a 10m / 8mm a 20 m.

(5) <https://www.enac.gov.it/sicurezza-aerea/droni>

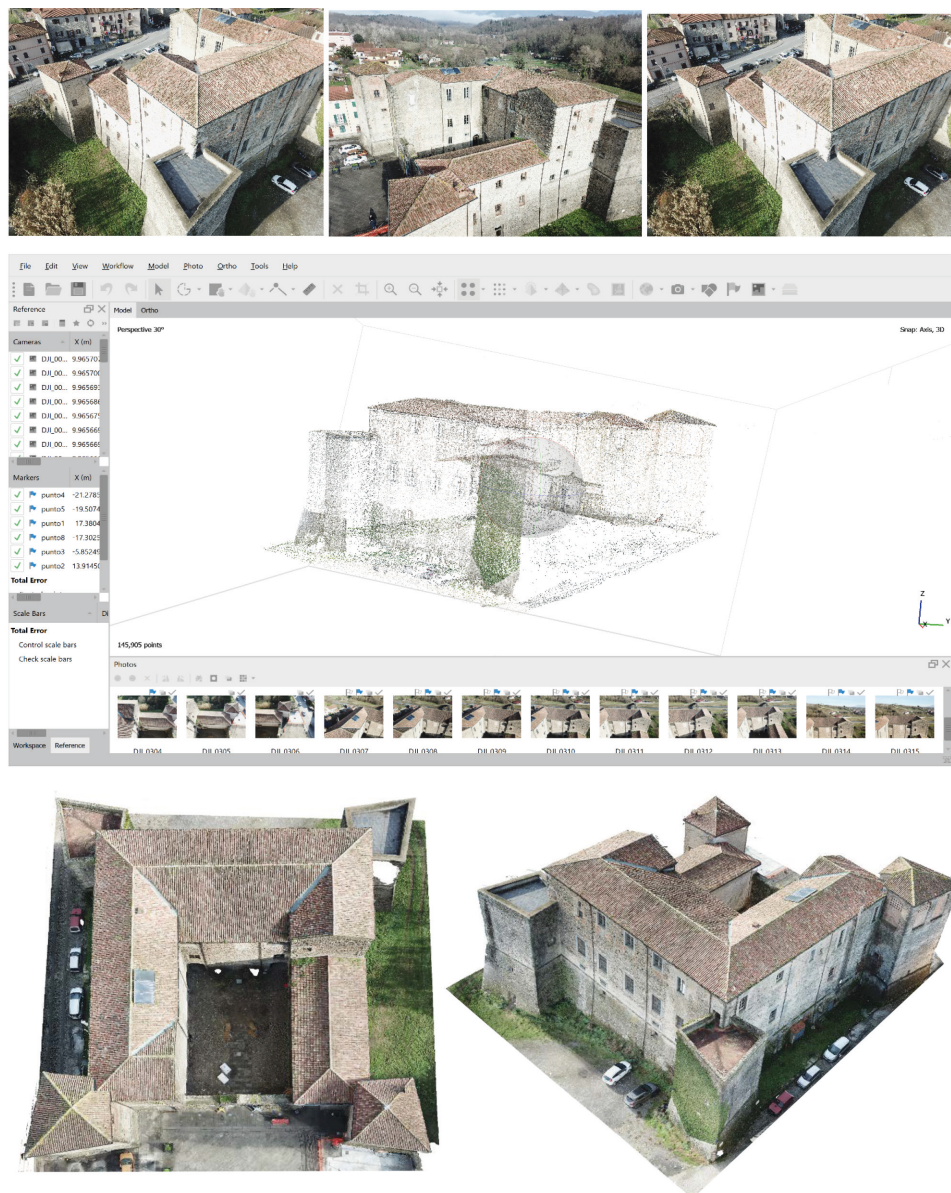


Figure 4. Drone photogrammetric survey workflow: from data acquisition, to processing and return of the textured 3D model of the Terrarossa Castle in Licciana Nardi (Author's elaboration).

Static laser scanner acquisition and data processing

The scans were carried out with a Leica Geosystem 3D solution Reality Capture system which allows the acquisition of 3D data, the recording of the final data and the immediate visualization of the alignments with the BLK 360 image laser scanner. Approximately

20 scans have been planned placed along the perimeter of the castle. All surfaces were sampled except for some portions of the bastions and roofs. Importing and recording the individual point clouds and processing the raw data on a tablet took approximately 3 hours. To speed up the work, the first cloud to cloud alignment was performed during the survey. Each single set up was linked to the next for the generation of the cloud which was cleaned of disturbing elements and excess acquired data. The display of the scattered cloud on the tablet helps the operator to understand whether the scans performed are in sufficient number to completely overlap the scanning polygon. Once the complete cloud has been defined, I import the pre-registered bundle into the software and verify that the clouds have been correctly aligned with a maximum error of 3 mm.

Comparison of the two point clouds

The entire survey was carried out, deliberately, in the absence of GNSS coordinates to verify the maximum error obtainable when returning the 3D model. Once the two point clouds were aligned within the compere cloud software, the overlap highlighted a deviation in plan of 9 cm on the north side over a length of 40 metres. It should be noted that the survey of the north elevation was carried out with full shadow and in a particularly narrow area with difficulty in moving with the drone. In the second processing of the point cloud derived from the aerophotogrammetric survey, geometrically measured reference distances were inserted for the correct scaling of the model. The overlap of the resized cloud with that of the laser scanner highlighted a deviation of 2 cm. In the final 3D model, the overlap of the orange laser scanner cloud with the aerophotogrammetric one is defined (Fig.5).



Figure 5. *Overlay of the laser scanner point cloud colored in orange with the aerial photogrammetric one to verify the overall accuracy of the project.(Author's elaboration).*

Having verified the reliability between the two point clouds brought together in a single project, the deviation values appear to be acceptable for the representation of the orthoimages of the elevations, the roof and the three-dimensional model of the Castle. (Fig.6).



Figure 6. Representation of orthoimages extracted from the aerophotogrammetric point cloud: a. East elevation; b. West elevation; c. north elevation; d. south elevation. (Author's elaboration).

Conclusion

The article illustrates a methodological process of three-dimensional survey through the use and integration of various advanced instruments for data acquisition and dedicated software for the processing and geometric restitution of the Terrarossa Castle. The process highlights how the integrated use of instruments is to be preferred in all those complex operations included in the digital reconstruction of the historical architectural heritage.

The work conducted confirms the reliability of the integrated approach of the 3D static laser scanner and RPAS photogrammetry. In particular, the use of drones for ease of use, costs of operations, usability and accessibility of places were fundamental. The instruments were compared in the data acquisition, processing and return phases for their metrological precision of the 3D model.

The acquired data can be used for the virtual reconstruction of the Castle, decreed as one of the 14 gates of the Tuscan-Emilian Apennines National Park, for the valorization of the peculiarities of the Lunigiana territory.

Acknowledgment

The author thanks the Geom. Giovanni Maulicino for the technical support during the data acquisition and graphic rendering phase of the Castle through the use of the Leica Geosystem 3D solution Reality Capture system.

This research is an integral part of the research: Digital representation through advanced detection. Documentation, valorisation and educational processes for heritage through digital innovation. Scientific director: Prof. Giulia Pellegrini - Department of Architecture and Design - University of Genoa.

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The representative of urban margins in history for the understanding of the contemporary city

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Abstract

Traditionally, the urban edge of the historical city was clearly defined by signs on the territory: the walls were the physical expression of this desire for separation and protection, a symbol of belonging and power. Suppose the city boundaries and territories retain significant importance from a legal point of view, from the physical point of view. In that case, the peri-urban landscapes do not configure more as limits to the city. Still, they are the connection between rural and urban areas that can generate new opportunities and, thanks to the absence of a recognisable identity, space for creating unique and original urban landscapes. The drawing of the city stands today as a fundamental tool for the analysis and understanding of these landscapes: the article, after a brief historical overview of the representation of the town, wants to point out how the drawing can be a valuable tool for understanding and interpreting these landscapes.

The article highlights how necessary a correct representation (either with traditional methods or with those provided by information technology) is to reach a deep understanding of a territory: an essential process to enable the changing of these sensitive urban landscapes.

Abstract

Tradizionalmente, il confine urbano della città storica era chiaramente definito da segni sul territorio: le mura erano l'espressione fisica di questo desiderio di separazione e protezione, simbolo di appartenenza e potere. Se da un punto di vista giuridico i confini e i territori della città mantengono un'importanza significativa, dal punto di vista fisico, i paesaggi periurbani non si configurano più come limiti alla città ma sono il collegamento tra aree rurali e urbane: spazi per la sperimentazione e per la creazione di paesaggi urbani nuovi e originali grazie all'assenza di una propria identità riconoscibile. Il disegno della città si pone oggi come strumento fondamentale per l'analisi e la comprensione di questi

paesaggi: l'articolo, dopo una breve panoramica storica sulla rappresentazione della città, vuole sottolineare come il disegno possa essere strumento utile per la comprensione e l'interpretazione di questi paesaggi.

L'articolo si propone di evidenziare quanto sia necessaria una corretta rappresentazione (sia con metodi tradizionali che con quelli forniti dall'informatica) per raggiungere una profonda comprensione di un territorio: processo essenziale per consentire il cambiamento di questi delicati paesaggi urbani.

Introduction

The margins of modern cities are no longer configured as physical limits between the built and the countryside, a clear sign on the territory represented by a borderline. Losing their defence function, they have also lost their representative function of the city, transforming themselves into a growth fabric often outside any urban control. This type of development (which began in the nineteenth century following the demolition of the ancient city walls) has generated urban areas devoid of traditional value and meaning. The people who live there do not recognise them in the city's image; this detachment has spread the abandonment and degradation phenomena that characterise large cities' peripheries. However, these crisis spaces lend themselves to being areas of interesting experimentation where architectural redevelopment is an essential tool to solve the problem of the absence of identity of these spaces with obvious repercussions on the quality of life of local populations.

This article will analyse the connection between these places' design and urban margins' design. Drawing, a fundamental tool for every architect, here is analysed not only from a formal point of view of techniques used but also in its meanings, a means to synthesise the information relating to a space and, therefore, the first and direct form of analysis based on the perception of the place.

