PROJECT THINKING ON DESIGN

DESIGNING IN TIMES OF CRISIS

Envisioning and Applying

EDITED BY JORGE CRUZ PINTO,
LJILJANA ČAVIĆ,
HUGO LOPES FARIAS, AND
LUIS MIGUEL GINJA

ROUTLEDGE

Designing in Times of Crisis

Designing in Times of Crisis offers insights, visions, and strategies for architects and urban designers to question and respond to the crises and challenges of the contemporary anthropocentric world. The book highlights the urgency of addressing global crises and encourages architects and urban designers to consider new approaches related to gender equity, city ethics, and fundamental human rights. It promotes the adoption of sustainable practices that heed the social, economic, and environmental impacts of their work, particularly focusing on Portuguese and Brazilian contexts.

The book fosters new thinking and practices to provide a comprehensive overview of the challenges and opportunities facing contemporary architecture and urban design. It investigates how these disciplines can adapt to the fluidity of the digital age, respond to climate change, and embrace social justice, all while maintaining a commitment to innovation and sustainability. The book is divided into two parts: "Envisioning" and "Applying". The first explores various urban and architectural proposals triggered by climate change and contemporary social issues. The second focuses on different experimentations in architectural and urban design, building techniques, dwelling, and teaching during the COVID-19 pandemic, as well as citizenship formation.

This timely research is relevant for students, researchers, and practitioners interested in architecture, urban planning, and sustainable design.

Jorge Cruz Pinto is a Portuguese architect and visual artist. He is currently a Professor at the Lisbon School of Architecture, University of Lisbon, Portugal. He was president of the Scientific Council, former head of the Architectural Design Department, and founder and former president of the CIAUD – Research Centre for Architecture, Urbanism, and Design. He was also an invited professor at *La Sapienza Università di Roma* and at the *Facoltà di Architettura di Matera*. Pinto's publications include several books and scientific articles about architecture, aesthetics, architectural design works, and art works, namely para-architectures.

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Preface

With the increase in temperatures by 2 degrees centigrade since 1900, the greenhouse effect began the melting of the polar ice caps and facilitated the threat of flooding, cyclones, and erosion; the risk of the disappearance of coastal areas; the proliferation of wildfires; and the increase of desertification.

At the turn of the 20th century and already in the 21st century, there has arisen a greater individual, collective and international awareness of the seriousness of the problem of climate change, which is simultaneously local and global, leading to the creation of world organizations and events which seek to mitigate the problem: the World Meteorological Organization, founded in 1988, and the United Nations with the Intergovernmental Panel on Climate Change of experts on the evolution of climate (IPCC) have promoted a number of international summits in order for the various countries to find solutions together. The Kyoto Summit in 2007 and the Paris Summit in 2015 indicated various targets for the reduction of the emission of carbon and other toxic gases, and carbon neutrality by 2050, foreseeing a reduction of 1.5 degrees, above average values for the pre-industrial era.

Although the recommendations issued by the various summits held and various scientists and authors are clear, the great economic and political powers such as China, Russia, the United States and India, who are the main countries responsible for the emission of gases into the atmosphere, are still ignoring the warnings, do not carry out their responsibilities, and do little or nothing to promote the implementation of renewable energy sources.

An interesting synchronism between events occurred between the 10th Projetar Seminar (from 29 October to 19 November 2021) and Cop 26 – Conference of the Parties – which took place in Glasgow (from 1 to 12 November 2021). The summit on climate change was already predicted to be a fiasco at the time, with the announced absence of China and Russia, the retraction of India and the discreet presence of the United States. No realistic plan was forthcoming to cut emissions of gases and mitigate the greenhouse effect, whose objective would be to reduce the warming of the planet by 1.5 degrees by 2050. Meanwhile, the War in Ukraine pushed the problem of climate change into the background.

It is the younger generations headed by the young activist Greta Thunberg who challenge irresponsible political attitudes, appealing, and calling for concrete means of preservation of the environment, beyond the talking and inertia of the political status quo.

In order to deal with the climate crisis, the European Union created the European Ecological Pact in 2019, aiming at 2050 to eliminate greenhouse gases, foreseeing that economic growth would not depend on the use of these resources. Within this context, the New European Bauhaus was created, in order to incentivize sustainable architectonic imagination in harmony with nature, enriched by culture and the arts, looking towards future inclusivity. However, the invasion of Ukraine demonstrated the degree of real dependence that the countries of Europe (especially those of Central Europe) have on fossil fuels, and instead of seizing the moment to move towards green energy, continue to insist on the status quo in energy.

We know that in the overall calculation of emissions of CO_2 and other greenhouse gases, the construction sector is responsible for some 40% of annual global emissions, 28% being construction work and 11% construction materials and construction (including carbon). Just three of the main construction materials – concrete, steel, and aluminium – are responsible for 23% of total global emissions. The remaining 60% of greenhouse gas emissions come from other sectors of the industry, transport, and other factors (https://architecture2030.org/why-the-building-sector/).

As alternatives to the proliferation of the main materials of construction – concrete, steel, and aluminium – in modern and contemporary architecture, recourse to ecological materials (mineral and earth geomaterials, and materials from a vegetable biobase) and new sustainable materials supported by new technologies, as well as recycling of material from demolition and reuse, will seek to mitigate environmental impact. Similarly, the concept of "reuse" is extended to the level of urban-architectonic rehabilitation and renovation, which have proved be economically and environmentally friendlier than building from new.

It is predicted that approximately two third of the built global area extant today will still exist in 2040. These buildings will continue to emit CO_2 and will not contribute to meeting the targets of the Paris Agreement, of 1.5, degrees of reduction of global warming. In 2007, Bill Gates warned, in his book *How to Avoid a Climate Disaster*, that it would be necessary to reduce carbon emissions to zero and use 100% renewable energy in order to attain these targets.

In order to accommodate the increase in the world population predicted for 2060, double the current built area would be required. Similarly, the population increase until the end of the 21st century will greatly affect potable water resources, which are tending to become scarcer and subject to the politics of privatization and increasing contamination produced by the agricultural and industrial sectors and basic hygiene. It is calculated that, on account of the increase in the word population, to high patterns of consumption, to intensive agriculture and the acceleration of industrial development, by 2050, one third of the world's population will have serious restrictions on the consumption of water.

As is known, water is the most precious element and vital resource. The phrase "Water Crisis" is intimately linked to the crisis in the environment, in the city and in architecture. For this reason, it is also necessary that we reflect and recover ancestral architectonic solutions of making use of the "water cycle", with the help of accumulated knowledge and innovative solutions, as the exemplary bioclimatic

architectural projects of Hassan Fathy, and the Seawater Greenhouses of Charlie Paton, located in desertified coastal zones, demonstrate.

As for natural disasters, there are those that affect us cyclically, such as floods, droughts, and earthquakes, though unfortunately memories are short. Lisbon has suffered a number of earthquakes throughout its history. The last, in 1755, destroyed the downtown area, giving rise to the Pombal Plan and its urban and architectonic rebuilding, which includes the innovation of a wooden anti-seismic system, called a "cage". Unfortunately it would seem that in a future earthquake, a great part of the city will be destroyed through political negligence, given the lack of concern evident in the legitimation of deficient structural solutions. Apart from reflecting on these architectonic-structural questions, the theme of emergency architectures, given the reality of disasters and refugees, is also part of the context of this seminar.

The concept of "Sustainable Development", coined positively, became a cliché that serves all political and economic designs, applicable also to the sectors of environment, architectural construction, and urbanism. Among several examples, it is clear that the use of photovoltaic panels, producers of green energy, and digitalization all require materials such as silicon, lithium, copper, and rare metals. The extraction of these minerals causes irreparable environmental damage in various regions of the world, including China, Chile, and Africa. Additionally, the environmental impact of using large areas of land for photovoltaic panels, which could otherwise be reforested, is problematic. A better alternative is the proper integration of photovoltaic panels into architecture and urban spaces, where energy can be consumed directly.

In addition to our responsibility as inhabitants of the planet and consumers responsible for the contamination and devastation of nature, what should be our role as Sapiens and ethically aware citizens in order to reduce our ecological footprint? And how should we act from within our educational, scientific, disciplinary, and professional fields, in the areas of architecture, urbanism, and design, in a way that is truly sustainable? What are the "Ideas to delay the end of the World" as one of our keynote speakers, Professor Ailton Krenak, asks?

As far as we are concerned, as teachers, researcher architects linked to the construction sector, we have a great responsibility. Therefore, the theme "Architecture, City and Territory – Design in Contexts of Crisis", raises new challenges for architectural education, research, and practice.

Along with the crisis left by the pandemic, others are approaching with climate alterations, wars, and the consequent question of refugees, there are still other imponderables, such as earthquakes and other crises, which are challenges to which the project ought to contribute in order to mitigate and to find creative and innovative solutions, which should be included from actual teaching, training, and academic research and put into practice in the exercise of this liberal profession.

Beginning with the inclusion of more suitable bioclimatic content in the revision of study plans, with the aim of predicting and anticipating the future. This is the real meaning of the word and act of "Designing", foreseeing crises and to bring to the present ideas and solutions for the future in which they will be employed.

Jorge Cruz Pinto

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On behalf of the Lisbon School of Architecture and personally, I would like to congratulate the keynote speakers who kindly accepted our invitation to participate in the 10th International Design Seminar "Designing in Times of Crisis": Architect Dominique Gauzin-Müller, Philosopher and Environmentalist Ailton Krenak, Architect Eduardo Souto Moura, and Architects Elisabetta Trezzani and Paolo Filippo Pelanda of the Renzo Piano Building Workshop. I also thank all the participants and all the lecturers who contributed to the revision of the articles published here, and I reiterate my gratitude to Professors Maísa Veloso and Gleice Elali. Lastly, I offer my thanks to Professor Hugo Farias, co-coordinator of this seminar; Professor Jorge Boueri, Professor Eduarda Lobato Faria, and Professor Ljiljana Čavić, who were members of the organizing committee; and the teams from FAUL: Communications Office, Designer Filipa Nogueira, and Architect Alexandra Luis and the technical team: Miguel Miranda and Miguel Rafael.

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Introduction

Jorge Cruz Pinto

The book "Designing in Times of Crisis" is an output of the 10th International Design Seminar with the same name, established by the *Projetar* Group, attached to the Centre of Technology at the Federal University of Rio Grande do Norte (UFRN), organized and held in 2021 by CIAUD – the Centre for Research in Architecture, Urbanism and Design of Lisbon School of Architecture and in conjunction with the *Projetar* Group.

Though the COVID-19 pandemic caused a delay in the schedule initially planned, it was possible to hold the seminar, partially in-person at Lisbon School of Architecture, and more general remotely online. This situation allowed us to bring together 186 papers, with a total of 362 participants, from various schools of architecture in Brazil, other countries in South America and from the FAUL, as well as the interventions of keynote speakers, and a series of noteworthy invited guests, recognized in academic and professional circles nationally and internationally, who were present during the thematic round tables of the pre-event such as: Ana Maria Monteiro, Ailton Krenak, Aline Vérol, Alvaro Siza, Álvaro Puntoni, Angelo Bucci, Carolina Pescatori, Carlos Faggin, Dominique Gauzin-Müller, Graciete Costa, Doris Kowaltowski, Eduardo Marçal Grilo, Edurado Souto de Moura, Elisabetta Trezzani, Ethel Pinheiro, Filipa Roseta, Hélder José, Ingrid Braga, Joana Cabral, João Charters Monteiro, João Luís Carrilho da Graça, Manuel Aires Mateus, Mariana Santana, Nuno Mateus, Paolo Pelanda, Rodrigo Queiroz, and Sylvio Sawaya

The seminar's theme, "Architecture, City and Territory – Designing in Contexts of Crisis – New Challenges for the Teaching, Research and Practice of Architecture", would become in some way premonitory and opportune, given the crisis, in health, society and economy, caused by COVID-19, augmented by a greater awareness of the climate and environmental crisis, which characterizes the Anthropocene age. Will the climate crisis be part of the plan as James Lovelock said in an essay from 2007 "The Revenge of Gaia: Why the Earth is Fighting Back – and How We Can Still Save Humanity", in which he recommends that we "preserve the Planet before it destroys us"? Is the Earth a living entity? And is this the vengeance of the goddess Gaia against parasitic humanity? Is it a reply to Homo Sapiens, the inhabitant responsible for the damaging the planet, for the destruction of ecosystems, of biodiversity, and

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for the annihilation of its own species? This is the situation that leads to the development of technological intelligence, when it is placed in the service of greedy human ignorance.

Therefore, current urban-architectonic thought should be holistic, and forms should not be reduced to the plastic gesture, but derive from integrated solutions, in programmatic, bioclimatic, and local and global cultural terms, of choices of sustainable materials, and of reconciliation between the technological, ecological, aesthetic, and spiritual aspects. Promoting the "Praise of Emptiness", in its positive senses of strippedness, of reformulation of urban spaces and natural landscapes, or of non-construction, also constitutes an aesthetic, ethical, and spiritual way of respecting environmental and cultural values.

The book is divided into two parts: *Envisioning* and *Applying*. *Envisioning* encompasses different urban and architectural proposals triggered by climate change and contemporary social issues. *Applying* focuses on various experimentations on: architectural and urban design and building techniques, dwelling and teaching during the COVID-19 pandemic, citizenship formation.

Part I: Envisioning

Chapter 1. From Solid to Liquid Contemporary Architecture: A Crisis of Space and Time – Jorge David Morales Alvear

This chapter examines the evolving concept of time and space in architecture, from St. Augustine's linear time to the modernist integration of technology and mobility, leading to today's crisis where time often overshadows space. Drawing on thinkers like Byung-Chul Han and Zygmunt Bauman, it addresses contemporary challenges and suggests liquid, parameterized architectural forms as responses to our fluid societal context.

Chapter 2. Hacking into Green Deal Neighbourhoods with City Ethics and Fundamental Human Rights – Alexander Matthias Gerner

This chapter critiques the European Green Deal and New European Bauhaus through the lens of urban ethics and human rights, warning against "greenwashing" and advocating for genuine cultural and legal changes. It proposes integrating city ethics and soil justice into the European way of life, inspired by thinkers like Richard Sennett and Ferdinand von Schirach.

Chapter 3. The Architecture of the Seven Elements: Project for the Environment – Jorge Cruz Pinto

Proposes integrating environmental preservation in architecture using seven elements: Earth, Fire, Water, Air, Aether, Alchemy, and Element X. The chapter highlights the importance of natural construction materials, passive bioclimatic solutions, and stronger connections between buildings and their environments, illustrated through the author's design examples.

Chapter 4. Rehearsals of Shared Encounters for Improvising a Public Square – Alexander Matthias Gerner and Ljiljana Čavić

Discusses the concept of public spaces as stages for social interaction, proposing minimalistic and adaptable design strategies that allow for improvisation and shared encounters. This chapter emphasizes the transformative potential of crises and the importance of collaborative, flexible public space design.

Chapter 5. Social Housing Architectural Competitions in Brazil: Analytical Potentialities– Fabiano Sobreira, Maria Schulz

Examines the qualitative analysis of architectural competitions for social housing in Brazil, using tools from the Universitat Politècnica de Catalunya. The chapter analyzes two case studies from Brasília, highlighting the potential of competitions to improve social housing quality through balanced, reflective, and critical design processes.

Chapter 6. One Piece of the Environmental Puzzle – The Relationship between Architectural Practice and Climate Change – Juliane Freire and Paulo Pereira Almeida

Explores how early-stage architectural programming can incorporate environmental concerns to reduce buildings' ecological impact. The chapter advocates for a shift from efficiency to regenerative design, aligning with policies and Sustainable Development Goals to combat climate change through architectural practice.

Part II: Applying

Chapter 7 Modular System of Small Wood Components, Self-Built and Gender Equity – Alanis Larissa Fernandes Boganika

Investigates the potential for modular wood construction systems to empower women in Brazil's peripheral areas. The chapter explores how lightweight, dry-assembled materials can provide autonomy in building and maintaining homes, addressing social inequalities, and promoting gender equity in the construction industry.

Chapter 8. Experimentation with Building Techniques Using Earth in Professional Training: A Path for the Architecture of Response – Ana Valéria Soares Nunes, Ingrid Gomes Braga, and Taynah Machado Pacífico de Sousa

Presents a methodology for training architects in vernacular construction techniques using earth, emphasizing ethical, low-impact practices. The chapter showcases a project in Maranhão, Brazil, demonstrating how these techniques can address socioeconomic and environmental crises and enrich architectural education.

Chapter 9. House, Body, and Windows: Space-Time Interferences during the COVID-19 Quarantine – Paula Gabbi Polli, Fabiana Ferreira Carvalho, and Michele Baruffaldi

Analyzes the reconfiguration of domestic and social spaces during the COVID-19 pandemic, using netnographic analysis of video records. The chapter explores how confinement altered interactions with the home, windows, and urban spaces, highlighting adaptive strategies and new spatial meanings that emerged during quarantine.

Chapter 10. Children's Mobility in the City: The Attachment to the Urban Environment as Formation for Citizenship in Quixadá, Brazil – Diego Freire Martins and Verônica Maria Fernandes de Lima

Examines how children's mobility patterns in Quixadá, Brazil, affect their attachment to the urban environment and citizenship development. The chapter contrasts active and motorized transportation, revealing that active mobility fosters stronger environmental knowledge and place attachment, crucial for forming engaged citizens.

Part I

Envisioning

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1 From Solid to Liquid Contemporary Architecture

A Crisis of Space and Time

Jorge David Morales Alvear

Introduction

The current scenario of health, social, and environmental crisis invites debates on new construction functions and systems as well as on reflections about architectural theory. It could be said that it is a search for solutions in which the Vitruvian triad is not sacrificed in any of its parts; instead, new vectors are added for a more flexible, adaptable, and resilient architecture.[1] Time transforms societies and puts them into crisis; understanding its relevance in space is understanding today's architecture and what is expected for the future of cities.

Reflecting on time is a task that has led scientists and philosophers to revolutionize the history of humanity. Between the years 354 and 430, St Augustine (Agostinho, 1979) presents a linearity between times coexisting in space, in which the future does not exist until it becomes present, and the present succumbs immediately as it becomes past. He introduces the idea of interrelated, coexisting times, where the present serves as an indivisible bridge between the future and the past: the future as the hope of the present, and the past as its memory. Centuries later, Bauman (2004) points out that understanding of the space-time relationship begins with modernity, since in the classical world no deep explanations were required for this comprehension as travelling was done by foot or on horseback, so distances and time were easy to track. However, the creation of machines that could travel faster than muscles changed that perception and its theorization.