Historical analysis of the merge of the city through their drawings and their meanings

In the first place, however, it is necessary to try to answer a question: how have urban margins been represented throughout history? This question is critical to understanding how these change from a formal, perceptive and material point of view. This collection of images helps understand the evolution of the meaning of these margin tissues linked to representation: a valuable process for determining how the picture can change their perceived image. On the mosaic floor, preserved at the Yale University Gallery, we can see the cities of Alexandria and Memphis, surrounded by their defensive walls: they were the urban edge, a clear sign of the border between the city and the countryside, a symbol of power and defensive element. Land cities, drawn in pseudo-axonometry in an aerial vision that helps us to read them in their entirety, are represented through their symbolic elements: a temple with columns is visible and, despite the simplicity of these drawings, we can locate numerous information about the city such as, for example, the use of stone materials in constructions: mura, towers, entrance doors are made of stone blocks in different colours.

The city is represented as isolated and surrounded by floral and vegetable details: everything happens within the walls. The surrounding landscape is an element that does

not come into contact with the city; a few colours are used: brown, ocher, and land of Siena, all on a white background.

In the mosaics of Sant'Apollinare, the classroom walls are the protagonists of the anniversary of the port; they contain and protect the whole city. The design is flat but rich in architectural details; the sequence and the overlapping elements give depth: different types of buildings make up the urban fabric. The colours used belong to the range of browns, with some elements in white and grey that help to make them stand out in the context. Some natural elements, such as the sea and the lawn outside the walls, help define space and are represented in their natural colours. At the same time, the sky is made with gold-coloured tiles, a characteristic element of Ravenna mosaics that gives sumptuousness and importance to the religious structure that houses them.



Figure 1. Mosaic Floor with Views of Alexandria and Memphis A.D. 540 Source: YALE University Gallery.



Figure 2. Ravenna: mosaici di Sant'Apollinare Nuovo, il porto di Classe IX sec.

In the Middle Ages, even the historic walls played an important symbolic role in the city's identity. Giotto's frescoes in Assisi are the setting to tell the most important moments of the life of St. Francis. The drawing is rich in details and communicates much information about the city, even if the representation remains powerfully symbolic: materials, decorative elements, and colours. Outside the city walls, the landscape is barren; the terrain is rocky, rugged and almost devoid of vegetation except for some

arboreal elements represented schematically: on the contrary, the city is perched, dense with buildings while rising to the sky with colourful pieces and architecture rich in details.



Figure 3. Giotto, 1292-1296 *History of San Francesco*.



Figure 4. Simone Martini, *Giudoriccio da Fogliano all'assedio di Montemassi*, Palazzo pubblico di Siena 1330.

Simone Martini also reproduces an interpretation of the city walls, which, in addition to being influenced by Giotto's style, takes up the same principles. The city walls still have a defensive function but begin to be inserted in a more elaborate external environment: the contextualisation of these elements and their use as a scenography for the representation testify to a change in perception of these elements towards dialogue with the context. The city is inserted in a verdant landscape where some plant elements are inserted; the attention to the orographic conformation of the territory shows a first

interest in the theme of the landscape but still in co-representation and separated from the urban fabric.



Figure 5. Braun and Hogenberg *Civitates orbis terrarum* 1572: Genova Source: Historic Cities Center of the Department of Geography, the Hebrew University of Jerusalem and the Jewish National and University Library.



Figure 6. Jan Massys of Metsy *Venus Van Cythera*.

In the Braun and Hogenberg *Civitates orbis terrarum* (1572), the city of Genoa and its walls are drawn in aerial perspective and are represented in their entirety: we can recognise squares, streets and monuments. The whole city is set in their landscape from the sea to the mountains, with particular attention to natural details. Although the city maintains its importance in this narrative, we pay great attention to points and the representation of the town's plant elements. In particular, the formal garden theme is addressed with specific accuracy: the shapes of the spaces and the architectures that compose them are clearly described. This type of depiction wants to tell the city and its political-military power through the representation of its architectural beauty and landscape. The walls are still an essential element in the urban fabric for their role of defence of the city, so they are designed with attention to proportion and details that turn out to be plausible. The city, however, is no longer an isolated element but is inserted in a context that is now represented with the same care with which the town is described: the mountains

surrounding the city of Genoa are recognisable, the firm places in defence of the same and the first urban settlements outside the walls.

Moreover, another critical urban margin of the cities in this representation is the sea with its port symbol of the city's economic power. In the picture, there are also different types of boats. In the Turin Plan by Michel Angelo Morello (XVII century), we can recognise all the elements of modern cartography: plan design, scale proportions, use of graphic symbols and legend. The scientific revolution has transformed the design of the territory into science with precise rules and tools: even if the drawing is very accurate, in this type of representation, we have lost a lot of information that characterises the previous maps, such as colours and materials.

The representation of the landscape is divided into two distinct categories: the design of the territory is the material of cartography, while the landscape is the privileged subject of painting.

The city is inserted in its context, which is also represented with the same precision as the city. The level of detail in the design of the walls makes us understand the importance they still have as an urban edge. At the end of the eighteenth century and the beginning of the nineteenth century, the urban walls completely lost their defensive function. They were often incorporated into the expanding urban fabric. The first and most famous of the demolition projects of the walls was the case of Wien. With the removal of the historical barriers, ample tree-lined avenues (Ring) were built that surrounded the landmark city suitable for the city's needs of light and driveway spaces. This project demonstrates the change in the idea of a city from a closed element to a growing fabric. The historical walls, devoid of function, where they are not demolished, are abandoned and become ruins.



Figure 7. Michel Angelo Morello. Plan of Turin, sec. XVII: Istituto Storico e di Cultura dell'Arma del Genio di Roma.

In Ebenezer Howard's drawing "Garden Cities of Tomorrow" (1902), we can see the project of a utopian city that develops on lines in a radial way, representing the transport infrastructures serving the city. This vision of the future of cities gives us an idyllic image of normal development based on the growth of infrastructures that connect the centre with the suburbs, where greenery is the protagonist of the design. However, the contemporary

city has not grown as orderly and positive as in Howard's ideas: the absence of urban planning and the presence of contrasting functions have generated abandonment and degradation. As imagined by Bruno Taut, the city's boundaries have dissolved in areas of towns without a formal identity characterised by buildings intended for housing.

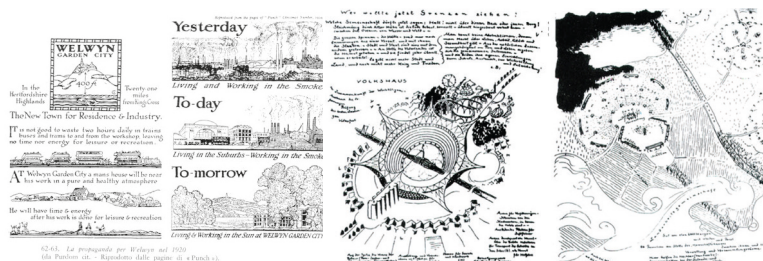


Figure 8. Ebenezer Howard "Garden Cities of tomorrow" (1902), Bruno Taut, *La dissoluzione della città* 1916-19..

In reality, the continuity between city and countryside in the garden city, overcoming the dichotomy between city and country, has not been realised in favour of urban fabrics without an organic design.

Philipp Ebeling's photographic project captured these contrasts: his images make evident the conflict of functions generated between infrastructures, spaces devoid of projects and the population living on the outskirts of large cities.



Figure 9. Philipp Ebeling: *London ends* Photographic Project 2016.

Conclusion

"Il catalogo delle forme è sterminato: finché ogni forma non avrà trovato la sua città, nuove città continueranno a nascere. Dove le forme esauriscono le loro formazioni e si disfano, comincia la fine delle città" Italo Calvino.

It is necessary to see in the variety of marginal landscapes an opportunity to try to understand their complex dynamics and transform them into the terrain to experiment with a new model of development according to the urban and rural landscape dynamics.

The contemporary city does not need the reconstruction of new boundaries but projects for these margin landscapes to establish dialogues generating new solutions for the city. A new image of the city without barriers can merge into the context to give new solutions to the needs of the contemporary city that must be able to offer in light of the demands generated by the pandemic.

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Pictograms and Animation in visual narratives: information and communication potential

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Abstract

The present work, part of the Author's doctoral research, presents an overview of the preparatory studies conducted, regarding the state of the art of the use of pictograms combined with animation, exploring the communicative potential of their combination in particular situations. As pointed out by Adrian Frutiger, the needs of human communication have determined an indispensable return to the use of signs and symbols in the contemporaneity, to establish a faster transfer of information and to overcome linguistic differences or other difficulties of communication. Alongside, in the recent decades the increasing use of audio-visuals simplify the transmission of complex contents thanks to the dynamic display, allowing an explanation of the temporal articulation thanks to the movement and the possibility of introducing the sound element. Then, the examples presented show different ways in which animated pictograms have been used with different aims and have allowed the development of some considerations, constituting the basis for the subsequent elaboration of the experiment.

Abstract

Il presente lavoro, parte della ricerca dottorale dell'Autrice, presenta una sintesi dello studio condotto sullo stato dell'arte per quanto riguarda l'uso dei pittogrammi abbinati alle tecniche di animazione, esplorando il potenziale comunicativo della loro combinazione in particolari situazioni, propedeuticamente alla successiva fase sperimentale. Come evidenziava Adrian Frutiger, le necessità della comunicazione umana contemporanea non possono fare a meno del ricorso all'uso di segni e simboli, principalmente allo scopo di trasferire più velocemente ed efficacemente le informazioni e superare differenze linguistiche e altre difficoltà di comunicazione. Parallelamente, negli ultimi anni il crescente e sempre più diffuso utilizzo di contenuti audio-visivi semplifica la trasmissione di contenuti complessi grazie alla possibilità data dal movimento di visualizzare in maniera dinamica la sequenzialità delle informazioni e all'introduzione dell'elemento sonoro. Gli

esempi presentati, dunque, mostrano differenti casi nei quali pittogrammi animati sono stati utilizzati a scopi diversi, consentendo l'elaborazione di alcune considerazioni e costituendo la base per il successivo sviluppo della sperimentazione.

Introduction

Within the framework of the Author's doctoral research⁽¹⁾, it has been deepened the theme of pictograms in contemporary communication, starting from the analysis of the most renown examples to come to the exploration of their possible use in alternative ways. In fact, in the aim to investigate new strategies for communication and information with passengers on board great ships, the research has considered the practicability of the use of animation and videoprojection as a mean to convey information more effectively than how commonly happens, as highlighted by interviews and surveys on the field.

This brief work presents an overview of the preparatory studies conducted, regarding the state of the art of the use of pictograms combined with animation, exploring the communicative potential of their combination in particular situations, to later assume a declination of their use on board.

Pictograms: call for clearness and universality.

As pointed out by Adrian Frutiger in his book "Signs and Symbol – Their design and Meaning"⁽²⁾, the complexity of the contemporary world presents situations in which the needs of human communication have determined an indispensable return to the use of signs and symbols. Evolved from the past and properly used depending on the occasion, the signs indeed allow to establish a more effective communication even in situations where the spoken or written language would be excessive or unsuccessful. (Frutiger, 1998). According to the author, among the main reasons for the return to forms of communication based on symbols there are the need for a faster, if not immediate, transfer of information from the sender to the receiver; the necessity to limit the size of signs; finally, the need to overcome linguistic differences, relying on elements of easy interpretation in the aspiration to universality of communication (Frutiger, 1998). As well renown, we owe to Otto Neurath and Gernd Arntz the first, revolutionary approach to the development of a visual communication system based on pictograms, icons, and symbols in the contemporary history (Neurath, 1936; Paris, 2020).

Their ISOTYPE system, designed between 1925 and 1934, aimed to achieve universality of communication through adherence to well-coded rules both as regards the use of shape and colour (representation based on orthogonal projections, colours limited in number and combinations, high contrast between figure and background), which were to ensure the maximum effectiveness of communication with the minimum effort of interpretation by the user (Menchetelli, 2019; Curti, 2020). At the basis of almost any representation system for the realization of infographics and signage systems, the signs devised by Neurath and Arntz had important influences on all the subsequent graphics and continues to have effects in the contemporary, not only regarding the issue of information

(1) Communication, orientation, and wayfinding aboard great ships. Towards an integrated and user-centred system. September 2023.

(2) Title of the English edition. The text refers to the Italian edition, as cited in the Reference section.

and orientation, but also shows repercussions on the organization of the now essential graphical interfaces of computers and other devices. (Menchetelli, 2019)

The widespread use of pictograms today makes it hard to imagine the possibility of visual communication without using these visual artifacts. In fact, halfway between icons and symbols (Falcidieno, 2006), they are still widely used in various areas where the primary purpose is to quickly convey information to a broad audience of users, often from different geographical and cultural backgrounds.

In this sense, the fields of information in occasion of global events, orientation and wayfinding in spaces for gathering of great number of people, or emergency indications offer some of the best-known examples of pictographic communication. For what concerns global events, they surely must be considered the Olympic Games: since the 1964 edition held in Tokyo, different sets of sport pictograms had been designed that have now become part of the collective imagination and are widely recognized by most audiences. On the first Japanese edition, which is believed one of the first global events in contemporary history, there was the need to satisfy all the requests discussed by Frutiger, starting from filling the deep cultural and linguistic gaps and providing appropriate information to all those involved in the event⁽³⁾. (Heskett, 2005; Pasca & Russo, 2005; O'Mahony, 2012) (Fig. 1).



Figure 1. Y. Yamashita and M. Katsumi, *Sports pictograms for the Tokyo Olympics, 1964* (Source: Olympic Museum.de). Retrieved on Sept. 15th, 2023, from <https://www.olympic-museum.de/pictograms/olympic-games-pictograms-1964.php>

(3) The theme of the evolution of Olympic pictograms in the history in relation to the design of the visual identity of the games was deepened by the author in the contribution to the proceedings of the IMG Conference 2021 Image Learning, entitled 1964 - 2020, From Tokyo to Tokyo. Heritage and actuality of pictographic communication. (Sorrentino, 2021).

The system designed by Yoshiro Yamashita and Masaru Katsumi, originally intended as a legacy for the future for the International Olympic Committee, began the practice of characterizing successive editions with communication systems each time graphically different, in relation to the intentions of the local organizational committees. (Tranti, 2018). In fact, since the successive editions of 1968 in Mexico with Lance Wyman, and even more in 1972 in Monaco with the group led by Otl Aicher, the design of communication for the Olympics has increasingly taken the features of the design of the brand of an event, absorbing all levels of design, from architecture to merchandising, including graphics for communication and orientation. Then, as highlighted by Curti (2020), designers experimented compositional rules and graphic techniques sometimes very different, using geometrical grids and monochromatic or colour combinations, while since 1980 the need to include in the design also instances related to the character of the single edition, according to the intentions of the various local Olympic committees, made sports pictograms part of the so-called “Look of the Games”, in fact a real branding of the sport event. (Traganou, 2009, 2012; Tranti, 2018).

In the context of design for orientation in busy spaces, a significant example is the set of pictograms designed by Roger Cook and Don Shanosky as part of the collaboration between the American Institute of Graphic Arts (AIGA) and the U.S. Department of Transportation (DOT). A first set of 34 subjects was released in 1974, to which were added other 16 symbols five years later. They were created under the supervision of the Signs and Symbols Committee of AIGA, which included some of the leading graphic designers of that time, such as Rudolph de Harak and Massimo Vignelli. (AIGA, s.d.)

The main requirement to meet arose from the lack of an organized system of signs for the communication of complex information to people of different ages and cultures, readable even at a distance within the different transport structures. After the creation of an inventory of the already existing resources from all over the world and different contexts of use, such as airports or indeed the Olympic Games, the Committee appointed by the institute drew the guidelines for their redesign and adaptation to the needs expressed by the Department of Transport (Pasca & Russo, 2005; AIGA - American Institute of Graphic Arts, s.d.). The system of fifty symbols has become over time the standard of reference and is still used in different contexts, as evidence of the effectiveness obtained and the fulfilment of the vocation to universality, to the point that digitized graphic resources are now available for copyright-free use. (Fig. 2).



Figure 2. R. Cook, D. Shanosky, AIGA, DOT, 1974-1979. Universal pictograms for Transport. (Source: AIGA - American Institute of Graphic Arts). Retrieved on Sept. 15th, 2023, from <https://www.aiga.org/resources/symbol-signs>.

In the same context, it is remarkable the collection of pictograms designed by Intégral Ruedi Baur Paris as part of the project for the wayfinding and visual identity of Cologne - Bonn airport. (Fig. 3).



Figure 3. Ruedi Baur, 2003-2005. Design of visual identity of Köln – Bonn Airport. (Source: Intégral Ruedi Baur). Retrieved on Oct. 15th, 2023, from <https://www.irb-paris.eu/projet/index/id/49>.

In this project, the designer creates a system of signs that effectively but playfully characterize the airport environment, using signs and silhouettes extremely simplified and stylized, moved according to the specific needs of the use of colour, building a relation with the users by means of the creation of a narrative related to the themes of travel and vacation (Falcidieno et al., 2020). In this case, indeed, the coordinated use of the system of signs and colours, together with the typeface designed for textual indications contributes significantly to differentiate it from other similar structures, often included instead in the category of the “non-places”, according to the theory of Marc Augé, anonymous spaces often transit, not identitarian and disconnected from the relational dimension of the community (Augé, 2009). The whole contributes to a strongly identified definition of the image of the terminal, going to build a strong visual identity, as well as characterizing it as an institution, once more highlighting the strong relationship that today involves the design of pictograms in the broader one of the visual identity of an institution. Finally, the context of icons and symbols used for emergency indications according to ISO rules is extremely illustrative as regards the relationship between shape and colour in the design of pictograms intended to provide important information, or possibly prescribe prohibitions in situations where the safety of users may be endangered. As underlined by Curti (2020), shapes play an important role and are capable of convey messages in themselves, as well as colours, so that people are immediately able to recognize the type of information (danger, prohibition, direction, escape, and so on), simply interpreting the shape-colour matching. (Fig. 4)



Figure 4. Universal “No-smoking” and “Emergency exit” pictograms. The crossed red circle is universally recognizable as a prohibition, while the square shape in green and white colours is immediately associated with safety indication. Respectively retrieved on Oct. 15th, 2023, from <https://e7.pngegg.com/pngimages/751/912/png-clipart-emergency-exit-exit-sign-emergency-lighting-emergency-evacuation-others-angle-text.png> and <https://e7.pngegg.com/pngimages/751/912/png-clipart-emergency-exit-exit-sign-emergency-lighting-emergency-evacuation-others-angle-text.png>.

Animation and pictograms to educate and convey information

It's worth recalling that first experiments of animation of pictograms date back to 1934, when the Canadian architect Philip Ragan, in his turn inspired by ISOTYPE, started to create statistics using the Neurath's system and continuing with the production for the National Film Board of Canada of a series of shorts propaganda movies during the II World War. Ragan understood the communication power that motion could have given to the already expressive signs conceived by Neurath, developing a "dramatization of facts" that merged a product of European Modernism with the North-American entertainment culture of animation (Ihara, 2022). Nowadays, the potential of creating attention engagement through visual storytelling techniques is well established and extends beyond the realm of marketing, but takes on increasing importance in other areas, such as education and social communication. (Lumbelli, 2012; Ruggiero et al., 2019) The use of audio-visual contents realised thanks to animation techniques is indeed gradually widespread, as a useful tool for the communication of information or for educational purpose (Lumbelli, 2012). In special cases, in which it must be considered a specific audience target, or it is needed to present articulated infographic systems, audio-visuals simplify the transmission of complex contents thanks to the dynamic display, allowing an explanation of the temporal articulation thanks to the movement and the possibility of introducing the sound element. This allows to create a synesthetic form of communication, capable of involving the user and drawing his attention on the core of the message, reducing the risk of misunderstanding. For what concerns the use of pictograms in this field of application, thanks to their recognizability they have become part of different projects that combine their immediacy with the use of animation, constituting different types of visual narratives that, from turn to turn aim to educate, teach, or simply explain something to the viewers and in some case at the same time entertaining them, becoming a sort of edutainment forms. They belong to the first case – animated pictograms to educate, the videos developed by Francesco Favero in collaboration with DeAgostini Scuola on workplace safety and fire regulations. In his video clips, thanks to the use of common software for animation like Adobe After Effects, the designer recreates intuitively some situations in which the interactions of animated pictograms aim to put on evidence hazards and risks of workplaces. The characters interact with each other like in a cartoon, facing difficulties arising from incorrect and unsafe behaviour, so that the viewer can take the opportunity of learning thanks to irony and smile how to correctly behave in risk situations. (Fig. 5).