The Industrial Revolution expresses a modern, continuous time with its "progress forward" motto. According to Sidney Tamai (2018), this represents a direct opposition between modern architecture and the linear, Renaissance perspective. That perspective implied the deformation and representation of objects according to how they were captured by the human eye from different distances, according to Rejón's (1827) translation of the writings of Leonardo da Vinci.

With regard to scope, this study focuses on contemporary architecture, starting from the idea of modernity and progress, based on two concepts of time: one developed by the sociologist Zygmunt Bauman (liquid modernity) and the other by the philosopher Byung-Chul Han (the scent of time). This chapter relates these conceptions and their temporal implications for today's architecture. To that end, the study resorts to the theory of Ignasi de Solà-Morales and Iñaki Ábalos, primarily

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regarding the so-called liquid architecture and the positivist house, respectively; among other authors who show us that, just as time moulds architecture, it is also a challenge for today's architects to give form to time.

Solid Modernity

Bauman (2004) points out that modernity was initially characterized by solidity: there were strong social bases, such as the labour relations that connected employee and employer, based on mutual necessity and trust. Social values were reconfigured, with solid foundations that would lay the basis for the new man, and in turn, for the development of the big city, thus creating massive structures which expressed trust and power and, most of all, allowed to predict and control the world.

Architecture and the city need a regulating design. Le Corbusier taught us "Modern life asks for and expects a new plan, both for the house and the city" (1973, p. 25). He also argues for the need to control each integral part of architecture, to order such parts, and to treat these spatial relations with engineering-like rigour, precision, and economy, thus creating the so-called "machine for living in", an expression of an anthropocentric, positivist time. Control becomes a key subject for the architecture that develops in the early 20th century. Ábalos (2000) criticizes the control in the positivist house – a reflection of modernity –, saying that "[…] in the modern space, the private is exposed, the domestic is nullified, the intimate is chastised. It is a visibility turned into surveillance… The house is a machine for surveilling" (2000, p. 75).

The linear time that never looks back is a struggle towards progress, a time which has lost the past. Ábalos (2000) observes that a different valuing is produced between past and future, i.e. a present which minimizes all that precedes it: the past is demoted. He also points out that what is intended in thinking of the future is to predict and control cities' growth, and urbanism manifests itself in this way. For the Spanish architect, this is an architecture for the floor plan, for the square metres, suitable for optimizing industrial processes. An architecture where time, space, and function are all organized and clocked, so that functions coexist without interferences: it is a perfectly coordinated space. Whoever controls time obtains better opportunities, subdues space, and gains territory and development. Capitalism is also strengthened in the process, which fits perfectly the slogan "less is more", since less can yield more, more produced in less time, as Aureli (2016) points out.

On the other hand, Vieira de Aguiar (2006) explains that architecture begins its direct connection with topology; space is evaluated and conceptualized based on the circulation within buildings. He stresses that space is from then on conceptualized, thanks to movement, which represents a focal point for the modernist composition. The *promenade architecturale* begins to take form. The author also shows that spatiality arouses interest for its direct connection with the architectural programme, since functions develop in the empty space. Moreover, he warns that this spatiality is dominated by depth and axiality, with the architectural object's outline playing a secondary part.

Conceiving the modern form implies an aesthetic, organizing system which comprises both an intellectual and a visual exercise, understanding form as the relationship between elements, and not as an external figure or the first impression of things, as highlighted by Helio Piñón in his 2005 work. Thus, the essential thing is to view the connections of the architectural artefact's elements with themselves and with the furniture and the city. Tamai (2018) agrees that the main focus of modern architecture is the sense of sight. The author points out that this way of seeing architecture is related to cubism. It is a gaze which is at once an asynchronous and a simultaneous point of view. He notes, however, that modern architecture is still linear as it possesses a new hierarchy: that of its functions. He stresses that spaces are coursed according to their functions, and not simultaneously, which represents a logical, homogeneous, and continuous time, thus implying again a narrative and therefore linear journey.

Nevertheless, the crisis (or crises) of modern architecture would start; order and control could not hold for long. Regarding this, Solà-Morales observes that the modern masters, in rejecting the classic linear perspective, proposed a time organized as if it were a controlled film sequence: "In Le Corbusier, the promenade architecturale is not a diversity [diversity of times], but a route that can be controlled" (Solà-Morales, 1987, p. 73). Ábalos, too, points out that the modern space is enlisted, transformed, and quantified by movement: "[…] a space without memory, thrown into the future against the past" (2000, p. 75). Vieira de Aguiar (2006) shows that these relations are analysed based on the floor plan, according to its distribution, and that thanks to Foucault, similarities were found between schools, prisons, and hospitals which indicate a clear intent to control each individual's movement, time, and space. This solid stage goes into crisis and gives way to the fluidity of liquid modernity. The industrial and technological development, supported by science and its "progress" motto, produces advancements but also conflicts, as Ábalos points out.

> […] positivism, which is a dream of reason, is not only the indirect inducer of the most atrocious episodes of the 20th century – Hiroshima, Auschwitz –, but it is also the most outdated ideology, the only one which was devoured by the very god Chronos through whom it planned to give us unity and order.
>
> (2000, p. 70)

Liquid Modernity without Aroma

Bauman (2004) points out that we live in a liquid modernity, which can be taken to represent that the modernization process is still in course. The sociologist uses this adjective by way of reference to the physical properties of liquids, for example their ability to couple with different shapes. Liquid matter which is ever changing, bears no tension and, under the slightest pressure or contact, undergoes alteration.

For Bauman, this crisis, which begins by melting the solids, is produced through the acceleration of movement:

> What induces so many theorists to speak of the "end of history," postmodernity, "second modernity" and "supermodernity" […] is the fact that the long effort to accelerate the speed of movement has already reached its "natural limit." Power can move at the speed of the electronic signal.
>
> (Bauman, 2004, p. 16)

In other words, contemporaneity reflects that leap from the mechanical-industrial to the digital-virtual. If speed was already a synonym for power, in liquid modernity, according to Bauman (2004), power becomes extraterritorial, technology eliminates the distinction between near and far, dependency on space is excluded, and its place is thus occupied by time. He also points out that what matters for fluids is the flow of time, and no longer the spaces. This leads to valuing as progress and improvement everything that is small, easy to carry, not cumbersome, and conducive to lightness and speed, like a light mobile phone. Fluidity is perceived as lacking friction or resistance: "[…] today, what yields gains is the rampant speed of circulation, recycling, aging, discarding and replacement – not the durability and lasting reliability of the product" (Bauman, 2004, p. 19).

With this panorama, the reason for the diversity of directions taken by contemporary architecture starts to become clear; today's architectural heterogeneity reveals a compulsive need for change, no longer based on the constant invention advocated by modern architecture, but an architecture of form rather than substance, or should we say of figure?

Solà-Morales (1987) points out that the crisis of the modern project gives rise to uncertainty, and – referencing Nietzsche – it is similar to the "death of God", i.e. the absolute entity to which reality and the global vision refer. The solid, integrative global system is lost, and thus the aesthetic field disintegrates. Therefore, he stresses, in contemporary art, for each proposal, a new object and its justification are simultaneously posed. And he uses the term "weak architecture" to refer to these consistencies between apparently disparate architectural examples, which have this common weakness, consistencies mainly related to time and the aesthetic experience.

Within the poor models and values of the contemporary world, Solà-Morales notes that the aesthetic field reaches a privileged position, even if not a central one, valued rather as a paradigm: "The aesthetic experiences are somehow the most solid, strongest model, paradoxically enough, of a weak construction of the truth of the real" (1987, p. 66).

Byung-Chul Han, regarding aesthetics, points out that today we have a fascination for the clean, the reflections, the simple, and the sober, which manifests itself in the triumph of Jeff Koons's art, hair removal, and the iPhone phenomenon. Aureli (2016) agrees with the seduction that simplicity imposes, but warns that behind it lies a false asceticism that has constituted a great achievement for corporate capitalism, epitomized in the ascetic figure of Steve Jobs and his

Apple products. Artefacts that show purified, polished, and tactile surfaces, seen through the architectural lens, pose no resistance, since they speak of fluidity and even of a certain visual weakness. Han (2015b) emphasizes that this is an art for today's positivist society – as opposed to negativism – based on complacence, on likes, and on the "share" button, since the surface matters and must be always polished, it accepts no conflicts or scratches. The philosopher says that this type of art requires no hermeneutics or aesthetic judgement; it does not disturb and does not demand any effort for its appreciation; it is enough to say "I like it".

Piñón (2005) is quite emphatic in referring to current architecture as the reflection of a constant loss of visual and organizing foundations, caused by the abandonment of the modern tradition and thus of aesthetic judgement. Therefore, today "the concept" is used, according to him, to try to explain each new proposal, i.e. ideas external and unrelated to architecture to justify sporadic inventions. A damage to the more attentive visuality which critics and architects have induced, and they thus "provoked a crisis in the modern gaze without offering in return an alternative way of seeing and, therefore, conceiving" (Piñón, 2005, p. 159). That which for Bauman is instantaneity, and for Solà-Morales, simultaneity: liquid modernity producing weak architecture. Solà-Morales (1987) refers to temporality as a central though discontinuous subject, which differs from the classic world, since the present is an open, diverse time. He points out that we experience reality based on different temporalities and that, indeed, each artistic expression has its own time; therefore diversity "[…] turns the aesthetic experience of the artwork, and of architecture in particular, into an event" (1987, p. 73). Temporality is thus reduced to an instant; according to the author, this temporal experience is born at random and just as quickly disappears forever.

For Han (2015a), the classic, mythic, or historical time, known for its linearity, presented an aroma on account of the narrative; time gains aroma when it has breadth, depth, and continuity. However, he explains that today we experience an atomized, dispersed time which moves without a fixed direction, because it has lost its support, its base. This time has a side effect, which is our perception that it passes faster than before, as if it were accelerated, and that causes us to identify with the ephemeral and fleeting. This temporal crisis stems from the fact that the past and the future have become disconnected from the present; each instant is born and dies in itself. Han quotes Nietzsche in saying that this happens after "the death of God" and the end of history: "Now it is the free man, and not God, the master of time. Freed from being thrown, he designs the future" (2015a, p. 34). Today we go through lived experiences and not experiences, since the former presuppose a point-like, poor temporality, completely unlike the latter. This produces a lack of commitment and loyalty, since the author affirms that these are genuine temporal practices which imply a sequence with the future; therefore, such practices cannot be carried through in the information age: "Electronic memories or any other technical means of repetition annul the temporal interval, the interval that is responsible for forgetting. They make the past available to the moment. Nothing should prevent instant access" (Han, 2015a, p. 61). Today, with information in the palm

of our hands, the whole past loses interest, nothing exists if it is not present, and remembering something makes no sense when it is an electronic-instantaneous act.

Contemporary architecture also shows its obsession with the simple, with lightness, a game between transparencies and opacities, and the desire to dissolve into the environment and float like a cloud. We can also see the dominance of skins, a search for the fast and original which ends in extravagance and peters out into a momentary aesthetic experience of simple surprise. Han (2015a) stresses that, in this hyperkinesis, the future is also irrelevant; only the tactile and instantaneous is valid; it is urgent to rush towards another present; and there is no room for contemplation, for understanding, or delay.

Bauman (2004) says that time affects solids and liquids differently, since liquids can only be described through the infinite snapshots that are taken according to the incidence of time on their form; this fluidity is not unrelated to architecture. Such centrality of time over space can also be the key to theorize about the architecture of the 21st century, a theorization which in 1998 led Ignasi de Solà-Morales to speak of "liquid architecture".

Towards Liquid Architecture

"A liquid architecture, instead of a solid architecture, will be the one that substitutes firmness for fluidity and the primacy of space for the primacy of time" (Solà-Morales, 1998, p. 127). The Catalan master argues that such an architecture would respond to the multiplicity of categories of space and time. An architecture in which space is created and changed by time, a space instantly produced and immediately eliminated by another action. For Solà-Morales, this is an architecture contrary to spectacle, one that analyses movement in order to take form, though without falling into representation, since it is the flows which command; he says, for example, that airports or maritime stations should not have as a purpose their external appearance. However, the author points out that there are still no tools for controlling "space/time/event" (1998, p. 134).

Besides the technology, another step towards this architecture means the application of topology. Vieira de Aguiar (2006) refers to Tschumi's studies on the "violence of architecture" where people are subjected by the space, as much as the space is violated by the people moving through it. Hence, there is a constant interaction between user and architecture in which both are simultaneously affected. This is a subject that highlights time and user as key actors, since the latter, through his own movement, can also create spaces and modify his environment. Ultimately, architecture ceases to be the space for containing actions and becomes itself the action. However, the author also notes that spatiality is more and more underestimated and falls into neglect in the practice of today's architecture and urbanism, where the representation of a social status predominates, i.e. appearance and surface.

In the same way that Han (2015a) presents a time tumbling without direction, Tamai concurs that something similar, fragmentary, and random occurs in architecture: "The unity of modernity is pressed by fragmentation in all directions, and

form is non-form in its being an architecture of time" (2018, p. 549). For his part, Gausa (1999) adds that our universe and time react to non-linear processes, while architecture continues to use rigid, unaltered patterns, which leads to a mismatch between an aged architecture and young sciences. He also says that a paradigm shift would be necessary to solve this new order of dynamism, characterized by what he calls the "in" factor arising from information, which leads to uncertainty, instability, intermittence, infinity…. He thus underscores that information is a new dimensional vector. And he stresses the need to create more elastic devices that can insert and process information while mutating with it. From this perspective, we can say that this is a key issue for the current scenario in which we face climate change and social and health crises.

Buildings whose purpose is not the object's form as the ultimate climax of the Vitruvian triad, but rather whose centrality is the fourth dimension, are what parametric architecture seeks to produce. In this regard, Tamai (2018) refers to the use of new software like Grasshopper, which shows endless possible responses according to the parameters given to the architectural artefact. This model will react and mutate according to the information inserted in each parameter; these parameters can reflect climate, context, gravity, light, etc., taking time as the guideline. Thus, form would be just a by-product of the whole process that occurs thanks to algorithms. An infinity of solutions, showing countless presents. This recreates an instantaneous time, i.e. a time without duration, where the creative process is in a certain way reduced to a spontaneous act of prototypes calculated by a generative algorithm typical of time without aroma; according to Han, "The impulse of novelty reduces the cycles of renovation. This is because nothing is capable of generating a duration. There is no work, no end, only an infinite succession of versions and variations" (2015a, p. 65).

History shows that with new means come new dilemmas and crises; although this method of parametric architecture could help the planet by showing multiple instantaneous and simultaneous spatial simulations, it also represents some new challenges for architects. Peter Eisenman (2015), in an interview by Julio Arroyo, points out that parametrization does not pose a problem of representation, but one of choice, because of the exorbitant number of variables that can be generated. The American architect observes that the digital does not offer a matrix of choices or a criterion that helps to clearly discern between the proposals, thus constituting a parametric phenomenology. For him, this process can lead to the loss of a historical notion of architecture, spontaneous solutions without a past, without foundations; an architecture which thus avoids comments of any kind about itself. Eisenman also refers to the problem implied by the speed of information, particularly through the means of communication, since architecture needs time to be understood, and today nobody stops to pay attention. In a distracted and accelerated society, today more than ever, it is necessary first to understand the past in order to comprehend the future.

Eisenman's (2015) call is for us not to depend on new materials and the superficial, but rather on space, to set limits, reduce variables, minimize possibilities, and commit to slowing down – a criterion similar to that of Han (2015a),

who reiterates that we will only recover the aroma of time if we return to a stage of contemplation. Liquid and without aroma, modernity should perhaps have a musical staff, a common language, and try to contain time. The limits that once represented a creative framing are seen today as a freedom that knew how to give the best in each era. The contemporary temporal and architectural crisis seems to require a break for breathing, in an attempt to retie past and future in a touch with the present.

Conclusion

Briefly, a classic period of time with a triad of future, present, and past mutually linked has been observed; later, the present-future duality is discerned; and today, continuing this disconnection, the contemporary present is isolated, a lonely, individual time. Part of the current architectural panorama is reflected in this time without aroma, proposals for fast consumption made for "likes", "shares", and, at best, for being kept in a virtual folder containing everything from the most ascetic models to the most picturesque objects. Nevertheless, this back and forth between the concrete and the virtual invites us to reflect on the future of architecture and its challenges, both real and digital. A debate has been opened around new terms and territories of architecture. Today, cryptocurrencies have fostered cryptoart, files called non-fungible tokens (NFT), and consequently "cryptoarchitecture" or a virtual architecture, suitable for the metaverse (Sun, 2021). In the midst of these rapid changes, part of the task rests on the shoulders of architects, possibly to put in some new rules of the game and, in essence, to keep trying to give form to time. And this without losing sight of the current health crisis and climate change, which will certainly be addressed with the new technologies, though how these responses will be shaped and conceived will also depend on architecture. Some solutions have been given thanks to parametric architecture, which introduces, at least in a virtual manner, the time vector into new architectural expressions.

Stopping and theorizing about architecture and the new times is also a call to contemplation, to learning from history, and to questioning ourselves about what time and space mean in architecture today. Therefore, Solà-Morales's words remain present: "Representing in a non-visualist, but rather a global way the kinesthetic experience of flow in metropolitan movement […] is one of the fundamental challenges for an architecture that looks towards the future" (1998, p. 135).

Note

1 Themes such as flexibility for adaptation and, above all, resilience have been gaining strength in recent decades as an urgent point to be addressed for the contemporary city and the built environment, a topic of multidisciplinary and political scale, as shown in the book "Conectividade e Resiliência: Estratégias de Projeto para Metrópole", edited by Lucia Maria Sá Antunes Costa and Denise Barcellos Pinheiro Machado in 2012.

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2 Hacking into Green Deal *Neighbour*hoods with City Ethics and Fundamental Human Rights

Alexander Matthias Gerner

Building Democratic Green Neighbourhoods

Ursula von der Leyen called the European Green Deal Europe's "Man on the Moon Moment," which, besides concrete technology and energy innovations and its technical and economic feasibility inside an economic sustainability framework, shows how the green deal is a more open design question than constructing with less cement, concrete beautiful energy-sparing buildings: What it takes is a critical approach to projecting green neighbourhoods as a differentiated *design question,*[1] in the sense of designing our whole life (Grillo 1975) or the artificial (Simon 1968) and its social, ethical, aesthetic, ecological, political,[2] (Borries 2016) and critical (Mersch 2020) assessment of adversarial agonistic cultural production (DiSalvo: 2012) that engages with the other and evokes means and forms that change political attitudes: how can we create a green deal neighbourhood that heed the crisis of democratic and social platforms, beyond submitting to monopolies of platform powers (Seemann 2021) and their worldview and economic models in the tendency of creating the similar and segregating green neighbourhoods for the wealthy while excluding all social others at the same time?