Figure 5. Francesco Favero, 2017. Screenshots taken from the animation videos “La normativa antincendio”, for deagostini Scuola. (Source: Favero, F., Francesco Favero on Behance. Retrieved on Sept. 15th, 2023, from <https://www.behance.net/francescofavero>)

Emergency like disasters or other dangerous situation are the field of research in which several studies are being conducted, with regard to the use and the evaluation of animated pictograms, searching for new strategies to effectively guiding people in case of evacuation, or helping people with special needs to understand what to do in case of emergency (Kitamura et al., 2019; Son et al., 2022). In a process similar to the one followed by Favero, but maintaining a more serious tone of communication, in 2018 the Federal Office of Protection of Population of the Swiss Confederation improved the resources available on their website and mobile application, developing a system of short animations in which there is explained what to do in case of emergency. (Fig. 6)



Figure 6. Alertswiss, 2019. Screenshots taken from the animated video “Pictograms for the protection of the population”. Source: Alertswiss Redaktion. (2019). Common pictograms for the protection of the population. Alertswiss Blog. <https://blog.alertswiss.ch/it/rubriche/novitaufpp/Community-for-the-protection-pictograms-of-the-population/>
BABS - OFPP - UFPP (Director). (2019, December 19). Pictograms for protection of the population. Retrieved on Sept. 15th, 2023, from <https://www.youtube.com/watch?v=BJ19n8YRxxhM>

Finally, coming back to the topic of sports pictograms, it arises the novelty of the application of animation techniques to the set realised by Kota Iguchi for the 2020 edition, held in Tokyo fifty-six years after the first Japanese edition of 1964.

The authors of the whole visual communication project of Tokyo 2020 Olympics, Iguchi and Hiromura, tributed homage to their predecessors, in the aim to combine the extremely clean design of 1964 with the theme of the Games, “Innovation from Harmony”, and so emphasizing with the graphics the dynamism of the athletic movement (Curti, 2022).

Then, the animation of the sports pictograms, realized thanks to a sophisticated software elaboration that starts from the 3D modelling of the figures to come to the results, makes evident the sense of movement that the designer wanted to give the static version, capturing the essence of the characteristic movements for each discipline. The success of the operation is attested not only by the audience appreciation, but also more by the application of a similar process in the realization of a kinetic version of the pictograms

designed by Xuan Xuejun and his team for the 19th Asian Games, held in Hangzhou in 2022.



Figure 7. Kota Iguchi, 2020 Previews of the animations of the pictograms for the Tokyo 2020 Olympic Games. Source: Iguchi, K. (2022). *Kinetic Sports Pictograms*. Behance. Retrieved on Sept. 15th, 2023, from <https://www.behance.net/gallery/143972209/Kinetic-Sports-Pictograms>

Conclusion

The examples presented above show different ways in which animated pictograms have been used with different aims and have allowed the development of some considerations, constituting the basis for the subsequent elaboration of the experimental part of the research, focused on the elaboration of strategies for communication and orientation of people on board great passenger ships. In fact, in the cases analysed the use of animation seems to give the pictograms an even greater communicative immediacy than their static version, thanks to the reduction to the essentiality of movements, as well as of the forms, that however doesn't mean a loss of expressiveness but in some way increases it, focusing the attention on the core of communication. In this sense, considering the examples discussed above and relating to the field of research explored by the author, the use of animated pictograms in communication and information could disclose the possibility of introducing a sort of "surprise effect" able to attract attention on the desired topics and to guide the users to a greater understanding of the messages transmitted, especially in context of large influx of people, as it can be a cruise ship or a ferry. (Falcidieno et al., 2021)

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BEST POSTER AWARDS ICAR/17

DE_SIGN: ENVIRONMENT LANDSCAPE CITY 2023

BIENNALE DI VENEZIA

THE LABORATORY OF THE FUTURE - STUDENTS AS RESEARCHERS

**Integrated UAV survey for the protection, valorisation
and communication of cultural heritage.
The case study of the Villa of Livia at Prima Porta, Rome.**

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Abstract

The research investigates the diverse applications of UAVs, utilized not only outdoors but also within indoor environments, capturing HD images. Survey phases have been planned to identify optimal applications for achieving accuracy and precision in data collection within reduced timeframes and under less-than-optimal working conditions. Integrated surveying is employed as a cognitive tool for the analysis of Pompeian-style wall decorations, aiming to represent patterns, perspective orders, and perceptual details appropriately, with reference to both historical documentation and critical observation of artifacts.

The processing of point clouds and frescoed wall surfaces allows for a critical and qualitative examination of the data, with the objective of using images to expand representational possibilities in the context of architectural and museological surveys. The analyzed case study focuses on the fresco decorations of the walls of the Nymphaeum of Villa Livia in Prima Porta, Rome. The conducted analysis is historical, iconographic, representative, and symbolic, aiming to comprehend the origin of the frescoes and the motivations behind the choice of this type of representation.

Decorative, perspective, and pictorial techniques will be studied, considering the separation of architecture and decorative elements in distinct locations. While the separation of archaeological remains and decorative elements is advantageous for conservation purposes, it is believed that it may impact the perception of the relationship the frescoes had with the space for which they were created. Efforts will be made to recreate a connection between the parts through an immersive museum interaction, allowing the engagement of a broad audience through virtual scenarios explorative in a 3D space.

Abstract

La ricerca indaga i molteplici impieghi degli UAV utilizzati non più soltanto all'esterno, ma anche negli ambienti interni restituendo immagini HD. Sono state pianificate le fasi di rilievo per individuare le migliori applicazioni da mettere in atto per ottenere un'accuratezza

e precisione di restituzione dei dati quantitativi in tempistiche ridotte e in condizioni di lavoro non sempre ottimali. Il rilievo integrato viene quindi impiegato come strumento conoscitivo per l'analisi dell'apparato decorativo parietale in stile pompeiano al fine di rappresentarne schemi, ordini prospettici e percettivi in maniera appropriata e conoscerne i dettagli in riferimento sia alla documentazione storica sia osservando criticamente i manufatti.

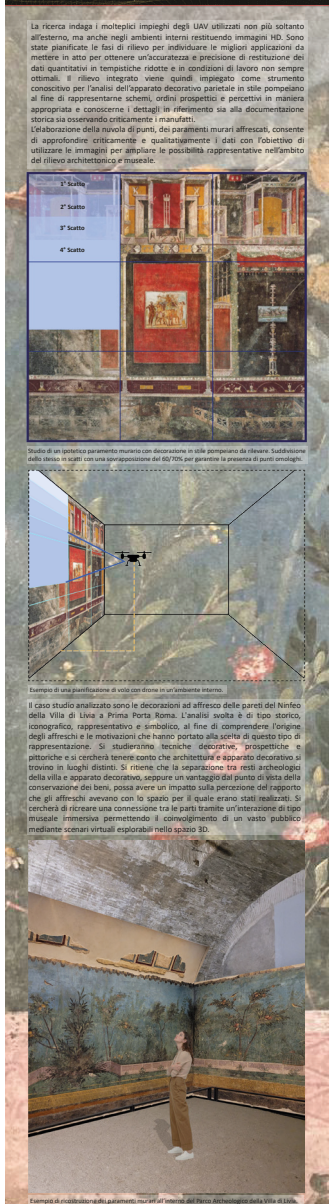
L'elaborazione della nuvola di punti, dei paramenti murari affrescati, consente di approfondire criticamente e qualitativamente i dati con l'obiettivo di utilizzare le immagini per ampliare le possibilità rappresentative nell'ambito del rilievo architettonico e museale.


Il caso studio analizzato sono le decorazioni ad affresco delle pareti del Ninfeo della Villa di Livia a Prima Porta Roma. L'analisi svolta è di tipo storico, iconografico, rappresentativo e simbolico, al fine di comprendere l'origine degli affreschi e le motivazioni che hanno portato alla scelta di questo tipo di rappresentazione. Si studieranno tecniche decorative, prospettiche e pittoriche e si cercherà tenere conto che architettura e apparato decorativo si trovino in luoghi distinti. Si ritiene che la separazione tra resti archeologici della villa e apparato decorativo, seppure un vantaggio dal punto di vista della conservazione dei beni, possa avere un impatto sulla percezione del rapporto che gli affreschi avevano con lo spazio per il quale erano stati realizzati. Si cercherà di ricreare una connessione tra le parti tramite un'interazione di tipo museale immersiva permettendo il coinvolgimento di un vasto pubblico mediante scenari virtuali esplorabili nello spazio 3D.

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 **Martina Castaldi**
Università di Genova



Rilievo integrato tramite UAV per la tutela la valorizzazione e la comunicazione del patrimonio culturale. Il caso studio della Villa di Livia Dottorato in Architettura Ciclo XXXVII

UniGe DAD |              

M. Castaldi is the winner of the Best Poster Award, VIII International Conference De-Sign Environment Landscape City 2023.

Advanced representation in mixed reality. Critical/ analytical considerations and application experiments

Sara Eriche

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Abstract

The 3D digital representation of the surrounding reality has opened up a world of possibilities, expanding each day with the emergence of new challenges and concepts. Technologies applied to the field of cultural and archaeological heritage have given rise to novel concepts such as virtual heritage.

The research conducted within the doctoral program aims to identify the “design” path that advanced representation pursues for knowledge, enjoyment, enhancement, and management of cultural assets. The thesis seeks to deepen and apply an analytical method for architectural survey based on the assumption that it constitutes complex, integrated, and stratified knowledge over time. Through a computerized procedure, the research proposes an experimentation to compare not only the collected data for individual processes, made as homogeneous as possible in their visualization, but also the underlying cultural and methodological matrices guiding the critical selection of these data. These matrices are taken as the initial reference to make them as comparable and cross-referenced as possible.

Interdisciplinary multitransversality is an essential element in a research path aimed at valorizing the digital and virtual scenario in the field of representation. From this perspective, the constantly evolving research demonstrates the implementation of interdisciplinary methodologies, with particular emphasis on the holography section, representing an original visualization solution susceptible to evolution, especially in the desirable future applications of gesture-based interaction at an increasingly lifelike scale. The study benefited from collaboration with the research sector of the French startup Holusion, specializing in the design, production, and innovative visualization solutions based on holographic technologies, integrating specific themes from the SSD ICAR/17 with engineering aspects.

Abstract

La rappresentazione digitale 3D della realtà che ci circonda ha aperto un mondo di possibilità, che crescono ogni giorno con l’emergere di nuove sfide e concetti, tali le tecnologie applicate

al campo del patrimonio culturale e archeologico hanno portato alla nascita di nuovi concetti come il patrimonio virtuale.

La ricerca sviluppata nell'ambito del corso di dottorato vuole individuare il percorso "progettuale" che la rappresentazione avanzata finalizza alla conoscenza per la fruizione, valorizzazione e gestione dei beni culturali. La tesi ha l'obiettivo di approfondire e applicare un metodo di analisi per il rilievo dell'architettura, basato sul presupposto che lo stesso si conferma come conoscenza complessa, integrata e stratificata nel tempo. Attraverso una procedura informatizzata, la ricerca propone una sperimentazione per comparare non solo i dati rilevati e raccolti per singoli processi resi il più possibile omogenei anche sotto l'aspetto della loro visualizzazione, ma anche le principali matrici culturali e metodologiche sottese alla selezione critica dei medesimi dati, e assunte come primo riferimento al fine di renderli il più possibile comparabili e incrociabili.