Figure 2.1 implies that the European Green Deal is a transformation process implying a EUclimate pact and showing the EU as a global leader which aims to prepare its **economy** for a "sustainable" future. In the not heeded tension between "***Financing the (green) transition"*** and the appeal to *"**leave no one behind**"* lies a wide range of different policy options – such as new constitutional addenda and as well as – unfortunate – greenwashing potential. There are several overlapping crises to be tackled, but it seems pretty certain that the green deal in Europe is a make-it-or-break-it (Leonard 2019) moment (Figure 2.2); the first[3] of all have economic roots and a crisis of inequality as a consequence of unjust distribution and access to wealth, soil (and subsequent food production and inhabitable living space) and rights, hence an ethical problem of the EU that the Covid-19 pandemic deepened even more. The second crisis to be handled is the crisis of our environment and the generations to come living conditions and to halt climate change. The third crisis is the proper systematic realm of organization of democracy and the threat of (militant) autocracy and toxic forms of populism based on data-driven and intelligent agency in the digital age.

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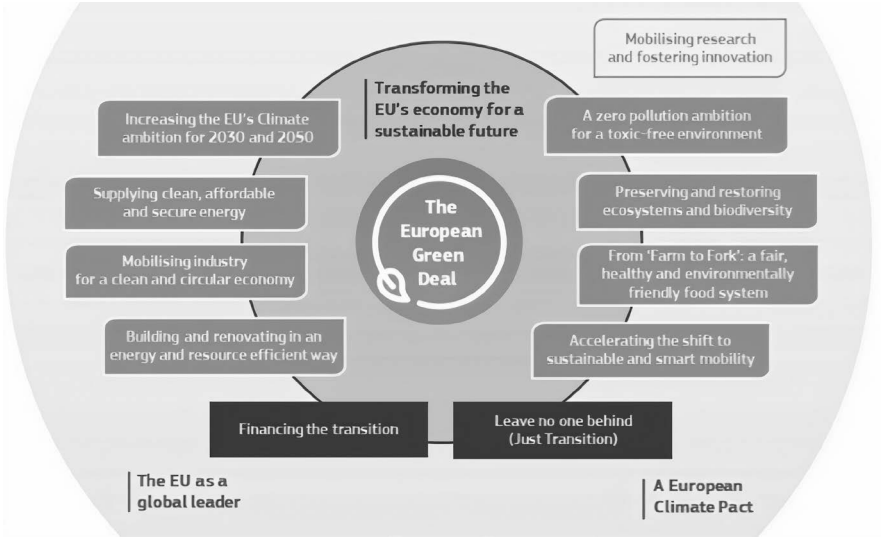

Figure 2.1 The European Green Deal.

Source: Screenshot of the document European Commission (2019:3).

> An underlying premise (…) is that gentrification[4] under the banner of the green building runs counter to the principles of sustainable development, which rests on social and economic, as well as environmental, pillars.
>
> Machline et al. (2020: 91)

Thus, activists and thinkers of a structural change such as Anne Pattifor define the green new deal as something much more significant than mere transforming the EU's economy for a sustainable future on the individual and local level, but as a challenge that surpasses restrictive piece-meal appeals such as green buildings and individualized or small-scale community[5] energy efficiency "change your light bulb"/"recycle" change:

> The Green New Deal demands major system change: economic and ecological system change. It demands structural (governmental and intergovernmental) changes, not just behavioural, community, or technological change, in our approach to the financialised, globalized economy and ecosystem. (…) "Environmental advocates tend to focus on individual ('change your lightbulbs') or community ('recycle, reuse, reduce, localize') action. We have been slow at understanding and promoting the need for radical systemic change across sectors and at a global and national level; that is, change that involves state action.
>
> Pettifor (2019: 52–54)

Figure 2.2 AI subversive hack into green deal descriptive language, proposed by nine variations of "Craiyon AI"(v2) by AI text to image generation with the prompt presented in the Figure 2.1.

Source: AI image online app https://www.craiyon.com.

It is crucial to join the green deal with augmentation of social and political responsibility with cultural and artistic means for – amongst others – building democratic green deal neighbourhoods and living labs that are dignified and can be truthfully called a new European Bauhaus.

As we do not only ask architects to design housing as "things" or constructed objects, green neighbourhoods (Figure 2.3) can be defined in the sense of Puziah et al. (2017: 55) as "neighbourhood area that meets the needs of peoples' daily activities and allows communities to control pollution, save energy, increase employment, decrease crime rates, develop friendships, practice on-site renewable energy methods and preserve agricultural and environmentally sensitive areas." EU Projects such as "IDEAS – Intelligent NeighbourhooD Energy Allocation &

Figure 2.3 Nine variations of "Craiyon AI"(v2) by AI text to image generation with the prompt: "green living labs green deal neighbourhood."

Source: AI image online app https://www.craiyon.com/

Supervision" have worked on energy-positive (Cole 2016; Cole & Fedoruk 2015) neighbourhoods (Ala-Juusela et al. 2016) concepts, beyond zero energy neighbourhood community scales (Marique & Reiter 2014), green neighbourhoods (Puziah et al. 2017) are *holistic* by going beyond questions of renewable energy (Bergek & Mignon 2017) and critical energy diffusion (Negro, Alkemade & Hekkert 2012; Verdolini, Vona & Popp 2018) alone in which combination of renewable technologies, energy efficiency – primarily through buildings and increased electrification – could achieve 90% of the necessary reductions in energy-related emissions. Democratic green (deal) neighbourhoods include *social* factors and *educational* factors. Moreover, green deal neighbourhoods include local governments (municipalities), *cultural* engagement, *citizen* participation, and green *activism*. To foster debate and reflection on *green city ethics* and

human-technology-nature relations, we need changes in policy-making modes and its toolbox. We have to weigh the pitfalls of algorithmic calculation in trendy prominent data neighbourhoods and possible loss of freedom (Müller-Mall 2020) and participation without democracy (Faßler 2020). Foremost, suppose we want to deliver on the three promises of the green deal by 2050. First, there are no net greenhouse gas emissions, economic growth cannot be decoupled from resource use, and no place and no person is left behind. In that case, we must build democratic green (deal) neighbourhoods as scalable ethical openings to the cities. This goal is proposed beyond any construction of ecological energy-efficient building blocks. What we actually need is the following: to install a "new type of thinking" (Machline et al. 2020, vi). This new type of thinking "can only emerge once the concept of 'value' reflects not only the realities of a free-market economy but also those of a planet which turns out to be distinctly limited in its resources" (Machline et al. 2020, vi).

Beyond Dataism of Formal City Science in the Metric Society

Our proposal as well goes beyond cities as an evidence-based data study (Figures 2.4 and 2.5). Cities today are objects of formal city science to gain more knowledge on the data that cities and citizens produce, including their economic value and policy applications. This kind of research realized by living labs – despite being very valuable when used as a data generation method – focuses on non-linear dynamic and legal adaptive ecologies of complex systems (Bettencourt 2021), city analytics (Higham et al. 2017). Nevertheless, we have to heed as well indicators of art/property prices (Seresinhe, Preis & Moat 2016) for culturally enhanced or even green neighbourhoods[6] as price drivers of higher ROI's in data-driven "metric societies" (Mau 2019) that privileges and sorts by national (Mau 2021) or intercity borders for instance by green cultural gentrification. Democratic green (deal) neighbourhoods aim at tackling eco-gentrification as well[7] (Machline et al. 2020) or corporate green segregation by not promoting a merely corporate smart green city (cf. The Japanese Society 5.0; Kravets, Bolshakov & Shcherbakov 2020), that aims at the convergence between cyberspace and physical space). We might even build a renewed democratic society in which green (deal) neighbourhoods are not only for the wealthy, excluding the others and economic and cultural diversity or push soil and housing prices more and more in the sky. Certainly, we do not need another crisis greenwashing. Green (deal) neighbourhoods should avoid pitfalls such as greenwashing[8] (Delmas & Burbano 2011; Hamilton & Curran 2012; Varoufakis & Adler 2020), unsustainable AI, tackling algorithmic rationalities and data misuse, and restriction of personal freedom in which inhabitants do not have to submit to an increase in private surveillance (cf. Rifkin's (2020) green *new* deal model) and loss of control by individuals and families as well as social injustice ethics challenges, soil property-green market dilemmas, and foreseeable rising housing and rental prices (Machline, Pearlmutter & Schwartz 2018; 2016) as well as pushing resilient future policies forward, starting with soil law directed

Figure 2.4 Hacking into "green new deal" proposed nine variations of "Craiyon AI"(v2) by AI text to image generation with the prompt: "green new deal city analytics."

Source: AI image online app https://www.craiyon.com/

towards social justice (Vogel 2019) and the green deal for making housing not only carbon-neutral and energy-saving but as well affordable again for improving general wellbeing (OECD 2020) as an integral part of green neighbourhoods that would imply policies that foster betterments concerning income, job quality, health, and housing.

Green Neighbourhoods: Heeding Sennett's City Ethics of the Other as a Neighbour in between Ville ***and*** Cité

> There are two ways to shun alien others: flee them or isolate them. Each way can take a built form.
>
> (Sennett 2019: 126)

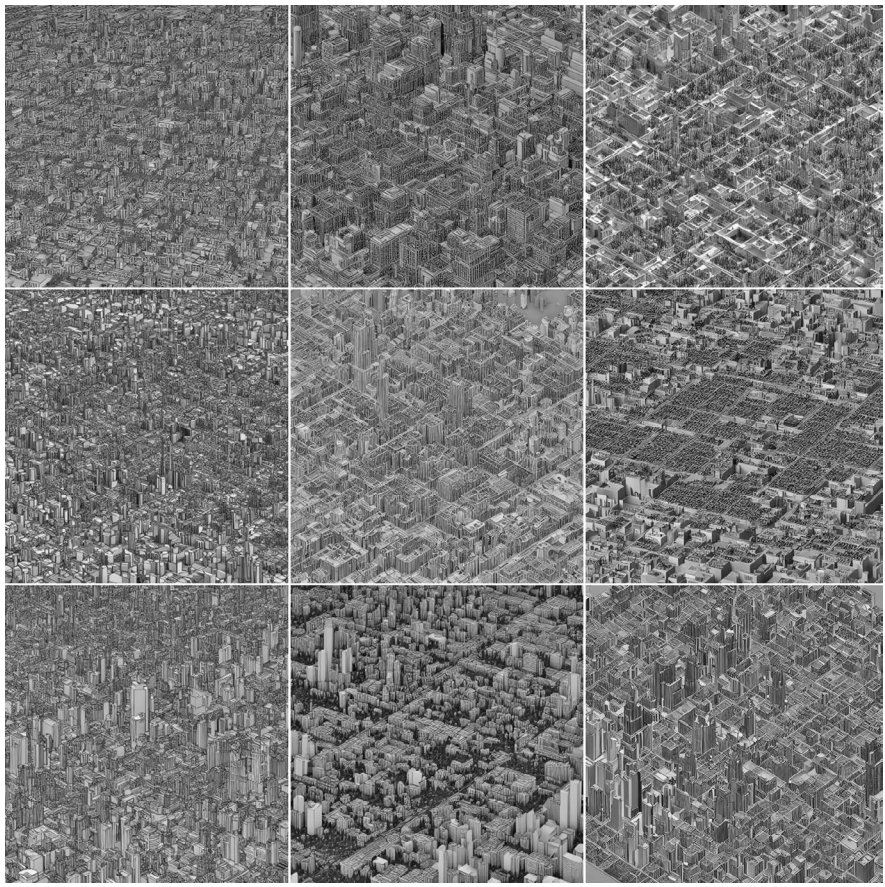

Figure 2.5 Hacking into "green deal neighbourhoods" nine variations by AI text to image generation with the prompt: "green deal city analytics."

Source: "DiffusionBee"

In the face of climate change that renders our planet – if not uninhabitable – so at least a place to which we always already must question ourselves in how far are we able to inhabit our cities sustainably, we could ask: why do we not only prepare our short-term, egoistic future and construct[9] our survival condo (when Kansas goes Bye-bye), and only a bunker would be safe? So: why not simply build safety walls "to protect us for centuries" (Franz Kafka on the construction of the Chinese border) from the others on the other side of the fence or wall from the heat and the storm, a bunker "to take shelter" a "safe technology cave" to be resilient under new planetary conditions? The precautionary tail of inhuman exclusivity of care facing disaster[10] and protection as a safeguard for an undemocratic future of the *very few* by economic capitalist selecting out (Müller 1998)/sorting (Mau 2021: 15), and not of humankind or

the entire population of a city seems the clearest vision of the city fails in its ethical dimension.

The City Is the Encounter with the Alien Other: the Neighbour as the Centre of the City

In opposition to this idea of merely building safety architecture for the extremely rich to prepare against abrupt climate change in closed-up vaults, the central question of the city ethics proposed by Richard Sennett (2019) is not, who is allowed and who is not to live in the city (inclusion/exclusion), how we should dwell by:

a edification (*Ville*) and
b the living experience (*Cité*)?

But foremost: how do we experience the *city as such*, as an encounter with the alien other, in the face-to-face[11] with the other (Figure 2.6)? How are we confronted with responsibility towards the stranger as a neighbour[12] to whom we respond[13] and are responsible[14] as related to the effort that the other? These questions need complex answers and pose challenges that include the possibility to wear a social mask[15] of civility in crisis situations – the example given by Sennett refers to the crisis when a community suspects who was the local burglar – in order to handle and deal with strangers politely in the sense of Georg Simmel's crisp observations from 1903, of a cool mental attitude, wearing social blasé[16] masks to cope and negotiate with ease[17] with the company of strangers in its cultural and individual differences as part of the necessary toolbox of attitudes in metropolitan city life. Alterity experience – however – as a form of ethically experiencing the city, starts with a riskier face-to-face encounter with an alien stranger and thus goes beyond any blasé social mask of indifference: Is the stranger entitled to speak (in his language) act (in his conduct) and belief (in his confession)? Who is entitled to disagree in a city publicly? Sennett's approach to the city and the necessity of a city ethics today starts from the reflection of the "hard to read" strangers (Sennett 2019: 26) of the cité that, for the author, became evident in the example of the young Friedrich Engels (1892) traveling to Manchester in 1844, coining grim working-class conditions in the concept of the "proletariat[18]." Sennett's book heeds the importance of cultural, historical, and contemporary artistic expressions to form the idea of an ethics of the city. Thus, for him, essential is the "ethical compass of urban novelists" such as XIX century Flaubert's *sentimental education* inside "disaster territory" (Sennett 2019: 27) in which the principle of the cité prevails: "the fulfilment you seek will come from people you do not yet know. You must master strangers who are difficult to read because they are shrouded" (Sennett 2019: 27).

From this line of thought, we can ask anew: Who is my neighbour? How do I treat the stranger[19] as a neighbour? Who belongs to green deal neighbourhoods? And who is the avoided other by segregation and ghettoization?

Figure 2.6 Nine variations of "Craiyon AI"(v.2) by AI text to image generation with the prompt: "Neighbour as the centre of city ethics."

Source: AI image online app https://www.craiyon.com/

Sennet takes the invention of the Jewish Ghetto in Venice as an example to show that the excluded or segregated people are often still needed in the city – thus installing co-dependencies:

> Exclusion becomes more complicated when you need those whom you despise. In most cities, there are 'alien' elements that are necessary to its functioning, from cleaning its toilets or servicing its banks. Within a city, acts of exclusion are more weighted by place, its spaces, and buildings than in a hut; you can't physically get away from Them. Such was the case with Renaissance Jews in Venice. Necessary to the city, their presence gave rise to the ghetto in its classic form.
>
> (Sennett 2019: 130)

Sennett refers to other counterexamples of expressed exclusions.

a the right-wing German culturalist populist movement of Dresden "Pegida"[20] in its rejection of a Germany that includes Muslims and is opposed to any welcoming culture of refugees in a stand against racial oppression, gender inequality, and (white) supremacist dogmas in which people with other religious or cultural believes or cultural background can become such a neighbour and
b the anti-Semitic philosopher Heidegger, who, by retreating to the hut, flees the city into the Black Mountain Forest), who might not be a searching for a "brother," the fraternal being-in-the-world bound by the mutual charity of people not related by blood, as shown in Okakura's book of tea, or – in our case – a "neighbour" (Levinas)?

For Sennett, *hut* and *ghetto* "represent two ways of shunning people" (Sennett 2019: 134):

The question of the three figurations of otherness *alien-brother-neighbour* is central to Sennet's account of "dwelling" and edified "Ville." Sennett understands the city's ethics in the critical distance to Heidegger and proximity to Levinas by the fundamental problem of the alien other. To heed the importance of the other is to heed conflicts, scales, and needs hacking for ethical and cultural intelligent applications that go beyond the mere technologically brilliant dream of smart data-driven cities and building green neighbourhoods. Instead, climate change and social inequality, and exclusion should be tackled by all and for all, and this means we will have to explore the following issues:

> The simplified space represented at an extreme by Heidegger's hut allows no room for anything other than a stripped down existence: there's no complexity of build form, paralleling the social ethos that there is no room for strangers in a place. Exclude to simplify. The ghetto is a complex space designed to use the other practically while pushing away their presence socially: to exclude, contain.
>
> (Sennett 2019: 134)

1 How can we combine green ethics and openness to encountering the other with intelligent[21] cultural means? As the example of engaged architects[22] shows.
2 How do we put particular focus on the double notion of green design and green urban hacks? How do we create communities and commons by urban green deal hacking that take the encounter with the other seriously and respond to each other as neighbours?
3 How does the overall equilibrium between building *construction* and operators of new technologies for architecture, green energy materials, AI, data innovation (Ville), and the *lived experience* in a *dwelling* (cité) provide a resilient praxis that encourages, at the same time, ethics for the city?

4 What fosters plurality and mix of culture, gender, age, and economic status? For Sennett, encounters with others and strangers, we do play constructively with resistance to comfort, safety, and surveillance.
5 Are we not on the right track in the sense of Sennett's ethical city?

We must critically reflect on blue-tech and green neighbourhoods, energy communities, urban politics & culture, Green & Blue ethics codes, the tension between construction and dwelling (Ville/cité), and soil justice to ground human technology-centred city ethics.

Building ethical green neighbourhoods proposes citizens' mutual learning experiences (MLE). These should embrace methods of "genres of the imagination" (Zwart 2020; Zwart et al. 2015). We foster a more memorable community by heeding and using Cinema documentary literature, performance art, dramaturgies of technology, mutual listening/experience exchange, and city novels as heuristic and praxis tools. Thus, green cultural praxis becomes alive in imaginative communities of living and "thinking together" (Pyrko, Dörffler & Eden 2016). Openness to chance encounters is a must for a city that heeds the stranger's encounter. The concept of e*thical green neighbourhoods* should consider opposing and alien views of its inhabitants. Different cultural backgrounds can be an enrichment of public improvisations and mutual listening to each other (Sennett 2019).

Hacking into New European Bauhaus and Greenwashing of Green Deal Neighbourhoods by Urban Novels

If we take on the challenge of Sennett, we might also heed cinema-makers, artists, and composers. All forms of the imagination render the formalized approaches of city sciences and urban planning holistic beyond technology-based data in the long run. For the first time in the recent EU budget is labelled under a new strategy announced as The European Bauhaus "beautiful/sustainable/together." Von der Leyen, in this current EU framework of the *New* European Bauhaus (NEB), proposed a creative approach to tackle green deal issues. One of its Festivals mottos is to bring "together people from all walks of life to debate and shape our future - one that is sustainable, inclusive, and beautiful."[23]

The New European Bauhaus Festival in 2022 assumed the following statement:

> The New European Bauhaus (NEB) aims to marry science and technology with art and culture; to approach the challenges of the 21st century in an inclusive, sustainable, and beautiful way. (…) The Festival brings the European Green Deal to the heart of our daily lives. (…) Nourished by bottom-up initiatives, the New European Bauhaus will blend the green and digital transformations to improve the quality of life of all citizens.[24]

Missing from this statement are the social justice questions – hinted at but not frontally tackled by the formal expression of "inclusive way" – related to building, designing, and putting forward the green deal. Nevertheless, the advocated

creative approach even mentions the need to overcome rigid social "boundaries "that come under "harsh dispute, "posing "design problems" to redesign inclusive and sustainable cities in a beautiful way that seem to have come under advertisement language as they should turn out cities of "caring beauty "such as neighbours that do not know each other, although one panel debate in 2022 opened up a position of cities in crisis asking: "How can architects, artists, economists, and citizens help make urban life more sustainable?"[25] Despite the New European Bauhaus debate starting to see the problems, it must confront more complex issues: how to mitigate the crisis caused by globalization migration and the refugee crisis? How to respond to growing challenges of the digital age and digitization, and most importantly, how to handle economic gaps between its citizens as a crisis of access to housing, education, and general social injustice that render resentment of the other stronger by political extremism and nationalistic-culturalist forms of nationalism fuelled by growing income, inflation, and expenses of living gaps. In this sense asking technologists and creative people to make cities more sustainable and beautiful is not enough. As our cities have to become more just and ethical in the sense of Sennet, we have to tackle exactly the problem of the *other. The question "Who is the excluded other?*" in green deal neighbourhoods or the New European Bauhaus is crucial for the success of both endeavours. With proposals such as the current *New European Bauhaus* and the *European Green Deal*, we still only touch the real problems tangentially: how we face the stranger/other?[26] How then do we ensure that this renewal of Europe does not fall on the public? How do we ensure that projects do not foster beautifying greenwashed eco-gentrification of green sheen[27]? We must ask: will these green projects tackle a city's real conflicts and challenges under the conditions of climate change today? How can our best science tackle the urgency of the ethics of the city? How can we avoid these pitfalls of a "beautiful" festival on culture, diversity, and sustainability in Brussels?

Sennett's idea is to take up urban novels to describe city ethics. This idea goes beyond environmental and cultural buzzwords such as green deal or New European Bauhaus: Let us take a glimpse at a recent novel: "GRM" by Sybille Berg. GRM depicts four youngsters of the post-Brexit Rochdale, UK, in which neoliberalism has thrived. The reality is that a failed state and manipulations through social media are their daily bread. Thus, they flee to a London of the XXI century in which the four do not want to be part of the problem of a surveillance capitalist state. The way of living the youngsters escape from includes ecological niche neighbourhoods for the ones "that made it," the extremely rich, or those who prefer to live in one of the environmental "middle class" boxes. In an XXI century continuation of Walther Benjamin's criticism of the interior, the critic now includes energy-saving green housing and a ubiquitous smart and AI blue technology that makes up green-blue box effects and a cliché of living well:

> Man shapes his environment; the environment shapes man. Mostly a perpetuation of horror. Often buildings demonstrate cliché-reinforcing reality. Of course, the blocks are somehow ecological, but not too much, not

> so much that you wanted to build hanging gardens. One pad square boxes well. Inside, the standard version of tasteful incompetence: open kitchen, expression of technocratic rationalization of space. Who wants the smell of onions and cabbage vapours in the salon, in the room that was once reserved for reading books, fireplaces, and soft music. (…) Then comes the furniture that looks like children playing decorator. Some stuff with which no one is comfortable. A sofa has to go in there; the apartments are designed around kitchens and sofas, the furniture becoming completely helpless. The new, in every respect, efficient human custody boxes are an expression of a lovelessness bordering on despising. The new people then sit in the boxes and rejoice that they have made it. They rejoice in their middle-class existence with a middle-class car. Simply everything in self-driving.
>
> (Berg 2019: 562–563, my translation from the German original)

Considering the green(-grey) [28] cliché of more green living, we need to counter-proposal a Green challenge to tackle the European Green Deal to transform the EU countries from a high to a low carbon economy without reducing prosperity and improving people's quality of life. The objective is not an interior design but a social, community and democracy, and state of the law design problem. We must pinpoint that sustainability is the sum of all its parts, including social and economic processes.

However, do not forget democratic values, justice of soil rights, and distribution of its use. These issues are open to the battle of ideas to debate cultural intelligence and socially just green cities. Ecological niche proposals do not necessarily attack the pitfalls of wealthy green cherrypicking and greenwashing.[29] In these proposals, data-driven intelligent cities are often created that are insufficient to resolve blue (technology-based solutions) greenwashing problems by simply integrating digital values of society (that might arise in AI, Big Data, IoT, and Gamification).

Another recent sci-fi novel, "Oval" (2019) by author Elvia Wilk heeds these issues by imagining an eco-niche village future of our metropolises on an artificial mountain [Berg] inside the city of a future Berlin:

> Radiating out from the Berg, now, was a dimmer greenish stretch of lights, where the old lamps had begun to be replaced with solar-powered ones. A taste test for the city, a sample of the sustainable colour all of Berlin would soon be. With the green lights, the formerly double-sided urban space was transformed into a new ratio with a third variable, a new possibility expanding from its core, the old bisection being eaten away by the green future descending from the mountain. The city extended out as far as Anja could see, ring upon ring of new growth.
>
> (Wilk 2019: 146)[30]

Jeder Mensch von Schirach's Proposal for Renewing Numan Rights for a Sustainable Way of Life

We cannot continue with *(green) business as usual*: The coronavirus pandemic has shown that we need a deeper understanding of what ties bind us together on a global scale between species and responsibilities. The pandemic also allowed us to understand that it is not enough to have local logistics and act accordingly but to plan on a larger scale, such as on a supranational European level, to supply the populations with vaccines and mitigate economic and social backlashes of the pandemics. The EU responds with the most significant and unprecedented recovery plan in Europe of 1.85 trillion Euros – in order "to leave no one behind" and to heed the following: "Given the scale and the nature of this challenge, the response can only be European" (EU[31] 2020: 11). This intense quest to respond to and mitigate the effects of the Covid-19 crisis should be a beacon we must look up to for the even more unprecedented challenge of the climate crisis. The climate crisis implies the resilience of cities facing the rise of temperature with all its climatic consequences pose on a global scale, as a joint endeavour that makes it necessary to act (not only) but indeed so on the European level.

A vital contribution today is given by a concrete proposal for the essential legal renewal of the European way of life beyond mere political utopia or cultural reflections (Guérot 2016; Menasse 2012, 2017, 2022; Rau 2016). Ferdinand von Schirach's[32] (2021) internationally calls for a European constitutional convent. In this convent, Schirach proposes to discuss and add to the 2012 *Charter of the fundamental rights of the European Union* six clear-cut human rights due to climate change and new revolutionary developments in the realm of digital technology (deep fake, AI) and widespread political totalitarianism and populism. These six new constitutional rights prepare each citizen of Europe for a harsher future of climate change, technological revolutions, and the autocratic war on the democratic system, and the other as the centre of city ethics.

The extra articles developed by von Schirach (2021, my translation from the German original) to be debated in a constitutional debate in Europe are resumed as follows:

Article 1 *(Environment): Every person has the right to live in a healthy and protected environment.*

Article 2 *(Digital self-determination): Every person has the right to digital self-determination. The exploration or manipulation of people is prohibited.*

Article 3 *(Artificial intelligence): Every human being has the right if algorithms burden them of algorithms to be transparent, verifiable, and fair. Essential decisions must be made by a human being.*

Article 4 *(Truth): Every person has the right to know that statements made by public officials are truthful.*

Article 5 *(Globalization): Everyone has the right to be offered only goods and services produced and provided with respect to universal human rights.*

Article 6 *(Fundamental rights action): Any person may bring fundamental rights actions before European courts for systematic violations of this Charter.*

The first new right is explicitly a right to live in an environment that is healthy and protected. Schirach adds further demands: digital self-determination in which the exploration or manipulation of the people is prohibited, the ultimate decision-making lies with humans, and the transparency right of how algorithms and AI are used upon us. The right to know if the statements of holders of public offices – such as Ursula von der Leyen's declaration and promises concerning the green deal – are valid and not an act of greenwashing[33] politics concerning new housing construction. Can we trust that goods and services provided by global production offered in the EU follow human rights? By assuming article 6, we could enforce[34] those rights through EU courts: fundamental rights alone achieve little; they only work if we enforce their implementation. Suppose people enforce these claims by going to court for a healthy environment or against manipulation. In that case, if uncontrolled artificial intelligence lies in politics and human rights violations in world trade, a renewed life in the EU and the world will become possible:

> The revolutionary moment of the call lies on the one hand, in that the European citizens give themselves the six new human rights, not the European Union member states. But the revolutionary moment also lies in the six human rights themselves. They have revolutionary substance because they regulate all the major social, ecological, digital, political, and economic issues of the present and the future. That is why they also embody a real political opportunity for a European constitution.
>
> (Kersten 2021: 5, my translation from the original German)

Towards Soil Justice

Adding to the six fundamental laws debate is another point I want to underline: We must change soil laws (Vogel 2019: 76) because we need to heed *soil's inherent non-reproducibility* and *indispensability*. Tackling soil use and distribution injustice is tantamount to developing green deal housing and neighbourhoods planning and energy positive and negative carbon approach beyond green-washing, eco-niche-building for the rich, or even eco-colonial land-grabbing (Parola 2021; Suhail 2018) – *green grabbing*[35] (Fairhead et al. 2012). We must redirect the conflict between ownership and property rights and its duties towards ethical responsibility for the public good, not just for our time and policies but for our children. Soil political instruments in times of climate change should lead to more robust policy interventions that "could significantly increase the steering capacity of planning and building law in property rights (usus Fructus and ius abutendi)" (Löhr & Stiftung 2020: 194, my translation). Housing and architectural construction must effectively respond to the given fundamental challenges of the 21st century in a democratic and just manner. According to Hans-Jochen Vogel, we should no longer

treat soil as a market commodity but as an equally indispensable common good, similar to drinkable water or breathable air, between shared and private interests and necessities.

Nevertheless, we need to find praxis solutions. How do we push forward resilient future policies of critical care ecology and ethics beyond mere architecture design and urbanism (Fitz & Krasny 2019)? In our view, it could start with thematizing the cultural problem history and theory development of soil law. Let us direct the debate toward social justice by rethinking cultures of structural inequality – as already mentioned in Rousseau (2013: 77) – of access to soil and modes of imagination of proposing how to change. The necessary step is to switch the green deal from being a property and energy-saving and sustainable design thinking issue to an issue of social-political and foremost culture and intercultural innovations to "soil for all" (Mayer et al. 2020) justice and the city ethics based on the encounter of the neighbour. The green deal might become the instrument to tackle not only the energy transition facing climate change, but mainly a democratic tool to green architectural praxis and just agencies of municipalities and social intervention. Our democratic public depends on better use of private and public space proposals within an international and local framework of human rights of a safe and healthy environment beyond the financialization of soil (Sassen 2014).

A world in which asset-backed safe-haven investments in (disappearing) times of low-interest-rate policies are at the front of construction has its time counted. Our strategy articulates several levels of contemporary public space agendas, such as shared co-creation, individual repositioning, improvisation technology, and green solutions. Our envisioned concept of ethical green neighbourhoods considers opposing views of its inhabitants, heeding the encounter with the alien other and its different cultural backgrounds, and is based on the enrichment of public improvisations and mutual listening to each other. For Sennett, citizens' resistance to comfort, mere safety, and anxious surveillance within a plurality and diverse mix of cultures, gender, age, and economic status means developing wise ethical praxis drawn from natural resources, shared personal and community knowledge, and circular economy with sustainable green neighbourhood constructions, integrative, resilient, and sustainable. Combining the richness and diversity on the human social level with the frugality and culturally intelligent preciseness of interventions of building constructions as community roofs – and less concrete walls of fencing off neighbours to open up the future to a more just access to dwelling building cities as large meeting houses, that enable encounters with the other.

Notes

1 Cf. the critical philosophical differentiation of (a) *design science* (methodologies), (b) >*design thinking*< *(practical tasks in interdisciplinary procedures)*, (c) *design theory* (changing design positions), and (d) all-encompassing *philosophy of design* in Mersch beyond reducing the complexity of design to the American view of approach, concept, method (2020: 385–386) or biologistic niche construction of theories: cf. Mersch (2020), 385–386.

2 "Designing is the opposite of submitting.(…) Everything that is designed, designs and subjugates. (...) This dichotomy inherent in design is not only a design dichotomy, but a political one. It conditions freedom and lack of freedom, power and powerlessness, oppression and resistance. This is the political essence of design" (Borries, v. 2016: 2–3).

3 "The first crisis is economic. Inequality in Europe is at an all-time high: the top 10 per cent of households own half of the continent's wealth, while the bottom 40 control just three percent.1 This is not a story of all boats rising at once. The share of workers living in poverty is on the rise. (...) This is a crisis by design. (...) The second is a crisis of climate, ecology, and environment. (...) The third crisis, then, is a crisis of democracy" (The Green New Deal Group 2020).

4 Sennett reminds us that "[w]hat we 'gentrification' is much more than artist-trendies colonizing colorful neighbourhoods, media-trendies following in their wake, attracting digital billionaires still struggling with pimples who price out both the natives and the first pioneers. Gentrification is more fundamentally a process by which the bottom 70-75 per cent of an urtban population becomes vulnerable to expulsion by the top quarter of people in a city, either through raised rents or by poor homeowners being seduced into selling out" (Sennett 2019: 138).

5 Interesting approaches redefine the commons in the sense of for example energy market commons (Espadinha et al. 2023) in which peer-to-peer solutions and community-to-community solutions could be explored.

6 Cf. international eco-villages such as https://www.regenvillages.com/: "Silicon Valley-based construction company ReGen Villages has imagined a place (…) and is planning to develop the world's first self-sufficient suburb 20 minutes outside of Amsterdam in the Dutch town of Almere."

7 Do environmental amenities increase the likelihood of a neighbourhood gentrifying? In a different cultural change stimulating legal framework, green deal housing design is not only made responsible for constructing technological solutions of housing and its green method and material use of creating carbon-neutrality and energy-saving. But green neighbourhood design should be as well held accountable for *affordable living in a green deal environment* in a way that *all citizens have access to* its designed and built outcomes.

8 "We define greenwashing as the intersection of two firm behaviors: poor environmental performance and positive communication about environmental performance" (Delmas & Burbano 2011: 65). For other definitions, cf. Bowen 2014 (chapter 2). An essential aspect of greenwashing is *selective disclosure* as a symbolic strategy to seek to gain or maintain legitimacy aspects such as cooperate distraction by greenwashing as researched by Marquis and Toffel (2012): "A form of selective disclosure in which companies promote environmentally friendly programs to deflect attention from an organization's environmentally unfriendly or less savory activities. "

9 "Building is making of security. It aims to seal off space, to create a protected area where unpredictable and damaging events can no longer occur: a bunker not only against intrusions into space but also against intrusions in time." Horn (2014: 326), my translation (Horn 2014).