La multitransversalità disciplinare costituisce elemento irrinunciabile in un percorso di ricerca teso a valorizzare lo scenario digitale e virtuale nel settore della rappresentazione. Da questo punto di vista la ricerca, in costante evoluzione, mostra nella declinazione delle metodiche interdisciplinari, con particolare riferimento alla parte riguardante l'olografia che rappresenta una soluzione di visualizzazione originale e suscettibile di evoluzione, anche nelle auspicabili future applicazioni di interazione gestuale a scala sempre più vicine alla reale. Lo studio ha visto la collaborazione del settore ricerca della Start Up francese Holusion, specializzata in progettazione, produzione e soluzioni di visualizzazioni innovative basate su tecnologie olografiche, integrando le tematiche specifiche del SSD ICAR/17 con quelle ingegneristiche.



Conoscenza, Conservazione e Valorizzazione del Patrimonio Culturale
Knowledge, Conservation and Enhancement of Cultural Heritage

Nuove tecnologie informatiche applicate alla conoscenza rilevamento digitale avanzato/advanced digital survey knowledge

Conoscenza
Knowledge

Ideazione e gestione di banche dati/Design and management of databases

Conservazione
Conservation

Creazione di modelli 3D per la conoscenza del bene culturale/Creation of 3D models for the knowledge of the cultural heritage

Progetto/project

Modelli virtuali 3D/3D Virtual Models

Valorizzazione
Enhancement

Realtà mista/Mixed Reality

Fruizione on line/Online accessibility

VIII International Conference De-Sign Environment Landscape City BEST POSTER AWARD October 29, 2023

Obiettivo:

sperimentazione e comunicazione dei beni culturali tramite tecnologie avanzate di rappresentazione nell'ambito della divulgazione scientifica, con particolare attenzione alle tematiche relative all'accessibilità in ambito espositivo.

Oggetto: Villa Ottolenghi

Analisi con strumenti di indagine non invasiva, grazie all'uso di tecnologie avanzate per il rilievo stereometrico, la modellazione 3D e la prototipazione fisica, Lidar, UAV

Sessioni di lavoro sul campo:

Sistemi di scansione laser, con attività di trattamento dati con sistemi di modellazione tridimensionale, software di fotomodellazione digitale
AGISOFT, 3d Zephyr.

Objective:

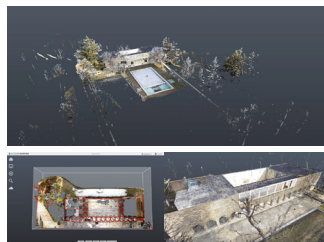
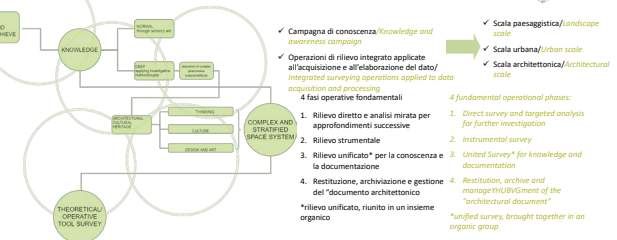
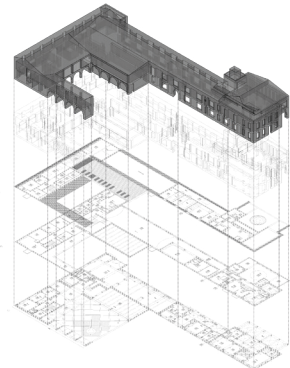
Experimentation and communication of cultural heritage through advanced technologies of representation in the field of scientific dissemination with particular attention to issues related to accessibility in the exhibition field.

Subject: Villa Ottolenghi

Analysis with non-invasive investigation tools, thanks to the use of advanced technologies for stereometric survey, 3D modeling and physical prototyping, Lidar, UAV

Work sessions:

Laser scanning systems, with data processing activities with three-dimensional modeling systems, digital photo modeling software
AGISOFT, 3d Zephyr.



LA NUOVA NARRAZIONE DIGITALE/THE NEW DIGITAL STORYTELLING - A HOLOGRAPHIC DISPLAY EXPERIENCE

Con il termine olografia vengono oggi indicate diverse tecnologie tutte accomunate da un unico obiettivo: la rappresentazione tridimensionale di una immagine nello spazio ottenuta senza la necessità di dispositivi.

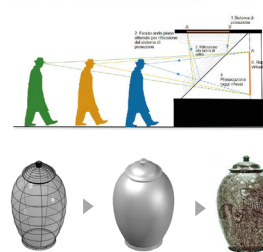
Today, the holography term is used to refer to different technologies that all have a single aim in common: the three-dimensional representation of an image in space obtained without the need for devices.



Elemento arredo 3D
La Sallamandra - Vaso con
capriccio in maiolica
polichroma, decorato a
modelli. Altezza 52 cm.

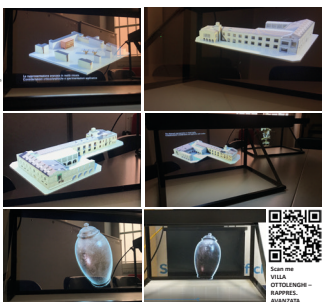
Posizione elemento 3D
The Sallamandra: polychrome majolica pot with lid,
decorated with various motifs. Height 52 cm.

SCHEMA OTTICO FUNZIONAMENTO RAPPRESENTAZIONE OLOGRAFICA



La rappresentazione avanzata in realtà mista.

Considerazioni critico/analitiche e sperimentazioni applicative
Dottorato in Architettura CicloXXXII



UniGe Sara Eriche
DAD Dipartimento Architettura e Design - dAD

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italiana
designio
2023
Sara Eriche
OTTOLENGHI -
RAPPRES.
AVANZATA

S. Eriche is the winner of the Best Poster Award, VIII International Conference De-Sign Environment Landscape City 2023.

The Church of Santa Maria della Consolazione in the Roman Forum: an architectural and urban study between modern and contemporary times

Agostina Maria Giusto

Department of history, drawing and architectural restoration (Sapienza Università di Roma)
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Abstract

Santa Maria della Consolazione is a church located in a pivotal area of the city of Rome, a situation that has made it witness to numerous architectural and urban changes over time. The authors reviewed so far concur in believing that two churches were built on the site. The first, according to both Da Riese and Proja, was constructed in 1470. The second, built by at least three architects - Giacomo Della Porta, Martino Longhi the Elder, and Pasquale Belli - was largely erected during the 16th century, though completed in the 19th century, and is the church that still stands today.

The original church, according to G. B. Proja, was built in just over three months and was likely constructed with the architecture of Baccio Pontelli, as suggested by P. Pericoli. There is still no consensus on the orientation of the original church; different and conflicting data can be found when examining maps of Rome from 1551 by Leonardo Bufalini, the 1577 map by Stefano Du Pérac, the facade image published by Girolamo Franzini in 1600, or the view created by Marten van Heemskerck in 1534.

According to G. Lerza, Giacomo Della Porta's involvement in the construction of the current church began before that of Martino Longhi the Elder. Lerza argues that Della Porta commenced his role as the church's architect in 1563 with the commission to build a new bell tower, followed by the reconstruction of a new gallery that concluded, according to C. W. Brentano, in 1586. The figure of Martino Longhi the Elder first appeared in the construction of the church in 1584 (Lerza 2001), and after his death, he was succeeded by his son O. Longhi and F. da Volterra, tasked with constructing the church's facade based on the previously completed design.

There are uncertainties about the construction phases of the churches during the 15th and 16th centuries. The two chapels of the original church preserved inside the current church provide a fundamental contribution to understanding - at least partially - the architectural features of the original church. However, uncertainties also exist about specific elements of the current church: the bell tower, the gallery/apse, and the chapels, among other aspects that are currently under consideration for further research.

Abstract

Santa Maria della Consolazione è una chiesa situata in una zona nevralgica della città di Roma, situazione che l'ha resa testimone di numerose modifiche architettoniche e urbane nel corso del tempo. Gli autori finora recensiti concordano nel ritenere che sul sito siano state costruite due chiese. La prima fu costruita - secondo sia Da Riese che Proja - nel 1470. La seconda, costruita da almeno tre architetti: Giacomo Della Porta, Martino Longhi il Vecchio e Pasquale Belli, fu costruita per lo più nel corso del XVI secolo, anche se completata nel XIX secolo, ed è la chiesa tuttora esistente.

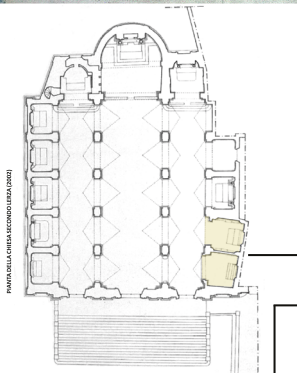
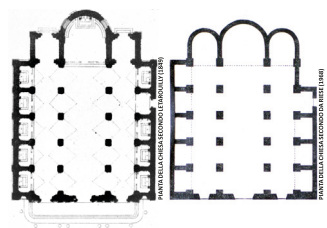
La primitiva chiesa fu realizzata - secondo G. B. Proja - in poco più di tre mesi ed è stata probabilmente realizzata - secondo P. Pericoli - con architettura di Baccio Pontelli. Non è ancora stato raggiunto un consenso sull'orientamento della chiesa primitiva: sia guardando la mappa di Roma del 1551 di Leonardo Bufalini, quella del 1577 di Stefano Du Pérac, l'immagine della facciata pubblicata da Girolamo Franzini nel 1600 o la veduta realizzata da Marten van Heemskerck nel 1534, si trovano dati diversi e contrastanti.

Secondo G. Lerza, la partecipazione di Giacomo Della Porta alla costruzione della chiesa attuale iniziò prima di quella di Martino Longhi il Vecchio. Sostiene che Della Porta iniziò il suo coinvolgimento come architetto della chiesa nel 1563 con l'incarico di costruire un nuovo campanile, e poi con i lavori di ricostruzione di una nuova tribuna che si conclusero - secondo C. W. Brentano - nel 1586. La figura di Martino Longhi il Vecchio fece la sua prima apparizione nella costruzione della chiesa nel 1584 (Lerza 2001), e dopo la sua morte gli succedettero il figlio O. Longhi e F. da Volterra, incaricati di costruire la facciata della chiesa sulla base del progetto già completato da lui.

Ci sono diverse incognite sulle fasi di costruzione delle chiese durante il XV e XVI secolo. Infatti, le due cappelle della chiesa primitiva che si conservano all'interno della chiesa attuale costituiscono un contributo fondamentale alla comprensione - almeno parziale - delle caratteristiche architettoniche della chiesa primitiva. Ma ci sono incertezze anche su alcuni elementi in particolare della chiesa attuale: il campanile, la tribuna/abside e le cappelle, tra altre questioni che si stanno valutando per ulteriori ricerche.



LA CHIESA DI
**SANTA MARIA
DELLA
CONSOLAZIONE**
UNO STUDIO ARCHITETTONICO
E URBANO TRA ETÀ
MODERNA E CONTEMPORANEA



PIRELLA GÖTTSCHE LOWE



Cappella Mattei



Cappella Pelucchi



SAPIENZA
UNIVERSITÀ DI ROMA

Agostina Maria Giusto

VIII International Conference De-Sign Environment Landscape City BEST POSTER AWARD October 29, 2023

Santa Maria della Consolazione è una chiesa situata in una zona nevralgica della città di Roma, situazione che l'ha resa testimone di numerose modifiche urbanistiche nel corso del tempo. La chiesa non è solo un edificio ecclesiastico, ma anche un ospedale, considerato uno dei più importanti di Roma fino alla metà del XIX secolo.



Gli autori concordano nel racconto di due eventi di natura religiosa avvenuti in Campidoglio, strettamente legati alla nascita della chiesa e della figura fondamentale della Madonna da cui prende l'nome.
Il primo di questi due eventi religiosi è il dipinto della Madonna, che viene realizzato per decisione di Giordano degli Albarini, il quale, prima di essere giustiziato, ordina per testamento, il 3 giugno 1385 "che siano impiegati due fiorini d'oro per far dipingere "ante faciem et locum tutissim" un'immagine di Maria". [AA.VV. 1948]. Tuttavia, gli autori non hanno ben chiaro dove l'immagine della Madonna sia stata effettivamente dipinta. Questo darà luogo a una serie di incertezze sulla collocazione dell'immagine in relazione alla prima chiesa costruita e, di conseguenza, sulla precisa ubicazione della chiesa stessa.

Il secondo degli eventi religiosi rilevanti per l'oggetto di studio riguarda un giovane che si trovava in Campidoglio ingiustamente condannato e sua madre, che attribui alla Madonna dipinta sulla parete del Maffei la salvezza del giovane il 26 giugno 1470. Questa data è data per valida da diversi autori sulla base di quanto affermato da S. Infessura, e questo evento è riportato come un fatto chiave nella storia del complesso della Consolazione perché ad esso si deve l'attribuzione all'immagine della Madonna del nome di Madonna della Consolazione e un enorme riconoscimento da parte del popolo romano. Tutto questo portò alla costruzione della prima chiesa.

Gli autori concordano nel ritenere che sul sito siano state costruite due chiese. La prima, che chiameremo chiesa primitiva, fu costruita - secondo sia Da Riese che Proja - nel 1470 e conservata il 3 novembre dello stesso anno. La seconda, costruita da almeno tre architetti: Giacomo Della Porta, Martino Longhi il Vecchio e Pasquale Belli, fu costruita per lo più nel corso del XVI secolo, anche se completata nel XIX secolo, ed è la chiesa tuttora esistente.



LA CHIESA PRIMITIVA



Immagine realizzata da Giovanni Francini

Non è ancora stato raggiunto un consenso sull'orientamento della chiesa primitiva. Se osserviamo la Mappa di Roma del 1551 di Leonardo Bufalini, possiamo notare che la chiesa è fondamentalmente uno spazio rettangolare con una navata centrale e due navate laterali con un unico ingresso rivolto verso l'area dell'ospedale, cioè a NE. La Mappa di Roma del 1577 di Stefano Du Perac, che coincide con questa rappresentazione, mostra una chiesa con una porta sulla stessa lato, anche se con dimensioni diverse rispetto alla chiesa della mappa di Bufalini.
L'immagine della facciata della chiesa nel volume pubblicato da Girolamo Francini nel 1600 mostra una chiesa a tre navate con tre porte e torri a sinistra della facciata principale, situazione che di fatto contrasta sia con la mappa di Bufalini che con quella di Du Perac; con entrambe per la presenza di tre porte d'accesso anziché una e con quest'ultima per il fatto di avere la torre a sinistra vista dalla facciata principale. Va chiarito che la data di pubblicazione del libro di Francini - 1600 - corrisponde, secondo la bibliografia, alla data di completamento della chiesa attuale. Considerando che l'autore ha realizzato l'immagine alcuni anni prima della data di pubblicazione, si può dedurre che si tratti della chiesa primitiva, anche se potrebbe rappresentare una fase intermedia nella costruzione della chiesa attuale.
Nella veduta realizzata da Marten van Heemskerck nel 1534, troviamo nuovi dati e - di conseguenza - nuovi contrasti. In questa immagine, la chiesa originaria è rappresentata come un edificio a tre navate, ma con l'ingresso sul lato SO, cioè sul lato opposto all'ingresso dell'ospedale ma rivolto verso Piazza della Consolazione. La collocazione della torre - pur con caratteristiche ben diverse da quelle mostrate nelle altre rappresentazioni già citate - sarebbe a sinistra dell'ingresso principale. Va notato, tuttavia, che la facciata NE non è visibile nella veduta di van Heemskerck e - quindi - non si conoscono le caratteristiche della facciata opposta. Lo stesso vale per la mappa di Du Perac.

Pietro Pericoli asseriva - anche se senza apparente fondamento - che "il perimetro della chiesa era tale quale vedesi presently, con tre porte nella fronte meridionale ed una al Nord, alle quali furono fatti o rimossi gli usci nel 1496". È la storica dell'arte americana C. W. Brentano a concordare con Pericoli sul fatto che le dimensioni della chiesa primitiva, sia sul fatto che la facciata principale della chiesa fosse rivolta a SW.

Le due cappelle della chiesa primitiva che si conservano all'interno della chiesa attuale costituiscono una fonte di analisi fondamentale per la presente ricerca. Entrambe le cappelle hanno un orientamento visibilmente diverso da quello della chiesa attuale e, sebbene le loro dimensioni in lunghezza e larghezza coincidano approssimativamente con quelle delle cappelle costruite successivamente per la chiesa attuale, entrambe presentano un'importante differenza in altezza. Tutti questi dati costituiscono un contributo fondamentale alla comprensione - almeno parziale - delle caratteristiche architettoniche della chiesa primitiva. Ma non solo: l'uso di materiali diversi dal resto della chiesa e l'apparato decorativo conservato in queste cappelle forniscono ulteriori informazioni sulla chiesa primitiva, fondamentali per la sua analisi.



LA CHIESA ATTUALE

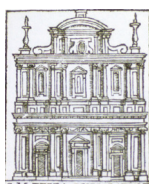
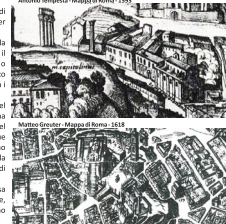


Immagine realizzata da Piero Martini Fatti

L'attuale chiesa è documentata per la prima volta nella Mappa di Roma da Antonio Tempesta dell'anno 1593 e poi da Matteo Greuter nel 1618, e in seguito in numerose occasioni.
Secondo G. Lerra la partecipazione di Giacomo Della Porta alla costruzione della chiesa iniziò prima di quella di Martino Longhi il Vecchio. L'autore sostiene che Della Porta iniziò il suo coinvolgimento come architetto della chiesa nel 1563 con l'incarico di costruire un nuovo campanile, e poi nei primi anni Ottanta con i lavori di ricostruzione di una nuova tribuna.
Questi lavori si conclusero - secondo l'autore C. W. Brentano - nel 1586, ma la figura di Martino Longhi il Vecchio fece la sua prima apparizione nella costruzione della chiesa nel mese di giugno del 1584 [Lerra 2001]. Dopo la sua morte, gli succedettero almeno due architetti: il figlio Onorio Longhi e Francesco da Volterra, che furono effettivamente incaricati di costruire la facciata della chiesa sulla base del progetto - già completato prima della sua morte - di Martino Longhi.
Ci sono diverse incognite sulle fasi di costruzione della chiesa durante il XVI secolo e su alcuni elementi in particolare: il campanile, la tribuna/abside e le cappelle, tra altre questioni che si stanno valutando per ulteriori ricerche.



La chiesa di Santa Maria della Consolazione al Foro Romano: uno studio architettonico e urbano tra età moderna e contemporanea
Dottorato in Storia, Disegno e Restauro dell'Architettura Ciclo XXXVIII

UniGe DAD | unione italiana disegno 2023

A. M. Giusto received the special mention for the Best Poster Award, VIII International Conference De-Sign Environment Landscape City 2023.

Architectural drawing. The observer's eye and the draftsman's brain.

Gaia Leandri

Architecture and Design Department (University of Genoa)

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Abstract

In September 2022, the two international doctoral programs that began in 2019 were concluded. The doctoral program in Arquitectura, Edificaciòn, Urbanística y Paisaje was conducted at the Polytechnic University of Valencia, while the doctoral program in Clinical and Experimental Neuroscience was carried out at the University of Genoa, Department of Neuroscience, with co-supervision from the Department of Architecture and Design. The execution of these two doctoral programs was conducted in parallel, and although they required two different sets of experiments and two separate final thesis projects, there was one common research focus. The addressed theme revolved around the design and graphic expression in architecture, particularly the ever-increasing use of photorealistic renders and computerized enhancements in lieu of hand-drawn illustrations and sketches. A questionnaire was developed for the doctoral program in architecture, focusing on the two types of images. The quiz addressed the themes of communication, the designer's unique style, and emotional engagement to analyze the images from the observer's perspective and provide a fundamental basis for the second experiment. This took place in the neurophysiology laboratory of the Dept. of Neuroscience (UNIGE) and represented the first experiment of its kind in the field of neuroscience. By recording subjects' brain cortical activity (Electroencephalogram) while drawing with a digital pen or a mouse, it was possible to compare the two neuronal activities that occur during the creative gesture, providing empirical evidence for what was previously only hypothesized and anticipated in the first experiment.