10 The scientifically flawed project of the luxury bunker/vault Reilly, C. (2020, July 6). *Inside the luxury prepper bunker for the rich and frightened*. CNET. Retrieved June 23, 2022, from https://www.cnet.com/science/features/inside-the-survival-condo-nuclear-bunker-protecting-the-ultrarich-hacking-the-apocalypse/ – that shuns the alien by a built form and that gratifies rich man's fear of the apocalypse and should be seen as a precautionary tale to not produce more luxury neighbourhoods for urban – green gentrification such as exposed in the *'Green' Neighbourhoods Affordability problem* cf. Machline 2020: 88–90). Cf. the preservation *Svalbard Global Seed Vault* disaster niche as biodiversity safeguarding seeds for the future as human Earth's backup: https://www.seedvault.no/

11 "That being is man, and it is as a neighbour that man is accessible: as a face" (Lévinas 1998: 6).
12 "In time, I took from Levinas something he did not intend, and would indeed have disliked: a practical application of this ethical view. The neighbour as a stranger bear on the mundane realm of the city. Awareness of, encounters with, addressing others unlike oneself – all constitute the ethics which civilizes. Indifference to strangers, because they are incomprehensibly strange, degrades the ethical character of the city" (Sennett 2019: 126). For Levinas the *neighbour* is the stranger for whom I answer to (Levinas 2001: 165).
13 Otherness is based on responsivity to the "Stachel des Fremden" ["sting of the stranger"] (Waldenfels 1990) as neighbour, which according to Levinas obliges us to respond with responsibility: "To maintain that the relationship with a neighbour, incontestably set up in saying, is a responsibility for the neighbour" (Levinas 1998: 47).
14 For Levinas, your neighbour is different and cannot be the same as you: "this is the problem Levinas took up, theologically, considered as neighbours, Shefradim and Ashkenazim have no need in his view, to find common ground; rather, their 'neighbourliness' lies in respecting the fact that they cannot" (Sennett 2019: 134).
15 Sennett refers to the superficiality of gestures of recognition of the other in the street and public space that does not mark the strong difference but let people with other values or beliefs interact.
16 "There is perhaps no psychic phenomenon which is so unconditionally reserved to the city as the blasé outlook. (…) The essence of the blasé attitude is an indifference toward the distinctions between things. Not in the sense that they are not perceived (…) but rather that the meaning and the value of the distinctions between things, and therewith of the things themselves, are experienced as meaningless. They appear to the blasé person in a homogeneous, flat and grey colour with no one of them worthy of being preferred to another" (Simmel 2002 [1903]: 14).
17 "In a modern mixed community like ours, these are combined in the mask of civility: superficiality, deceit, impersonality. This trio is the alternative to Heideggerian withdrawal from others, the isolation and fencing off of others, or personal comparisons which cut too close to the bone and lurid fantasies about the others malign power. (…) But surely behaviour which combines superficiality, deceit and impersonality cannot be right in any ethical sense how can we trust someone wearing only the mask of civility?" (Sennett 2019: 142).
18 The *Lumpenprolitariat*: Engels, F. cit. in Sennett (2019: 26). Heiner Müller (1998: 610) remarks that Marx and Engels had excluded the Lumpenproletariat from the revolutionary process they acted upon, and the refocusing of the excluded is at stake.
19 Levinas reminds us that the Jewish-Christian ethical tradition "Thou shalt love thy neighbour as thyself" should be read not as a re-doubling of self-love but that our identity, on the contrary, comes from the love towards the neighbour as other in which we are held responsible: "Thou shalt love thy neighbour, that is what thyself is" (Levinas 2007: 110).
20 In the continuation of Sennett's argument, it is essential to focus on the cultural complexity of the Dresden debate on *Pegida.* Pegida can be interpreted as a problem in the aftermath of both: (a) a trauma/identity politics debate of the city of Dresden-bombed ferociously in the IIWW and rebuilt in the form of problematic pre-bombing "identity" and (b) a recent discussion about resistance to Syrian refugee politics since 2018 and disagreement over refugee policy and freedom of expression. Cf. the debate on the 8th of March 2018 in the Kulturpalast Dresden https://www.youtube.com/watch?v=V6nSgCCZM2Q by two of the most influential contemporary authors of Dresden: *Durs Grünbein* – proposing a rationally inspired cosmopolitical Dresden – and *Uwe Tellkamp*- who signed the Charter 2017 that criticized the ostracism of 'New Right' publishers at the Leipzig book fair ("Leipziger Buchmesse") – Cf. as well the documentary by Gräfenstein (2022).

21 Openness for the encounter of the other does not mean simply applying "liberal rhetorics" of multicultural relativism based on "inclusion, diversity," but taking seriously Levinas' notion of the encounter as something uncontrollable that owes the other debt as a stranger and alien.

22 See, for example, the *UK Architects Declare Climate and Biodiversity Emergency* https://www.architectsdeclare.com/ and its *corresponding Australian* declaration that, among others in its ten rules, wants to "minimise wasteful use of resources in architecture and urban planning, both in quantum and in detail."

23 https://new-european-bauhaus-festival.eu/docs/NEB_FESTIVAL_PROGRAMME_220512.pdf

24 New European Bauhaus (2022, June 9–12). *Forum: The Festival of the New European Bauhaus*. New European Bauhaus Festival 2022. Retrieved June 24, 2022, from https://new-european-bauhaus-festival.eu/

25 The panel discussion assumed that "Cities are in crisis. Climate change demands that we urgently change how we build houses and infrastructure and organize work and mobility. At the same time, digitization is changing how we use urban areas. Cities have always been a space of experimentation. https://new-european-bauhaus-festival.eu/docs/NEB_FESTIVAL_PROGRAMME_220512.pdf

26 The panel discussion moderated by Niklas Maak (FAZ) was called "Toward a diverse Europe: How can art, architecture, and technology contribute to a new vision of Europe?" Furthermore, asked: "How can Europe engage its neighbours with a narrative open to the many non-European influences that have shaped the continent and should shape it in the future?"

27 Greenwashing, also called green sheen, is a form of deceptive marketing in which a company, product, or business practice is falsely or excessively promoted as being environmentally friendly." Cf. https://www.britannica.com/topic/greenwashing

28 Cf. the political colour philosophy in Peter Sloterdijk's (2022) recent book, in which the philosopher envisions a science of the colour grey as (a) a political metaphor, (b) an indicator of sentiment, and (c) a display of political-moral ambiguity. Sloterdijk states that the future belongs to a "green-grey" (Sloterdijk 2022: 106) eco-bureaucratic policy of prefiguration. A state following such policies prescribes the way of living – for example – in eco-niches. The political colour "grey" in Sloterdijk's sense means that consciousness must, as it were, detach itself from the grey shadows of the actual, form itself out of a "fog," and find its way to colour out of the twilight. Sloterdijk does not foresee a "rainbow-colour "society that lets each colour live among others as though it were Cryon colouring paint. On the contrary, Sloterdijk notes that a "polychromatic idyll" is deceptive. For him, the liberality of modernity invites intermixing of colours -alias cultural identities-cannot force the desired rainbow society. At the same time, Sloterdijk notes that it is too late for segregation and purely coloured identities. The sum of the individual colours does not produce a luminous all-colour but a dull, "brownish-grey."

29 "Beyond its technical and energy efficiency indicators, an urban development project is also said to be sustainable when it generates "a harmonious living environment, reduces social inequality, and improves the quality of life." Debates about sustainability are no longer limited to environmental aspects but also incorporate economic and social dimensions. Socially sustainable projects should provide social infrastructures and job opportunities and ensure easy access. (…) The marketing of 'green' building projects, residential complexes, and neighbourhoods has become ubiquitous in recent years, suggesting that environmental buzzwords have become effective marketing tools. It is often difficult, however, to distinguish between the actual environmental value and the 'green' image being marketed. One motive behind the development of the French eco-quartier label was to prevent the marketing of a non-green real estate project as an eco-district – i.e., to avoid 'greenwashing' (Machline et al. 2020: 91).

30 As described in its book description by the German editor the novel of Elvia Wilk "Oval"(2019) in which an rich eco-village on an artificially constructed mountain {Berg} is at the centre of a future "new" – economic growth of a future "Green" Berlin.
31 EU (2020/5/23) "Europe's moment: Repair and Prepare for the Next Generation" https://eur-lex.europa.eu/legal- content/EN/TXT/?qid=1590732521013&uri=COM%3A2020%3A456%3AFIN
32 In a personal note, Ferdinand v. Schirach explains his motivation: "My great-grandmother's great-grandfather's name was Arthur Middleton, one of the 56 Founding Fathers of the United States who signed the American Declaration of Independence in 1776. His brother-in-law, Edward Rutledge, also signed that Declaration. / My grandfather, Baldur von Schirach, was one of the main Nazi war criminals, sentenced to twenty years in prison in Nuremberg in 1946. He betrayed everything his ancestors had been fighting for. / I have written this draft bill because the dignity of man must be inviolable. No one must be reduced to a mere object. We must defend this great idea of enlightenment again today. The rights proposed here serve only this goal" (Schirach 2021: 29).
33 This would also mean we could make companies in the green deal business economy accountable if they heed at least parts of the 17 United Nations Sustainable Development goals: https://sdgs.un.org/goals
34 Another constitutional comment focuses on the possibility of enforcing the right to a healthy, non-threatening environment, including the climate. "Young people have a hard time proving in court that and how climate change will specifically affect their health in a few decades and threaten their health in a few decades. People cannot show in court why biodiversity loss will affect their health. With a fundamental right to environmental protection, climate and species protection and protection from other environmental hazards such as the poor air quality in much of Europe, become much more effectively enforceable" (Karpenstein et al. 2021).
35 "Across the world, 'green grabbing' – the appropriation of land and resources for environmental ends – is an emerging process of deep and growing significance. The vigorous debate on 'land grabbing' already highlights instances where 'green' credentials are called upon to justify appropriations of land for food or fuel – as where large tracts of land are acquired not just for 'more efficient farming' or 'food security,' but also to 'alleviate pressure on forests.' In other cases, however, green environmental agendas are the core drivers and goals of grabs – whether linked to biodiversity conservation, biocarbon sequestration, biofuels, ecosystem services, ecotourism or 'offsets' related to any of these" (Fairhead et al. 2012: 237).

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3 The Architecture of the Seven Elements

Project for the Environment

Jorge Cruz Pinto

> There is no art without magic, science without alchemy, or architecture without poetry.
>
> (Vitor Figueiredo and Jorge Cruz Pinto)

As mentioned in the introduction to this book, the environmental crisis resulting from the greenhouse effect, caused by the negative impact of human activity, with all its malign consequences, is also connected to the increasing scarcity of natural resources, amongst them potable water, a vital element, though ancient solutions integrated into architecture for its rational use are known. In the face of the continued use of fossil fuels, responsible for the emission of gases, the active bioclimatic integration, with recourse to the catchment of green energies integrated into architecture, with passive bioclimatic systems, will allow greater autonomy and energy efficiency in buildings.

Knowing that the construction sector is responsible for 40% of global emission of greenhouse gases, and that 23% of the emissions are produced by the making of the principal materials of construction – steel, concrete and aluminium – we should face recourse to alternative materials with greater seriousness. With this brief refection, we aim to contribute to the idea of design for the protection of the environment, through what we define as the Architecture of the Seven Elements. Beginning with the idea of the five fundamental elements of natural philosophy – *earth, fire, air, water, and aether* – we established a transposition to architecture.

Plato, in Timaeus's cosmogony, spatialized them through geometry, making earth correspond to the cube of hexagon, fire to the tetrahedron, air to the octahedron, water to the icosahedron, and aether, understood as emptiness or the cosmos, is represented by the dodecahedron. The five elements were used by alchemists throughout history, since they believed that combining them was the basis of the constitution of all matter. Their geometrical correspondences were widely applied by geometers, mathematicians, architects, and painters, under the form of numerical-geometric principles related to the canons of proportion, recognized in nature and applied to architecture, painting, and the other arts, under the form of the latent structures of sacred geometry. Modern science would move away from the five elements of natural philosophy, having proved the existence of chemical elements,

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to which Mendeleev gave form in the periodic table, which total comprises 118 elements (92 natural and 26 artificial).

However, the phenomenology of Gaston Bachelard would rehabilitate the five physical and metaphysical elements, demonstrating their philosophical, symbolic and poetic potential, as powers of creative reverie over matter.[1] It is under this poetic acceptation that we use them as materials for the imagination, for the design and for construction, for the environment in crisis, with the aim of contributing to their recuperation. I will add the five natural elements, two other artificial elements which I consider relevant, and will illustrate them with some of my designs and works in which they may be seen and intentionally combine all these elements.

Architecture of the Earth

All "architecture belongs to the Earth," by virtue of its condition, gravitic, tectonic, and existential, of telluric roots. However, certain architectonic elements and typologies affirm this condition. Amongst the elements, we can single out foundations, structures and bases which make the articulation between the bodies of the buildings and the ground. And amongst the typologies, excavated architectures, such as the grotto and the hypogean, the cave and the bunker, have the archetypical character of shelter, directly related to the protecting belly of the *Magna Mater*, maintaining internal temperatures more constant than built spaces that emerge from the line of the earth. There is also the typology of hanging gardens on terraces which return the coverings of the buildings to the earth, recovering them with layers of earth and vegetation, contribute to improving the thermic behaviour of their interiors and affirm this strong telluric connection, as I will show further on with the project for the Library-Aqueduct in Vidigueira (see Architecture of the Water).

This condition of belonging to the earth is also reinforced on the level of the raw material extracted from the earth and transformed into natural constructional materials: materials of a vegetable bio-base (wood, cork, bamboo, cane, hemp, straw, thatch …); earth materials (clay, adobe, brick, and other ceramic materials); and mineral materials (blocks, ashlars, gravels, sands, plaster). As for the return to the architectures of the earth, we refer to our experimental designs for evolutionary patio-houses for Africa (Figures 3.1 and 3.2), with use of local materials, earth converted into adobe, and the application of structures and other architectonic elements in bamboo. Recourse to passive bioclimatic solutions for giving natural shade and ventilation, by means of convection currents, were intentionally defined by patio typology and by integrated architectonic solutions, which the use of rainwater in cisterns for sanitary use and watering.

Similarly, the design for the experimental house in Luanda (Figure 3.2), built in modules of clay forming "U"s and the covering structure of bamboo, are based on the same principles of the utilization of immediate natural materials, in conjunction with passive bioclimatic solutions.

As for the use of stone, having as a motto the recurring biblical phrase "The stone which the builders (and masons) rejected has become the Chief Corner

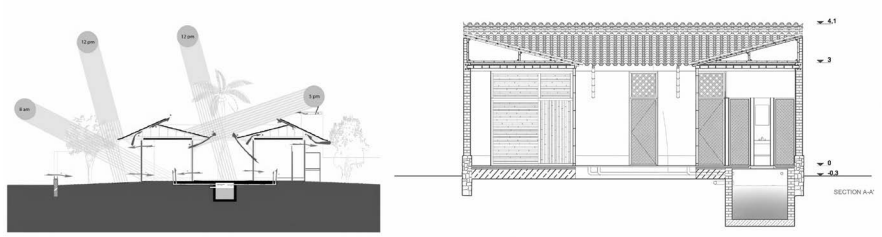

Figure 3.1 Experimental design for patio-houses for Africa: bioclimatic principles, solar geometry, convection currents, water cycle. Cross section: adobe and bamboo house.

Source: Jorge Cruz Pinto e Cristina Mantas Architects archive (2010).

Stone," the project of the "Corner Stone" seeks to make use of the residual stone in marble quarries and dumps, in the anticlinal zone of Estremoz – Vila Viçosa – Borba, in Portugal, where only 5–30% of the stone extracted is made use of and commercialized. The remaining 70–95% stay piling up in the dumps. The design of the "Corner Stone" seeks the transmutation of the "Residual Stone into the Philosopher's Stone,"[2] giving it aesthetic, teleological, technological, ethical, ecological, and economic value. Its application seeks to reach different areas and scales – architecture, city, and territory.

Some of the ways in which residual stone has been used in the construction of structural masonry are illustrated in the experimental project for the Fundação do Mármore for Vila Viçosa (Figure 3.3), in the design for the Adega Cooperativa de Vidigueira (Figure 3.4), and in the project for the conversion of the industrial landscape of Pedreira da Gradinha, in Vila Viçosa, including a building for the headquarters of the CECHAP (Figure 3.5), built of cyclopic blocks, on tiers of marble from the disused quarry. The use of residual stone stretches the creation of laminar modules and walls, bioclimatic solutions and the construction of urban furniture, an example being the prototype for the kiosk in Vila Viçosa.

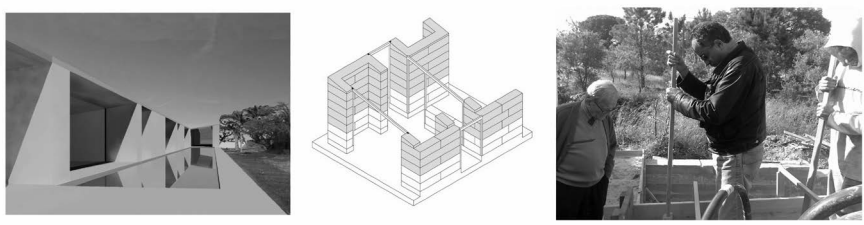

Figure 3.2 Experimental design for clay house for Luanda. Phases of the construction process. Beating the clay with a pounder.

Source: Jorge Cruz Pinto e Cristina Mantas Architects archive (2009).

Figure 3.3 Experimental project for the Fundação Mármore. Structural cyclopic masonry. Patio (painting).

Source: Jorge Cruz Pinto e Cristina Mantas Architects archive (2011).

Architecture of Fire

On the one hand, fire, associated with live combustion, linked to thermal energy and the hearth, has its anthropological centre in the fireplace, whose metonymic relationship reveals its origin, in the designation "Fire," understood in the Portuguese language as a dwelling place. On the other hand, fire, associated with solar radiation, has its centre in the sun, the vital cosmological centre of our planetary system and inexhaustible source of energy. The conjugation of internal and external fire allows the regulation of conditions of comfort in architectonic spaces.

Based on solar energy, our project *Eco-Solar Transformer Architecture*[3] (Figure 3.6) is an innovative integrated solution, which aims at the catchment of photovoltaic energy and allows the design of a building to have more than 1001 forms, on the basis of kinetic modular panels which we have called *EU-GreenGrid*.[4] The panels are made up of a grid, which has its origins in the traditional *mashrabyias*. They allow control of natural shade and ventilation, functioning in passive bioclimatic terms as a second layer of the façade. The panels also include active bioclimatic elements: photovoltaic cells, interconnected in circuit, interspersed in the empty spaces of the grid. During the day, the panels are kinetically orientated, following the solar geometry for greater efficiency in the catchment of energy. From dusk onwards, they can adopt different positions which allow the aesthetic and morphological alteration of the outside of the

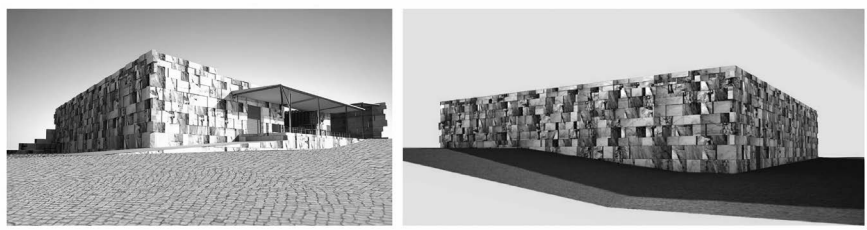

Figure 3.4 Experimental project for Adega Cooperativa de Vidigueira, Structural cyclopic masonry.

Source: Jorge Cruz Pinto e Cristina Mantas Architects archive (2008).