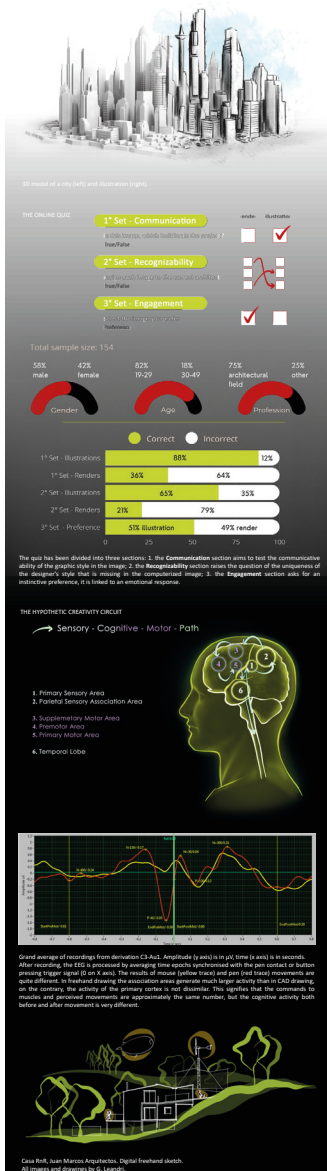
Abstract

A settembre 2022 sono stati conclusi i due programmi di dottorato internazionali avviati nel 2019. Il programma di dottorato in Arquitectura, Edificaciòn, Urbanística y Paisaje è stato condotto presso l'Università Politecnica di Valencia, mentre il programma di dottorato in Neuroscienze Cliniche ed Sperimentali è stato realizzato presso l'Università di Genova, Dipartimento di Neuroscienze, con co-supervisione del Dipartimento di Architettura e Design. L'esecuzione di questi due programmi di dottorato è stata condotta in parallelo e, sebbene

abbiano richiesto due set diversi di esperimenti e due progetti di tesi finali separati, vi era un comune focus di ricerca. Il tema affrontato ruotava attorno al design e all'espressione grafica in architettura, in particolare l'uso sempre più diffuso di rendering fotorealistici e miglioramenti computerizzati al posto di illustrazioni e schizzi disegnati a mano. Un questionario è stato sviluppato per il programma di dottorato in architettura, focalizzandosi sui due tipi di immagini. Il questionario ha affrontato temi legati alla comunicazione, allo stile unico del designer e all'coinvolgimento emotivo per analizzare le immagini dal punto di vista dell'osservatore e fornire una base fondamentale per il secondo esperimento. Questo si è svolto nel laboratorio di neurofisiologia del Dipartimento di Neuroscienze (UNIGE) e ha rappresentato il primo esperimento del suo genere nel campo delle neuroscienze. Registrando l'attività corticale cerebrale dei soggetti (elettroencefalogramma) durante il disegno con una penna digitale o un mouse, è stato possibile confrontare le due attività neuronali che si verificano durante il gesto creativo, fornendo evidenze empiriche per ciò che era precedentemente solo ipotizzato e anticipato nel primo esperimento.



VIII International Conference De-Sign Environment Landscape City BEST POSTER AWARD October 29, 2023



ARCHITECTURAL DRAWING. THE OBSERVER'S EYE AND THE DRAFTSMAN'S BRAIN

RENDERS AND DRAWINGS

Due to its communicative function, visual representation can be considered as a form of figurative language that translates the initial mental 'speculations of the design process' into images and, in doing so, allows a variety of interpretations. The subject of this research is the relationship between the draftsman, the creativity of his brain, the represented design, and the mind of the observer. A first question to answer is whether the simulation of reality with renders of photographic quality would relate to the observer better or worse than a traditionally hand drawn image.

«Gaetano, A. (2022). *Architettura e immagine*. Milano, Franco Angeli».

ARCHITECTURE AND NEUROSCIENCE

The idea of endavouring a combined enterprise where architecture and neuroscience were involved stemmed from an experience that I had had some time before, when I was working as an illustrator in the architectural field. The main question to be answered is, why should an illustration made by a human hand be better than a mechanistic reproduction in transmitting the author's idea. Cultural, economic and social factors have a strong influence on communicative means, but there are also neurobiological factors that we can tackle now but were still unknown only a few decades ago. It is important to be aware of cerebral functions that are behind feelings and decisions brought to our awareness by a picture. The neuroscience world has to be called in to explain our reactions.

THE COMMUNICATION FACTOR

A questionnaire was constructed¹ to probe the communication and representation qualities of the images, a set of renders and a set of hand drawn illustrations. The test was meant to answer the question whether the communication of the architect's idea of a building and the representation of the architect's personal style are best conveyed by a hand drawn image or a photorealistic render. It was designed so that the answers were related to the responder's ability to match images and not to subjective opinions.

«Mattioli, S., Mattioli, A. (2013). *Verbal-visual question answering systems: using in synthesis, an international journal of intelligent Information and Database Systems*, 5, pp. 133-142.

THE NEUROBIOLOGICAL FACTOR

Both factors, on one side the personal feeling elicited by the image and arising inside the observer, and on the other, the architect's sign and communication should be carefully considered. Human's activities are linked with hands², which are not just an instrument to implement what the brain plans, but they may be responsible for the development of intelligence and creativity, by somehow affecting the very functions of the brain. Drawing is the external expression of the architect's mental process.

«Narain, C., Spinelli, C., Pavesi, S., Gatti, M.A., Di Rossi, F. (2022). *I know what I feel: when architecture representation affects the observer's brain*, in: *Cultural Computing and Affective Neurosciences*, pp. 783-789.

THE DESIGNER'S BRAIN

It is possible to imagine a creativity circuit involving the somatosensory parietal areas and the motor frontal areas, together with the cerebellum³. We tried to answer one elementary question which had never been posed before: is it possible to record electroencephalographic (EEG) activity time locked to pen/freehand or mouse/CAD drawing movements and detect differences between the two?

«Narain, C., Karmali, C., Pavesi, S. (2020). *Functional role of the supplementary and pre-supplementary motor areas*, in: *Frontiers in Human Neuroscience*, 14, pp. 856-865.

«Narain, C., Karmali, C., Pavesi, S., Liu, H. (2020). *How Working Memory and the Cerebellum Contribute to Creative Creativity and Innovation*, in: *Creativity Research Journal*, 32, pp. 1-18.

THE EXPERIMENT PROPOSAL

The message that the building had something special that characterised it from the others was clear in the hand drawn figure but far less clear in the render. Why was that? At the origin of the whole process there is the designer and his/her creative ability. Correlation between cerebral areas and cognition, is not straightforward. This is particularly true for creativity, one of the most complex cognitive functions⁴. So, the quest for experimental evidence about creativity should be endeavoured by posing simple questions, with answers based upon the most direct parameter linked to neuronal activity: the generated electrical field.

«Lewin, K. (2013). *The Cognitive Neuroscience of Creativity: A Critical Review*, in: *Creativity Research Journal*, 25, pp. 133-154.

THE EXPERIMENT

We asked our volunteer subjects first to draw freehand with a pen on a digital tablet and raster graphic application, then to draw with a mouse and CAD application. In both cases, the length of each movement ought to be approximately 2-3 cm. When time locked to each movement, the EEG can discriminate between the direct motor and sensory neural traffic to muscles and from joint sensors on one side, and the much more elaborated activity of the association areas, on the other. We then analysed both the EEG events preceding the movements (pre-motion) and also those following them (post-motion)⁵.

«Lewin, K., Nara, A., Nara, S., Nara, V., Nara, V. (2022). *EEG analysis of the association and motor areas in the context of the digital architecture*, 48, pp. 184 - 191.

THE DIGITAL WORLD

Freehand drawing images make a better link between author and observer, and at the same time, the very movement and haptic perception of the hand elicit creativity. Indeed, the most recent advances in the technology of drawing tablets have provided a new medium for freehand drawing, which can merge the capacity of data handling by computers with the natural movement of using pencil and paper, ending up in a traditional hand made product. Wise usage of modern technology can therefore combine the human factor with the digital world⁶.

«Narain, M. (2012). *Brain activities in the act of architectural drawing: slow field for the architect's imagination*, New York: Routledge.

THE NEURONAL ACTIVITY

The time window immediately before and after movement is related to the primary areas, whilst the temporally more distant events are from the association areas. The EEGs reflecting the association activity indicated that in the case of freehand drawing a much larger amount of neuronal activity took place. Such evidence strongly supports the hypothesis that freehand drawing, devoid of the constraints of the mouse/CAD, may better promote the breeding of new creative ideas.

CONCLUSIONS

At the origin of the whole process of drawing, there is the designer and his creative ability. Higher mental functions are a characteristic of humans which, since ancient times, have been tried to be linked with the use of the hands. The conducted experiment is a first step in gathering experimental evidence on this issue. Such results could also address the strategies of architectural education towards more personalised didactic activities, especially those involving BIM/CAD drawing, but also digital tools and abstract spatial reasoning in general.

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Architectural drawing. The observer's eye and the draftsman's brain.
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Dottorato internazionale in Neuroscienze Cliniche e Sperimentali Ciclo XXXIV (UNIGE)

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G. Leandri is the winner of the Best Poster Award, VIII International Conference De-Sign Environmente Landscape City 2023.

Cultural heritage knowledge: parametric modelling, between semantics and ontology. The network of Mediterranean lighthouses

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Abstract

The research, excluding the geometric-semantic classification of Mediterranean lighthouses, investigates the development of a replicable enhancement methodology - within the BIM environment and in an ontological context - applied to the historically 'characterized' heritage of lighthouses.

After analyzing and defining the main geometries of lighthouses, it is possible to identify particularly recurrent geometries, which can be divided into macro variables such as 'building,' 'tower,' and 'lantern,' and micro variables, including moldings, openings, the possible presence of rustication, brackets, and taperings. Starting from the level of detail to be achieved, the creation of the "Italian Lighthouse Project Model" was undertaken, incorporating the entire parametric geometric apparatus useful for composing the compositional volumes belonging to ^{90.50}% of coastal architectures. This model has its genesis in the modeling of the three macro variables - building, tower, lantern - using the Dynamo plug-in. After adjusting the dimensions of the three main solids based on the case study to be modeled, the data on the "Italian Lighthouse Project Model" is updated, which is a Revit project model where all the semantic families identified in coastal architectures have been created and loaded: a database composed of recurring architectural features, or 'pattern book,' from which to draw for a more expedited modeling of individual case studies.

Once the parametric model is defined, the data appears as standalone nuclei, not connected to the cultural heritage characterized by the same semantics. It is in this context that ontological science proves to be extremely effective in collecting and connecting data. By using the same classification and semantic terminology used in the parametric context, it is ultimately possible to envision the union and connection of parametric modeling and theoretical knowledge through the use of ontology: a single workflow capable of making knowledge more inclusive and accessible.

Abstract

La ricerca, al netto della classificazione geometrico-semantiche dei fari del Mediterraneo, indaga la creazione di una metodologia replicabile di valorizzazione -in ambiente BIM e in ambito ontologico- applicata al patrimonio storico “caratterizzato” dei fari.

Analizzate e definite le principali geometrie dei fari, è possibile individuare delle geometrie particolarmente ricorrenti, suddivisibili in macro variabili -‘edificio’, ‘torre’, e ‘lanterna’- e micro variabili, quali: modanature, bucatore, l’eventuale presenza di bugnati, mensole e rastremazioni. È partendo dal livello di dettaglio da ottenere che si è proceduto con la creazione del “modello di progetto dei fari italiani”, nel quale inserire l’intero apparato geometrico parametrico, utile a comporre i volumi compositivi appartenenti al 90,50% delle architetture costiere. Tale modello trova la sua genesi nella modellazione delle tre macro variabili -edificio, torre, lanterna- mediante l’utilizzo del plug-in Dynamo. Modificate le misure dei tre solidi principali, in funzione del caso studio da modellare, si procede con l’aggiornamento del dato sul “modello di progetto dei fari italiani”, vale a dire un modello di progetto in Revit nel quale si è proceduto con la creazione e il caricamento di tutte le famiglie semantiche individuate nelle architetture costiere: un database composto da caratteristiche architettoniche ricorrenti, o ‘abaco’, dal quale attingere per una modellazione più speditiva dei singoli casi studio.

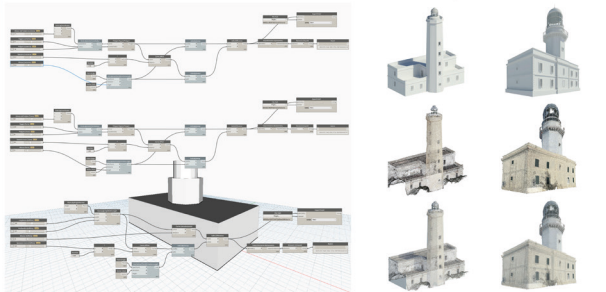
Definito il modello parametrico, i dati risultano essere dei nuclei a sé stanti, non connessi con il patrimonio culturale caratterizzato dalla medesima semantica. È in questo ambito che la scienza ontologica si configura come estremamente performante nella raccolta e nella connessione dei dati. Mediante l’utilizzo della medesima classificazione e terminologia semantica utilizzata in ambito parametrico, risulta in definitiva possibile pensare all’unione e alla connessione della modellazione parametrica e della conoscenza teorica, mediante l’utilizzo dell’ontologia: un unico workflow capace di rendere il sapere più inclusiva e fruibile.

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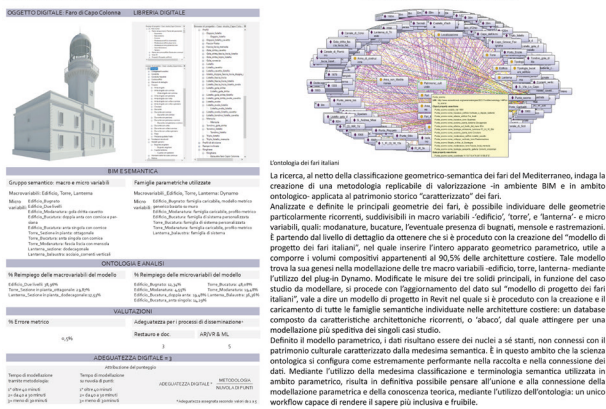


Moduli e simmetria dei fari italiani.

Moduli e componenti dei fori italiani



Costruzione dello script di modellazione degli elementi di base



I foci del Mediterraneo e le connessioni ecologiche

La conoscenza del patrimonio architettonico. Modellazione parametrica, tra semantica e ontologia. La rete dei fari del Mediterraneo
Dottorato in Architettura Ciclo XXXV

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S. Mollica is the winner of the Best Poster Award, VIII International Conference De-Sign Environmente Landscape City 2023.

Living the street as public space. Tactical urbanism with community participation for experimental street spaces

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Abstract

Jane Jacobs, in her book ‘The Death and Life of Great American Cities’ (Einaudi, ¹⁹⁶⁹), wrote: ‘Streets and sidewalks are the most vital public places of a city, and its most vital organs.’ Inspired by this reflection, a research project was conceived and developed in the city of Rome, envisioned as an urban regeneration of public road space through Tactical Urbanism and Spatial Design interventions. These interventions aim to transform street space into a social, democratic, and sustainable place in service to the citizens.

Innovative Features

The project strategy involves identifying references both in terms of methodology and operations to export them to other similar urban contexts. The goal is to encourage new ways of experiencing urban street space through the implementation of light, economical, and experimental interventions in place of underutilized surfaces such as widenings, intersections, and parking areas that have not been optimally designed yet.

Methodology

The design development was preceded by an analysis phase of the uses, functions, and qualities of public space. An online questionnaire was administered to the community living in the area, involving associations and residents familiar with the problems and potentialities. The methodology begins with the classification of public street space into five macro-categories of interventions. These categories contain subcategories of interventions to be implemented based on natural-based solution principles. The street is transformed through tactical urban planning interventions and the design of cycling and pedestrian paths.

Results

The questionnaire results reveal that residents use public spaces unevenly, traverse locations without lingering because they are poorly livable and lack reassurance, and perceive the street with a strong sense of insecurity. The proposed design aims to foster interdisciplinary collaboration between urban planning and spatial design, with the goal of identifying an innovative approach to public space with potential social and economic impacts.

Abstract

Jane Jacobs nel libro “Vita e morte delle grandi città (Einaudi 1969)”, scriveva: “Le strade e i marciapiedi costituiscono i più importanti luoghi pubblici di una città e i suoi organi più vitali”. Da questa riflessione viene ideato e sviluppato un progetto di ricerca svolto nella città di Roma pensato come una rigenerazione urbana dello spazio pubblico stradale attraverso interventi di Tactical Urbanism e Spatial Design, in grado di utilizzare lo spazio-strada come luogo sociale, democratico e sostenibile al servizio dei cittadini.

Caratteri innovativi

La strategia progettuale è quella di individuare dei riferimenti sia sul piano metodologico che in quello operativo in modo da poterli esportare in altri contesti urbani simili che incentivino nuove modalità del vivere lo spazio urbano stradale attraverso la realizzazione di interventi leggeri, economici e sperimentali al posto di superfici utilizzate come slarghi, intersezioni e parcheggi ma non ancora ottimizzate correttamente.

Metodologia

Lo sviluppo della progettazione è stato preceduto da una fase di analisi sugli usi, funzioni e qualità dello spazio pubblico con un questionario online sottoposto alla comunità che vive il territorio attraverso il coinvolgimento di associazioni e residenti che conoscono i problemi e le potenzialità. La metodologia parte dalla classificazione dello spazio pubblico stradale in cinque macro-categorie d'intervento. Le cinque macro categorie contengono micro categorie di interventi da realizzare secondo i principi delle natural based solution . La strada viene trasformata attraverso interventi di urbanistica tattica e progettazione di percorsi ciclopedonali.

Risultati

Quello che è emerso dal questionario mostra che: gli abitanti frequentano gli spazi pubblici in maniera disomogenea; attraversano, senza sostare, i luoghi perché scarsamente vivibili e poco rassicuranti; la strada viene percepita con un forte senso di insicurezza. La proposta progettuale auspica di ottenere un lavoro di carattere interdisciplinare tra la pianificazione urbana e lo spatial design con lo scopo di individuare un approccio innovativo dello spazio pubblico con possibili ricadute in ambito sociale ed economico.

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_VIVERE LA STRADA COME SPAZIO PUBBLICO



STRATEGIE ED OBIETTIVI

Sistema ambientale strategico "green connector"
cioè la connessione tra i parchi naturali, il patrimonio storico-culturale e il paesaggio antropologico contemporaneo (ossessione urbana e la biodiversità). L'obiettivo è il recupero, la tutela e la progettazione di spazi definiti con atti urbani pre-prodotti e poi la progettazione di corridoi verdi con viali alberati e percorsi contemporanei.

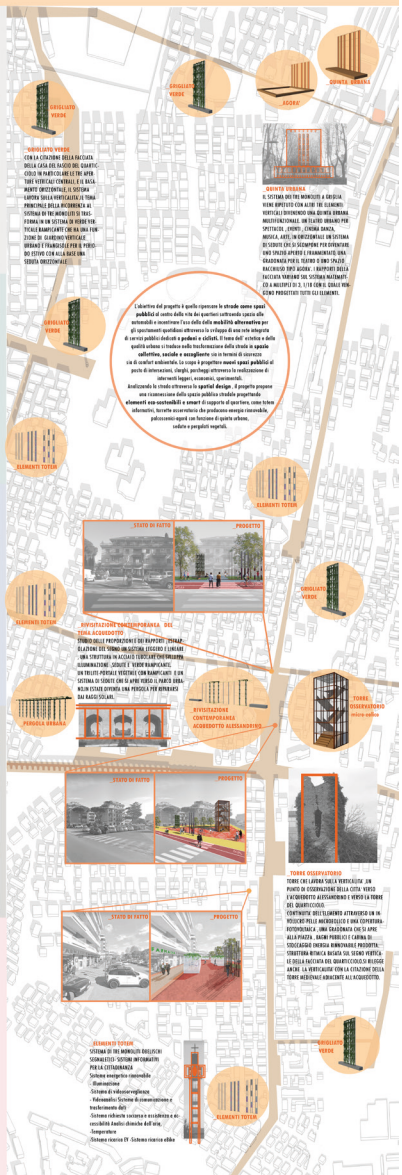
Sistema morfologico: strategia "centrality interaction system" all'estremità della smart city (ad una struttura basata su 4 quartieri attraverso una rete interconnessa di spazi pubblici) (strutture rigeneranti con azioni di tactical urbanism e public design).

INTERVENTIONS:



_ABACO: CATEGORIE ED INTERVENTI PROGETTUALI

DESIGN DELLO SPAZIO PUBBLICO



Dottoranda: MARCO PROIETTI
Facoltà di Architettura - Dipartimento di Storia, Disegno e Restauro per l'architettura

Titolo ricerca: Vivere la strada come spazio pubblico
Dottorato in Disegno Ciclo: XVIII

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M. Proietti received the special mention for the Best Poster Award, VIII International Conference De-*Sign* Environmente Landscape City 2023.

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