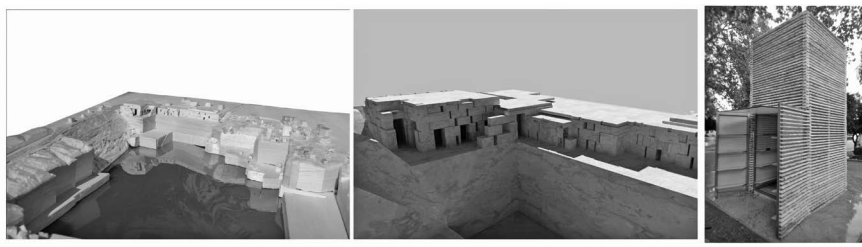

Figure 3.5 Experimental project for CECHAP, Gradinha Quarry. Prototype of Kiosk of laminar stone.

Source: Jorge Cruz Pinto e Cristina Mantas Architects archive (2012).

building, digitally programmed. Between each crossing of the grid of 5 cm × 5 cm LEDs are installed, which allow the panel and the series of façades to function in terms of transfigurations of *Light Design* and as a publicity demonstration on an urban scale. The *Eco-Solar Transformer* was conceived to function as an urban icon applicable to small newly-built skyscrapers up to 200 m in height (Figure 3.7). However, the *EU-GreenGrid* system and panel may be used in architectonic renovation with integrated energy efficiency, in extant buildings of different scales and morphologies, and with variable degrees of kinetic activity. Similarly, the versatility of the panel allows its application in various architectonic typologies, it being possible to extend it to other elements of the urban space.

Architecture of Water

Water being a vital element and a precious natural resource, and considering the foreseeable scarcity of it in future decades, on account of climate alteration and the increase in the world population, we propose a vision that will allow its rational

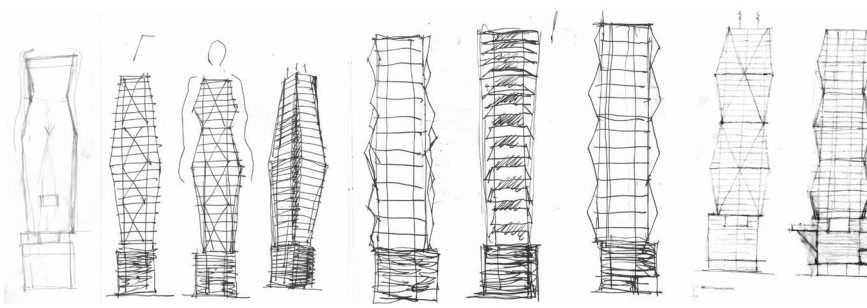

Figure 3.6 Eco-solar transformer architecture. Conceptual designs.

Source: Jorge Cruz Pinto e Cristina Mantas Architects archive (2009).

Figure 3.7 Eco-solar transformer. Changing visualizations of skyscrapers, Jorge Cruz Pinto and Ljiljana Cavic.

Source: Jorge Cruz Pinto e Cristina Mantas Architects archive (2009).

utilization in an integrated way, on the successive scales of architecture, city and landscape, including its use in agriculture and in sanitation systems.

The rehabilitation of typologies of water (palaphitic, hydraulic, and floating), with the integrated reuse of the energy of the waves and currents, could constitute ways of rationally integrating and reusing this element. But it is in the recovery of the Water Cycle, integrated into the architecture, in the city and in the land that the solutions become more operative, especially when combined with other elements, such as the recourse to systems for collecting rainwater and water from condensation, orography, extant, and replanted vegetation, which will contribute to the formation of architectonic, urban, and landscape microclimates, which could have an impact on diminishing the greenhouse effect.

The experimental project for the Vidigueira Library, to be placed within an orange orchard at the urban limits of the village, will facilitate the adoption of different integrated bioclimatic solutions, based on the recovery of the cycle of water. The urban-architectonic conception begins from the reusing of extant wells and tanks on the farm, part of the hydraulic watering system. The design for an aqueduct incorporated into the design for the new building would channel the well water to different extant tanks and to the water mirror of the central patio of the library, as well as allowing the scenographical conformation of a new urban square and the conversion of the orchard into an urban park. The aqueduct would permit a higher architectonic level, on a grid above the water, which would continue to the garden-terraces. With the higher replanting of the trees, in the garden-terraces, and a flower box all around the perimeter, there would be returned to nature what had been taken away from it during the building. Part of a desire to integrate with nature, the building would "disappear," camouflaged by the vegetation. The water cycle (well – aqueduct – water drips and curtains – tanks – watering – water curtains – return to the well), combined with the convection currents which cross the gardens, the patio, the covered transitional spaces and interiors would contribute to the natural acclimatization of the building (Figure 3.8).

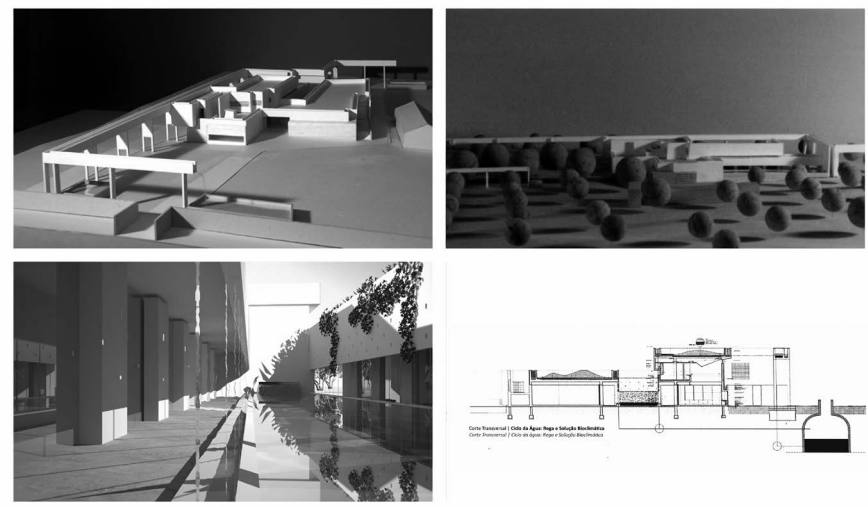

Figure 3.8 Experimental project Library-Aqueduct, building placement, water patio, and water cycle.

Source: Jorge Cruz Pinto e Cristina Mantas Architects archive (2001).

Architecture of Air

Recourse to passive bioclimatic solutions of natural ventilation, such as convection systems integrated into the actual architectonic design and the application of our *EU-GreenGrid Mashrabiya,* and of other ventilated façades and shaded such as walls of laminar stone and architectures of inflatable tents, are some of the solutions we suggest, linked to the architecture of air (Figure 3.9).

However, taking up once more the idea of the old windmills incorporated into the architecture, we envisioned the conception of Aeolian buildings (Figure 3.10). This premise would lead to the conception of the architectonic integration of double helix mechanical systems and of cupolas for the catchment of energy crowning the buildings. After the drawing of some sketches and discussion with mechanical engineers, however, it was found that the vibrations produced could have harmful

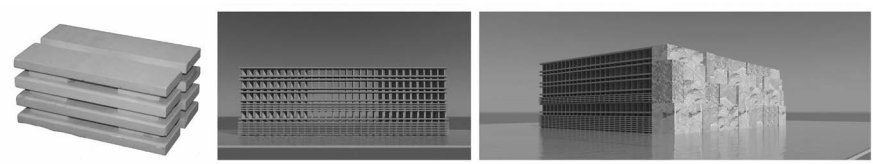

Figure 3.9 Module of laminar stone. Ventilated and shaded façade of laminar stone.

Source: Jorge Cruz Pinto e Cristina Mantas Architects archive (2010).

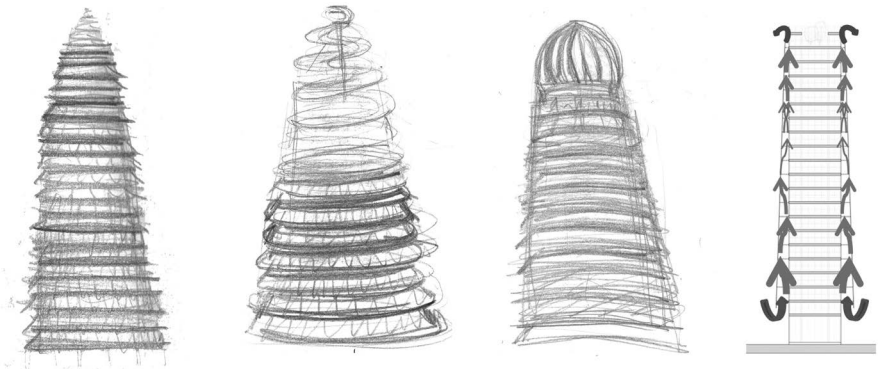

Figure 3.10 Conceptual designs for Aeolian buildings. Double-façade ventilation scheme.
Source: Jorge Cruz Pinto e Cristina Mantas Architects archive (2024).

effects on human beings, just as it has been found that Aeolian towers affect the health of animal and human life in the immediate vicinity. The initial idea was therefore abandoned, and the search continued for other systems of integrated wind catchment that would not pose a risk to the health of its users.

Architecture of Aether

Aether is understood as the most rarefied material, associated with the empty space which connects all the other elements. Empty space is the most abundant element in the planetary macrocosm and the atomic microcosm. Emptiness, likes its equivalents, silence and pause, belongs to the essential elements of architectonic, musical and literary compositions. In the society of consumption and accumulation in which we live, "Praise of Emptiness,"[5] strippedness, and sometimes "non-construction" and demolition, become vital for the quality of architectonic, urban and landscape space, rural, and natural. It is in empty space that the fields of presence and invisible forms (forces of form, forms of force, energies, fluxes …) occur; when they are well directed that are fundamental to living, to aesthetic sensibility and to a subliminal perception of comfort, able to be evaluated by feeling, by metaphenomenology, by geomancy, by *gestalt*, and by neuroscience….

This element is illustrated here by the project of requalification of the Praça Vasco da Gama in Vidigueira, which took place initially with the demolition of small walls and concrete sites, and of the wall which surrounded the old school (Figure 3.11). After this, we planted rows of orange trees, paving using *calçada à portuguesa* of a traditional "Portuguese Sea" pattern, and the making of a long water mirror, on the axis between the two most important buildings historically and architectonically, on which is raised a marble globe evoking the sea voyage of the Argonaut to India.

Figure 3.11 Requalification of the Praça Vasco da Gama, Vidigueira.

Source: Jorge Cruz Pinto e Cristina Mantas Architects archive (2003).

Architecture of Alchemy

Alchemy here corresponds both the *ars combinatoria* between the various elements and all kinds of reuse and transmutation of spurious materials in recycled materials which reacquire a teleological, aesthetic, and economic value, as mentioned earlier with regard to the project "From Residual Stone to the Philosopher's Stone." This concept can be extended to the reuse of buildings and architectonic and urban rehabilitation.

It is in this last context that we illustrate this element with the rehabilitation and conversion of the former Governor's House of the Torre de Belém, in Lisbon, into a hotel-spa.[6] The building dates to the first quarter of the 16th century, was subject to work in the 18th century, and is built partially on Roman industrial structures (cetarias) from the 2nd century (Figures 3.12 and 3.13). Contemporary work consisted of the restoration and adaptation of the hotel programme, which implied a volumetric addition for the use of the roof, as well as the extension of two buried floors for inclusion in the spa, and of the incorporation of the archaeological remains as an urban-architectonic museum. The spa had as an ecological intention the treatment and use of subterranean waters coming from the hill of Restelo, which in the end did not happen.

Figure 3.12 Rehabilitation and conversion of the former Governor's House of the Torre de Belém into a hotel-spa, Lisbon – South wing, indoor pool of the spa, and chapel.

Source: Jorge Cruz Pinto e Cristina Mantas Architects archive (2003/2015).

Figure 3.13 Rehabilitation and conversion of the former Governor's House of the Torre de Belém into a hotel-spa, Lisbon – Entrance area, lounge with wooden roof, and incorporation of Roman cetarias as a museum.

Source: Jorge Cruz Pinto e Cristina Mantas Architects archive (2003/2015).

Architecture of Element X

All kinds of imaginary architecture intended for the present and the future, which could confront the population increase, emergencies resulting from wars and natural disasters, are left open. Amongst them we include mobile architectures, announced in the book of fiction "The Other World …" by Cyrano de Bergerac, which anticipate by 300 years the kinetic technological proposals of the Archigram Group. Small and medium modular and prefabricated and evolutional houses, made with sustainable materials and autonomy of energy, will permit easy self-construction, deconstruction of movement to other places. Floating architectures will aim to make use of lakes and tidal and maritime coastal zones. This element leaves all possible design ideas open, whether in a latent phase, embryonic or emerging.

Notes

1 Further on this, cf. the works of Gaston Bachelard: "The Poetics of Space," "Air and Dreams," "The Earth and Reveries of the Will," "The Earth and Reveries of Repose," "Water and Dreams," "The Poetics of Fantasy," "Psychoanalysis of Fire." Much of his works remains untranslated into English. (Translator's note)
2 Cruz Pinto, Jorge: "Dalla Pietra Residuale alla Pietra Filosofale," *in Architettura & Città,* Di Baio Editore, Milano, 2013. https://iris.unipa.it/retrieve/e3ad8916-cdc9-da0e-e053-3705fe0a2b96/2013%20agire%20concreto.pdf
3 Cruz Pinto, Jorge *et altri*: "Eco-Solar Transformer Architecture," in Advanced Building Skin Conference GmbH, Bern, 2021.
4 Different aspects of the project were submitted to EU competitions: HELIUS – Headway for the improvement of Living conditions in Africa Using the Sun, Call: H2020-LC-SC3-EE-2019, Proposal number: 892935. ESTAT – Eco Solar Transformer Architecture Technology (ESTAT) – Call: H2020-EIC-SMEInst-2018-2020-4, Proposal Number: 101009875. EUGreenGrid Call: H2020-LC-GD-2020-7, Proposal Number: 101037283.
5 Cruz Pinto, Jorge: "Eloge du Vide," Le Carré Bleu – feuille d'architecture, Nouvelle Association Paris, 2010.
6 Cruz Pinto, Jorge: "A Synchronous Architectural Project, Contemporary renovation in the Governor's Palace of the Belen Tower in Lisbon," *in*, *Le Vie dei Mercanti, XIV Forum Internazionale*, World Heritage and Degradation, La Scuola di Pitagora Editrice, Capri, Naples, 2016. https://www.benecon.it/wp-content/uploads/2020/11/2016-XIV-Forum.pdf

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4 Rehearsals of Shared Encounters for Improvising a Public Square

Alexander Matthias Gerner and Ljiljana Čavić

Introduction

Beyond concepts of over-and-under management of public spaces (Carmona[1] et al. 2021) and its contemporary urban design principles[2], we – a theatre maker and researcher in philosophy and an architect and researcher in architecture – propose the following: an ad hoc, open-ended, unfinished, and minimal formal and material public square design for imperfect and incomplete scenographies with the aim of fostering unforeseeable and contingent shared social encounters.

These social design improvisations might contribute to the ephemeral common complexity experience of a fragile but sincere sense of belonging (Seligman 2011; Verneert et al. 2021) beyond simplistic "participation (without democracy[3])," "coherence," "inclusion," or "social integration" in smart cities.[4] In the long run, improvised encounters may instigate curiosity about the plurality and diversity of the town and its inhabitants through probing as an improvisation rehearsal; probing aims at an inventive notion of social resonance (Breyer & Gerner 2017). These rehearsals of interaction include attentional, interest-led attunement, i.e., the synthesis of analytical elements between order and noise (Serres 2007). The inventiveness of the collective probing rehearsals of a public square is not only based on the technically extended analytical search capability it makes possible – as in the case of a scientific instrument (e.g., a social probe) of the city that rehearses by scanning, extracting information, and putting the quality of a material of construction or relational data to the test. Rather the inventive moment of the collective probings consists in the experience of the unpredictable social encounters without preselected rationality through co-embodied, co-extended, joint embedded, and enactive procedures and events of cognition, action, and sensitive perception that go beyond the realm of the individual selective capacities.

In the most successful scenario, the situations created by probing rehearsals of shared encounters are at an angle to different social-economic strata and form local respect and *alterity acceptance* instead of the democracy washing label of an idealized local "identity." Similar to the motto of "gradual completion of thoughts while speaking" (v. Kleist 1805), in these situations, we propose the following: a *gradual emergence of collectivity during encounters and improvisation with others*. A smaller-scale version of the birth of a collective and local "language" and grains of

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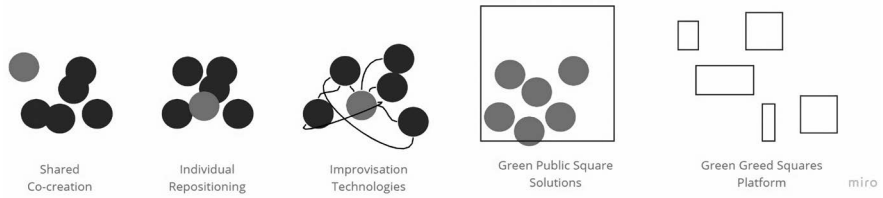

Figure 4.1 Diagrammatic speculation about the creation of green squares.
Source: Authors' drawing (2021).

understanding spring out of collective design improvisation. At the same time, Improvisers are *partners in crime* and *witnesses* of what is or might be about to happen in the creation of common accidents and events of becoming affected together.

Collective rehearsals go beyond self-realization and solitude: citizens might be advised to "speak" or to get into *a face-to-face situation* with another, meet the alien, the stranger,[5] during the rehearsals of a public square in which "The hour we knew nothing about each other"[6] is a pivotal public dramaturgical situation. It works on momentous breaks between a classical *ars inveniendi* diverted into the realm of design thinking and a modern, contingency-open, unpredictable social design heuristic. The unpredictability of improvisational brought about collective inventions, and the solidarity became central. Collective improvisation as designing a public square looks for rehearsal fields of actual temporary realizations of the sensual experience of the possible every day, which can thereby be glimpsed by the extraordinary at the moment. Thus, we are asking: What are the needs of the community? How accessible is this public square, and to whom? How can the rehearsal for a public square create meaningful improvised shared encounters? What is the minimal spatial dramaturgical intervention that can trigger shared encounters? Can shared co-creation lead to better green squares, as speculated in Figure 4.1?

Crisis of the Public Square

Crisis (from Latin) has been derived from a climax, or a turning point[7] of a dangerous conflict development in a natural or social system, preceded by a massive and problematic dysfunction over a specific time and thus a temporal phase that puts our resilience to test. However if we come back to the Greek root of the term, *κρίσις*, we refer to contexts restricted to "law, medicine, and theology"(Koselleck 2006: 357) inside alternative solid choices; *Crisis* derives from a condition (-σις) "to cut" (*krei-,) in order "to choose," thus meaning clear-cut distinction/strong separation or simply put: a decision based on critical judgment. The ancient Greek meaning of *crisis* still implies a decisive moment (cf. Greek) of critic, *krinein*, of *judgments* in which we are forced to decide by the unnegotiable necessity of a turn-of-times moment. Since the "loss of order" (Blumenberg[8]) in modernity, the former necessary correlation between *crisis* and *critic* is now modally re-negotiated. Crisis does not occur to us as a necessity

to decide by critical judgment, but now becomes embedded in techno-political dramaturgies of how to design and redesign modernity and its plural and possible or even virtual and automated frameworks of decision-making. In Walter Benjamin's reading of crisis, for instance, it is inherent to capitalist *economic harshness and imminent war*[9] as well as the mechanistic modernity of fetishization[10] that decentred from people who are present[11] in a space and judge critically, to things as reasonable practices of agentialities. Therefore the meaning of *crisis* has shifted in multiple ways, one of which refers to a perpetuation of a state that should be a momentary turning point and, as such, decisive and critical, instead leading to a crisis in permanence, in a recurring state of indecision[12] or habitual continuation of inaction.

What crisis do rehearsals of shared encounters for improvising a public square do we confront today? Can we speak of a crisis of democracy as a crisis of the public square?

Moreover, the *public* part of the *agorá*, as a political meeting point of Athenian citizens in which the legal, ethical, justice, and political debate occurred, at the same time excluded the non-Greek (barbarians), the enslaved, and women: in a certain sense the agora is from the start not only the public square, but as well a symbol of democracy in permanent crisis.

It seems important to take heed of another detail regarding public squares: The *Ostracism* problem of a democratic society that must decide who and what kind of action and conduct does not "belong to us"? This is the crisis of deciding for or against openness, belonging, and selection in the public space that densifies in the public square. The bedrock of democracy as a legal system, the Greek Agora of Athens knew public trials and even ostracism as voting[13] for or against forced exile to safeguard democracy. We argue that rethinking and redesigning the public square is an answer to tackle multileveled crises that might impose and expose social problems, showing and triggering actions and discussions. As such crisis of the public square is a fertile ground for dealing with apparent randomness and entropy, in which the *rehearsals of shared encounters* are intended to have a sufficient degree of fuzziness to absorb and adapt to encountering the unknown.

Towards the TEXTBOOK of Rehearsals of Shared Encounters

The *Rehearsals of Shared Encounters Textbook* has to be developed in the long run by the "civilians," besides the initial "militant" design and its rehearsal impulses for forcing shared encounters upon the improvisers involved and moved together in the overtures of improvisation. *Collective freedom* has to be gained. *Collective freedom* is no conditional starting point in everyday choreographies of the public Square: Community and social design as the "opposite of submitting" (Börris 2019: 9) deals with the survival of the social base of life and society. This base is aesthetic: A realm that modifies already installed habits of experience and the search for a community[14] interest.

The textbook, inspired by multiple theatre scripts, creates an improvisational playground without a pre-scripted fixed output and serves as an open-ended dictionary that can be constantly changed, extended, and rewritten.

Towards Spatial REHEARSALS

Creative social design uses the design method to criticize existing or entrenched power structures. It creates alternative spaces and opens up spaces and their unrealized potential, thus helping communities with creative means by allowing the isolated to experience the collective and the unifying, contributing to empowerment.

As a creation strategy, *Rehearsals of shared encounters* are based on incomplete and minimalist interventions that, through dislocation of conventional points of view, create a sensation of estrangement and awkwardness. *Rehearsals of shared encounters* are intended to develop experiential thresholds that can prompt sensitive and cognitive awareness within seamless continuity of everyday commonness and indifference. As an urban-architectural and design strategy, the shared encounters differ from a modernist idea of spatial (re)construction as a radical change that should reinvent, fix, and (re)qualify space. They are rather minimalist interventions that respond to found local here-and-now situations, as circumstances of people, time, and place, and their latent synergies can become evident and transformed through constrained building actions.

Spatial interventions are place-based and actors-guided changes that make part of a broader "Rehearsal of Shared Encounters" process. This process does not tend to exploit the maximum available investment and buildable square metres. Instead, it proposes an intensive thinking process that can positively impact the creation of a democratic public square. *Rehearsals of Shared Encounters* diminish waste production and move over natural and social ruptures. It aims at creating a shared sensitive and cognitive framework for revisiting known reality.

Towards a PLATFORM for Rehearsals of Shared Encounters

The intended platform is shaped as an unfinished open-ended repository of shared co-creation rehearsals of encounters; authors, directors, theatre-makers, architects, and designers meet in public square proposals to make evident the nature of the process of *Rehearsals of shared encounters*. The following examples will depict Parkinson's (2012) stages for democracy that go beyond arguments and reasoning[15]. These stages of democracy provide physical-spatial boundaries for the performative and dramaturgical improvisation of society.

> But how might such a process be structured? How does it operate within the framework of indeterminacy. Simply put: there are higher-level themes and topics that organize the activity on-site based on keywords such as "refuge," summit," "echo," picnic place," "real mountain vs. virtual mountain," and so on. These open up a relational field that provides the context

> for encounters between people, things, and situations. The themes must act as imaginary narratives so that everyone involved can easily imagine their roles within them.
>
> (Dell 2019: 98)

Instead of constructing merely a clear concept or architectural plan that could be rationally defined and scientifically or technically realized, Black Mountain College influenced encounters to experiment with the material and form created by a courageous ***Leap before you look***: a creative jump of chance pursued with a holistic aim "to educate a student as a person and as a citizen" (Kurtz 1944). In which failed attempts and the creation of new situations in joint rehearsals were part of the design process. Let us become experimenters again in the Bauhaus and Black Mountain College tradition in the 21st century and rehearse for shared encounters in the following situations.

Situation 1 – Individual Repositioning

On a non-normality level, the interventions create discomfort and awkwardness: they question the assumed body, social, and spatial constants such as the elderly do not play, kids do not decide, the ground is stable, vision prevails over all other senses, mobile and internet networks are essential needs and primary platforms, we ignore the garbage, we produce among others, we exchange (Figure 4.2).

The situated interventions invert the ground into a wall by repositioning urban furniture. Our shared view is rotated by opening up a new perspective and non-habitual resonances. This relocation and rotation of standard furniture distort our everyday routine: We sit one over another and not beside each other. Stairs strangely lead nowhere.

Situation 2 – Improvising a Square

Only recently, in consequence of a power transfer of national public management to local city management, an unused square was rendered accessible and opened up to the public in a Portuguese city near an old rundown convent. The actual city defines one of the future's most significant urban challenges to building and activating public squares. It aims to transform a transitional city between Lisbon and Cascais (Oeiras) into a town with several neighbourhoods centred around squares and public space, thus creating a city in the first place: a challenge to political life and democracy today.

This situation is about rethinking and redesigning a still overlooked public square (Figure 4.3), processing its void, and questioning its "uselessness": ***What is it that you want us to play with, you still unused public Square?***

Situation 3 – Making Music Together

Making music together with a stranger who is on the other side of the public square, putting into tension the close peri-personal face-to-face encounter and the distant

Figure 4.2 Public space as an exchange place – reinterpretation of public space around Church of Our Lady of Mercy in Cascais, Portugal.

Source: Catarina Todorovic-Caldeira (2024).

on the other side listening and co-musicking via a communication channel of the public square. Social resonance design, in the sense of Alfred Schütz's "Making music together," means the following: "(…) making music together is an event in outer time, also presupposing a face-to-face relationship, that is, a community of space, and it is this dimension which unifies the fluxes of inner time and warrants their synchronization into a vivid present" (Schutz 1976: 177; cf. Gerner 2017).

Making music together is based on creating sounds while walking on the floor of a public square. The ground is divided into a grid covered with different materials and recycled residues that produce a different sound when stepped over. The simple walking through the space produces different sounds and noises that might create undirected, unpredicted, and unrepeatable Music. These soundscapes can be recorded. Some soundscapes might be melodic and polyphonic; some may succumb to an "atonal logic of the urban" (Dell 2019: 202–208) to be diagrammed.

Situation 4 – Let Us Meet at the Devil's Hour

The square still has no public lighting installed, and a performance of lighting the square at the *hora do diabo rehearsal* would introduce the flip and the in-between

Figure 4.3 Dramaturgy of public square of D. Simon Godinho, Mosteiro da Cartuxa de Laveiras, Oeiras, Portugal.

Source: Authors' photo and photomontage (2021).

time and light/darkness between day and night). The neighbours' cell phones and flashlights (Figure 4.4) will be performed in choreography with local theatre-makers and artists. The square at the *hora do diabo* is delimited by the undefined and ungraspable moment of turning day into night. It focuses on our unawareness and disconnection from our surroundings, drawing our attention to the natural day-night continuity. It aims to creation of shared decision-making about when "night starts."

Situation 5 – Matter Matters

The influential design school Black Mountain College, 1933–1957, based their creation on "using commonly found materials and the fewest possible tools" and exploration of on *matière and material*[16] and trying to grasp immanent capacities of materials and test the (mis)perceptions of their appearances. Albers believed the disciplined study of the material organization of form was necessary for art production. As he reasoned, "Every artwork is based on a thinking out of the material" (Diaz 2015: 22–23) (Figure 4.5).

Matter matters proposes using recycled materials such as plastics and textile debris for objects and elements in direct contact with the body. The debris can be collected from the surrounding area and highlighted through technological and artistic approaches. These bodily touches of problematic materialities

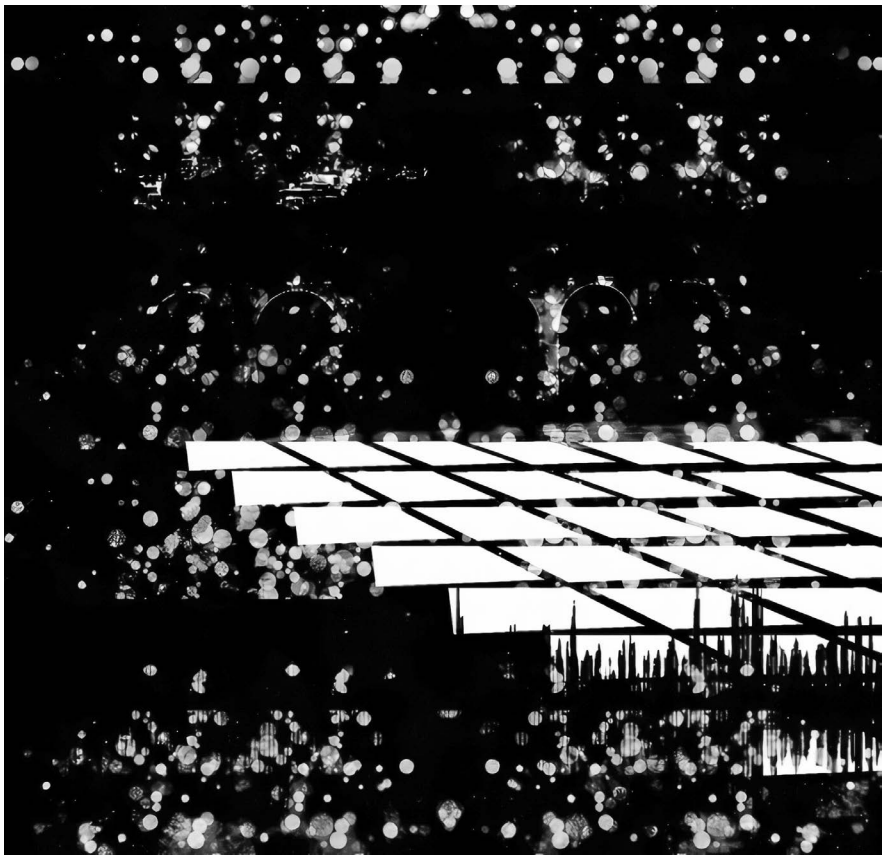

Figure 4.4 "Let us meet at the devil's hour."
Source: Author's photomontage (2021).

can challenge new sensations and raise new emotions about what and how we produce and use.

A notable example of debris exploration we find in use of cork derivatives such as expanded corkboard (Figure 4.6). In the installation "A Square in the Summer" produced by the Amorim Cork Company and designed by architect José Neves, the authors temporarily refurbished the cold limestone walls of CCB (Centro Cultural de Belém in Lisbon) into a warm cork installation that attracts bodily proximity. The architect preserved the same form of limestone façade, introducing a unique, sensual, and material level to the otherwise sterile, enclosed, and aseptic open space of CCB. Sofalca Lda has taken a different, highly technological approach in their innovative GenCork laboratory that currently explores the use of digital design, cork, and plants in creating what they define as nature and biophilia inspired symbiosis.

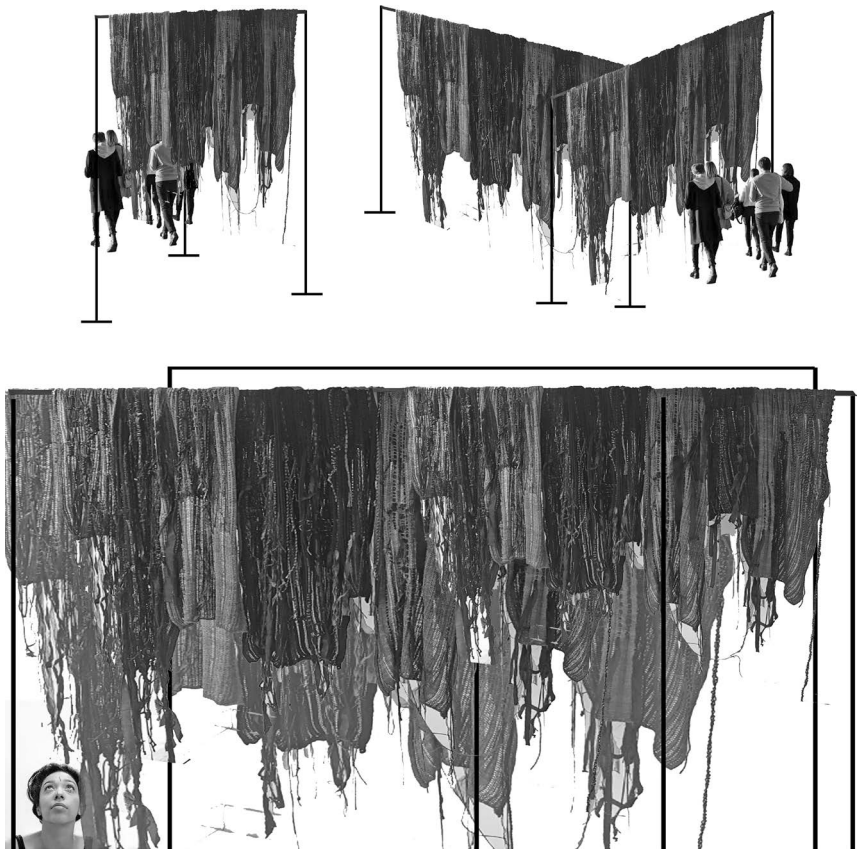

Figure 4.5 Proposal for the Serbian pavilion at the Venice Biennale of Architecture 2023, made from recycled textile and petroleum, work undelivered.

Source: Ljiljana Čavić personal archive (2023).

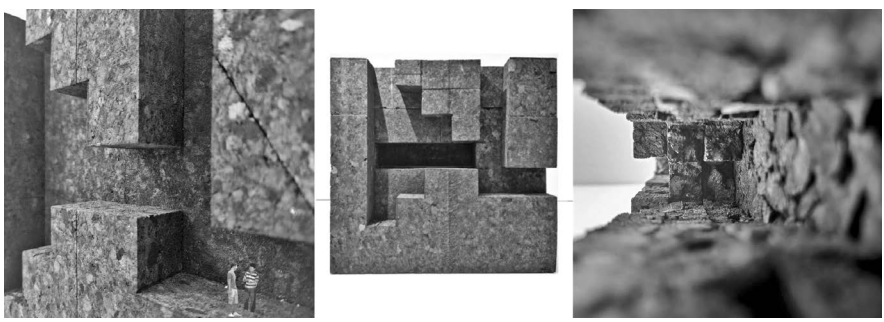

Figure 4.6 Experimentation on Hypogeum Space using debris of expanded corkboard at Design Studio 1 at Lisbon School of Architecture, student: Beatriz Mendes, professor: Ljiljana Cavic, 2024.

Final Considerations – Towards Improvisational Technology

In 2018 Alexander Römer's *Constructlab* collaboratively built an architectural mountain – the Mont Réel – as a real and imaginary design and construction process that includes, in its whole, community building as the fundamental part in which space is activated in a performative collective way by building a *mountain*. This constructed space is created as an encounter space for inhabitants and artist community groups in different workshops (1. Construction, 2. Graphic Design, 3. Fermentation Workshop, 4. Sound Workshop, 5. Cooking Workshop, 6. Embroidery Workshop) which builds scenes as if it were an open-air stenographic theatre space (Figure 4.7).

Dell calls this process "improvisational technology" and focuses on the graphic design workshop in which the design of the logo of the project is a "prime example of how to do differently" (Dell 2019: 99) (Figure 4.8). Contrary to deciding on the only brand logo that would represent the entire project of Mount Réel graphically, "the participants were encouraged to design new logos every day: a calculated and playful destabilization through which participants would liberate themselves from the restrictive corset of logomania. Furthermore, the logos were to be given permanent material form by being printed on T-shirts, dabbed onto wood."

Improvisational technology for Dell is a strategic use of improvisation that does not resort to something going wrong or being weird, but is instead a "tool that can unlock the potential of various clusters of activity on the site and allow them to be read and activated (…) a constructive approach to contingency and site-specific

Figure 4.7 The process of building a mountain.

Source: Constructlab. How to build a Mountain (2019).

Figure 4.8 Daily logo creation of the graphic workshop.
Source: Constructlab (2019).

network of actors, things, actions, and discourses. In order for everyone to be able to join in the improvisational process" Dell (2019: 99).

The design strategy "*Rehearsals of Shared Encounters for Improvising a Public Square"* is such an improvisational technology. It challenges the conventional designing process by inviting users to collaborative co-creation. It questions the resistance to change of urban spaces and architectural pieces by welcoming unplanned, ephemeral, and ad-hoc processes. In short, it opens possibilities for alternative approaches towards inhabited environments looking for altered, unconventional users' responses.

Notes

1 Carmona, M., Magalhães, C. de, & Hammond, L. (2021). Public Space: The Management Dimension. *Public Space Reader*, 264–271. https://doi.org/10.4324/9781351202558-38
2 "To create identity, sense of place and contribute to the overall city image,/To promote public use and participation,/To encourage social activities, communication, and social integration,/To enhance the character of the environment,/To create a public square which is legible, enjoyable and long-lasting,/To create both physically and socially accessible environments,/To achieve environmental sustainability and low-cost maintenance through environmental friendly design strategies./To promote art, cultural activities, and entertainment" (Memluk, Z. (2013) Designing Urban Squares, July 1st, 2013 DOI: 10.5772/55826.
3 Installed by new digital public squares and data, surveillance and metrics-based public spaces and platform-based altered democracies and powers: cf. Faßler (2020) and how platforms such as Facebook, Google, and Amazon are replacing marketplaces and public spaces while deciding who is allowed to be there and what rules apply. States can hardly control digital platforms; they act like states by challenging common concepts of capitalism, property, and democracy. See Seemann (2021).
4 Cf. the critic of Evgeny Morozov and Francesca Bria (2019) as an alternative counterpoint of common participative, sustainable, and fair data structures to the smart city "brand" that has rendered the city functional, optimized, and controlled by services from Big Tech platform companies and its neoliberal socio-economic impacts. In the Decode project developed for citizens and the city of Amsterdam and Barcelona in 2017, these authors aim to take back control over technologies, data, and infrastructure indispensable for the cooperative management of the future culturally intelligent democratic and green city.
5 "The analyses of language that tend to present it as one meaningful action among others fail to recognize this offering of the world, this offering of contents which answers to the face of the Other or which questions him and first opens the perspective of the meaningful. The 'vision' of the face is inseparable from this offering language. To see the face is to speak of the world. Transcendence is not an optics, but the first ethical gesture" (Levinas 1979: 174).

6 The play "Die Stunde da wir nichts voneinander wussten" by Peter Handke uses no language and was written as an observation of a public square and its eventful "choreographies of people" and their transient actions and (dis-) encounters: "What triggered the theatre play happened one afternoon many years ago. At that time, I spent the day in a small square in Muggia near Trieste. I sat on a café terrace all day and saw how life was happening. I really got into looking, perhaps also with the help of wine. Everything became sign-like without becoming symbolic. The smallest events began to become signs, as if they meant the world - I don't know what world, the world. After three or four hours, a hearse pulled up in front of a house, men went in and then came out with a coffin, spectators gathered and dispersed again, the hearse drove away. After that, business resumed - of tourists, of locals, of craftsmen. Those who came after did not know what was before. But for me, who had seen it, everything that came afterwards was slightly changed by the action with the hearse. The passers-by all knew nothing about each other - hence the title. But we, who watch, we see the passers-by as sculptures, who first make each other into sculptures. What comes afterwards first gives the outline to what was before; and what was before gives the sculpture to what comes afterward." (Handke / Löffler 1992, p. 96 transl. from original German) https://handkeonline.onb.ac.at/node/608

7 https://www.merriam-webster.com/dictionary/crisis

8 Blumenberg, H. (1974). Säkularisierung und Selbstbehauptung. Frankfurt/Main, p. 158.

9 "The Economic Crisis is at the door, and behind it is the shadow of the approaching war. Holding on to things has become the monopoly of a few powerful people, who, God knows, are no more human than the many; for the most part, they are more barbaric, but not in the good way. Everyone else has to adapt-beginning anew and with few resources" (Benjamin, W. 2005{1933}: 735).

10 In his photography essay standing against the book of "Neue Sachlichkeit," Benjamin mentions the following reason for social-political Crisis: "The more far-reaching the Crisis of the present social order, and the more rigidly its components are locked together in their death struggle, the more the creative-in its deepest essence a variant (contradiction its father, imitation its mother)-becomes a **fetish**, whose lineaments live only in the fitful illumination of changing fashion" (Benjamin 2005: 536).

11 As Benjamin refers to in his theatre and radio essay on his friend Brecht – with whom he envisioned a journal called "*Crisis and Critique*" in a note on epic theatre, "The Epic Theater brings the dramatic Gesamtkunstwerk into confrontation with the dramatic laboratory. It returns with a fresh approach to the grand old opportunity of theater-namely, **to the focus on the present people**. In the center of its experiments stands the human being in our Crisis. It is the human being who has been eliminated from radio and film-the human being (to put it a little extremely) as the fifth wheel on the carriage of its technology. Furthermore, this reduced debarred human being is subjected to various trials and judged. This approach reveals that events are alterable not at their climactic points, not through virtue and decision-making, but solely in their normal, routine processes, reason and practice" (Benjamin 2005: 585).

12 "It has shifted from its original Greek meaning of 'decision' to something more akin to indecision (cf. Revault d'Allonnes, 2012: 10), to a perpetuation of what is" (Schinkel: 2015: 38; Cf. Kosselleck 2006: 399). "The concept of Crisis, which once had the power to pose unavoidable, harsh and non-negotiable alternatives, has been transformed to fit the uncertainties of whatever might be favored at a given moment. Such a tendency towards imprecision and vagueness, however, may itself be viewed as the symptom of a historical crisis that cannot as yet be fully gauged" (Kosselleck 2006: 399).

13 "These voting 'Ballots' in ancient Athens were pieces of broken pottery on which scratched names of a politician they saw as a threat to democracy" (cf. Agora Museum: https://www.greece-is.com/understanding-the-agora/).

14 "A community is not formed out of those who share the same interests, but out of those whose only common interest is – to find a common interest" (Vilč 2017: 39; cf. Vilč 2015).

15 "… democracy is not merely the interplay of arguments and reasons in some abstract public sphere but is performed by people, with aims, on stages. This performative, dramaturgical understanding of democracy has roots in classical understandings of politics, and, oddly, this understanding has fallen into disrepute at a time when otherwise democratic theory is highly attentive to talk communication, and interaction" (Parkinson 2012: 22–23).

16 "Basic Design (the key *Werklehre* – handicraft, or literally, the study of how to work – portion of the Preliminary Course) involved explorations of the **material constitution of form**. Albers divided the subject into **two components, which he termed *matière* .and *material*,** and focused on **exploration using commonly found materials** and **the fewest possible tools**. ***Matière's* studies concerned the *appearances* of materials**, distinguishing among **structure, facture, and texture**, and sought to characterize **materials by their tactile or optical perception**. (...) For example, **a trompe l'oeil representation of wood grain on paper gave the optical appearance of wood but the tactile experience of paper** (fig. 1.4). Essentially, the practice of combining and confusing the superficial qualities of materials tested (mis)perceptions of the appearances of surfaces (...) *Material studies* concerned the immanent *capacities* of materials, evaluated structurally and analyzed according to features such as compression, elasticity, and firmness, tested through folding and bending. Here, Albers concentrated on the internal organization of forms and their relation to one another, encouraging dynamic relations rather than strictly symmetrical or mathematically predictable ones. An understanding of form's dimensional, spatial, and volumetric qualities was accomplished through construction exercises, whose parameters were defined through formal economy, that is, the 'ratio of effort to effect'" (Diaz 2015: 27).

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5 Social Housing Architectural Competitions in Brazil

Analytical Potentialities

Fabiano Sobreira and Maria Schulz

Social Housing Competitions in Brazil: Reflections on Architectural Design

Based on the analysis of selected case studies, this chapter proposes some reflections on social housing architectural and urban design competition proposals (for the outskirts of Brasília, DF, Brazil), promoted during the first decades of the 21st century. The main purpose is to analyse to which point such design proposals enter into dialogue with international contemporary ideas and guidelines on collective housing. From these reflections, it is intended to point out ways of evaluating quality in social housing for Brazil and to discuss the analytical potentialities in the qualitative judgement of competitions.

Social housing in Brazil is scarcely based on architectural design quality. Throughout history, such a subject has been far more associated with real estate investments or government economic recovery plans, in which there prevails a quantitative and financial perspective, instead of the idea of habitability. In the book "Pioneiros da habitação social no Brasil" (2014), Nabil Bonduki presents a "historic narrative of public housing production in Brazil", with facts and episodes which lead to such a conclusion.

As a consequence, in the Brazilian context, qualitative judgement (design competition based decisions) in social housing and public facilities is rare. While design competitions are a common event in countries that usually value democratic culture and the role of the State as a promoter of quality (especially European countries such as France, Germany, Switzerland, Spain, among others), in Brazil such design selection tools are occasional events and are rarely effective, despite the long-running efforts of professional institutions. While in Brazil the historic average is fewer than ten competitions per year, in France, for example, more than six hundred are promoted annually (Sobreira, 2019). Social housing architectural competitions in Brazil are situated in the intersection of these two exceptional situations. In short, design competitions and qualitative judgement are both rare events in the Brazilian context. Between 1989 and 2018 (three decades) there are records of only 25 design competitions related to the theme of social housing in Brazil (11% of the 229 competitions promoted in that period). It is important to mention another disparity: the number of competitions promoted in Brazil in thirty years

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corresponds to the number of competitions in Germany in only one year (Sobreira, 2019).

The scarce presence of the "housing" theme in design competitions also reveals that in the Brazilian context, such design decisions "tend historically to be centralized on investors or builders, leaving little space for debate, transparency and the quality judgement of design" (Sobreira, 2019, p. 233).

The few competitions related to social housing can also be affected by organisational failures and fragility of judgement. According to Hector Vigliecca:

> … it is important to acknowledge that innovative results [in competitions] depend on innovative competitors, a jury with an innovative mindset and, above all, an innovative cultural context, which means universities, schools, promoters, politicians and policies. An innovative context is only possible when the country's social, political, economic and cultural conditions encourage changes, something that in the present situation, we are far from reaching.
>
> (Vigliecca, 2017, s.p.)

In short, as suggested by Paulo Mendes da Rocha: "Judging is about the capacity of reading" (Sobreira, Flynn and Ribeiro, 2018, p. 39). So, the question proposed in this chapter is: which tools should one use to promote a critical reading of social housing design in Brazil?

Aiming to contribute to the reflections on this theme, we propose to revisit, in this essay, the experiment carried out by the *Máster Laboratorio de la vivienda del siglo XXI*, from *Universitat Politècnica de Catalunya*, synthesised in the book *Herramientas para habitar el presente. La vivienda del siglo XX* written by David Falagán, Josep Montaner and Zaida Muxí (2011). The main purpose is to test the analytical potentialities of such tools for the Brazilian context, considering architectural design proposals.

Tools to Inhabiting the Present

In the book *Herramientas para habitar el presente. La vivienda del siglo XX* (2011), the authors present an analytical system, combined with a design method for contemporary collective housing. They define housing as a "crossroads of contemporary complexity wherein, through architecture, there come together town-planning, social, technological and environmental issues".

It is a comprehensive evaluation system, based on four essential concepts: Society, City, Technology and Resources. Such an approach summarises the main characteristics which must guide contemporary housing design, along with other four complementary topics: management, rehabilitation, typology and perception. Despite being an evaluation system initially based on housing designed for Spain, authors argue that the method can be adapted to other geographical, cultural and social contexts, with adaptations when necessary. This is the purpose of this chapter. One of the purposes of the analytical tool, according to the researchers, is to

stimulate a critical vision of housing design, not only among architects, but also to "create a critical mass of users able to look in a knowledgeable and discerning way at what the private and public sectors have to offer". According to the authors:

> We need to educate people so that housing can be understood as a part of the city and as a place to inhabit the present, to enshrine our past and plan our future; a place to live comfortably which fulfils our desire for individual and community symbolic values, for privacy and sociability and is not just a consumer item and investment opportunity.
>
> (Montaner, Muxí and Falagán, 2011, p. 11)

It is not about "presenting a list of definitive solutions", but a tool that can stimulate critical thinking on housing design, "which takes into account history and the collective memory, which tackles present-day diversity, which enriches the structure of our towns, which facilitates access to housing and gender equality, and which encourages the search for increasingly sustainable and environmentally-friendly architectural solutions" (Montaner, Muxí and Falagán, 2011, p. 12).

In this chapter, in considering editorial limitations, the analytical essay is limited to the first two concepts proposed by the system: Society and City. The concept of "Society" deals with the idea of housing adaptation to the diversity of family models and their evolution; the need to build a domestic environment with reduced hierarchies and the availability of spaces for productive and reproductive works in the domestic environment. Regarding the concept of "City", the following topics can be highlighted: the capacity of housing projects to be related with the urban context; combining residential function with other uses; architectural design solutions which stimulate inclusive interfaces between housing and public space. Subsequently, we present a synthesis of a preliminary analysis, based on design competition proposals for mixed use (housing and services) in Sol Nascente, Brasília (Brazil), promoted in 2017.

Analytical Study: Sol Nascente

The competition design considered for this analysis aimed to select the best proposals of mixed use buildings, and their necessary urban arrangement, for an expansion area of "Setor Habitacional Sol Nascente", situated at the far west of Distrito Federal (CODHAB-DF, 2016a,b).[1]The competition brief asked for the development of "L" shaped modules (including buildings and interstitial areas) and respective solutions for landscape and urban design. There were no restrictions related to building typologies, but a four-storey limit was established, with no elevators. The proposed design should consider replication in similar modules. Regarding use, on the ground floor, there should be predominantly commercial use, and on the upper floors, two- or three-bedroom residential units. At least 5% of residential units should be accessible for wheelchair users. Despite the Competition Brief's flexibility regarding architectural creativity, some basic parameters should be considered, regarding units' minimal dimensions and technical specifications, related to the

Housing Finance Programme to which the competition was attached: Minha Casa Minha Vida – MCMV (Bondoki, 2014).

The link between the design competition and the MCMV Programme is a key element to be taken into account, considering the criticisms of housing specialists, regarding the Federal Government programme (Bondoki, 2014; Rolnik, 2015), specially regarding issues such as real estate and financial interests. From this perspective, some questions arise: is it possible, through design competitions, to overcome the housing quality limitations which seem to be imposed by the housing Programme? Or, in other words: would the low quality from MCMV be a limitation to the competition, or would it be possible to arrive at good design solutions, despite technical, financial and real estate limitations? Still, according to the competition brief, housing designs should consider climatic conditions (wind, humidity, solar orientation), urban plot topographical characteristics and the surrounding environment. Solutions should also address sustainability issues from a broad perspective (environmental, economic, social and cultural), associated with quality, efficiency and functionality parameters.

The Sol Nascente Competition Brief presented some premisses which are also mentioned as quality criteria by Falagan, Montaner and Muxí (2011): mixed use (housing and commerce); typology diversity and relation to urban context. On the other hand, it is a proposal which presents some negative aspects in its initial condition, as the peripheral urban condition, on account of being situated over thirty kilometres away from the city centre, with little choice in services available in the surroundings and poor urban infrastructure. It would be a real challenge to the competitors to propose creative, innovative and effective solutions, facing such limitations of context. After this, we present a brief analysis (considering editorial limitations) on how the winning proposal[2] and one of the honourable mentions[3] address the issues specified in the competition brief (Figure 5.1).

Society

The first topic related to the concept of "Society" refers to suitability of the project to the diversity of family groups, which is correlated to issues such as flexibility and diversity in the typology of housing units typology. One notes that both projects propose several apartment typologies, allowing a variety of family compositions to live in the building (Concursosdeprojeto.org., 2017). The winning project presents three options of space arrangements for the two bedroom apartments, including one accessible to wheelchair users. The honourable mention project presents four options of apartment configurations, all of them accessible. Three of them are two bedroom apartments and one is a three-bedroom unit. Regarding accessibility, in the winning project all accessible units are located at ground level, as the building – following the competition brief – should preferably not include elevators. The solution also offers parking lots for wheelchair users and accessible routes, as defined by legislation. The honourable mention is entirely accessible, as it proposes elevators to reach all floors. The ground floor is developed on different levels, reached by ramps and elevators.

Figure 5.1 Images from the Sol Nascente Mixed Use Architecture Competition (DF Brasília), 2017: (a) urban context; (b) winning proposal; (c) honourable mention.

Source: Edited by authors, from concursosdeprojeto.org

Another issue considered in the concept of "Society" is the elimination or reduction of hierarchy in space configuration, which can be understood as the project's capacity to integrate visually and socially the various apartment partitions, with a minimum of hierarchy, whether in domestic or in community spaces. One can observe, in both cases (winning and honourable mention projects), that housing typologies propose bathrooms that can be used by all family members, or by visitors, in an equitable way, avoiding exclusive sanitary units for specific users. So, there are no "service rooms" or "service bathrooms", facilities which are – unfortunately –still present in Brazilian housing typologies, as a reminiscence of a racist and slaveholding culture. All bedrooms present similar dimensions. In the winning project, living and dining rooms are integrated, but usually separated from the kitchen area, except in one of the typologies where these spaces are not segregated. In the honourable mention project, living and dining rooms and kitchen are usually integrated, except one of the typologies, where the kitchen is segregated, despite the visual connection between spaces. The integration of "service facilities" with the other spaces in the apartment helps to reduce hierarchy and stimulate sharing responsibilities of domestic tasks and promotes gender equality.

Concerning "working spaces" in the domestic environment, it is possible to identify in all typologies of both projects the possibility of direct access from common spaces to the room, a condition which makes possible the use of domestic space as a working facility. Some bedrooms are also adaptable to wheelchair users. In both projects, all typologies are equipped with storage spaces, in bedrooms, service area and kitchen (Figures 5.2 and 5.3).

City

Regarding the concept of "City", the first issue is "urban location". The selected case study is located at the peripheral area of the Distrito Federal (around 30 km away from Brasilia Pilot Plan). It is an isolated area, with scarce public amenities and urban infrastructure within walking distance: bus stop (100 m); groceries (200 m), nursery and restaurants (500 m). Concerning "contact with public space", the First Prize design proposes collective spaces and good urban visuals, respecting context and location, along with urban strategies for neighbourhood improvement. In the honourable mention proposal, public space is integrated into the overall design, with well-defined spaces and uses, multiple means of access and diversified circulation options. The topographical contours are considered in the creation of a partially underground car parking. The building configuration creates good perspectives and urban visuals, both to passers-by and residents.

Both proposals present a good diversity of spaces and "coexistence of functions": squares, active corners, courtyards, ground floor commerce and services, bicycle racks, playground and community centres. "Intermediate spaces" are also present in both design strategies, with open spaces for circulation and gathering. One can observe, in the first place proposal, the use of "urban axes", courtyards and squares, as connecting elements between public and private domains: the "commerce axes" stimulate ground-floor activities, with dynamic spaces. The "leisure

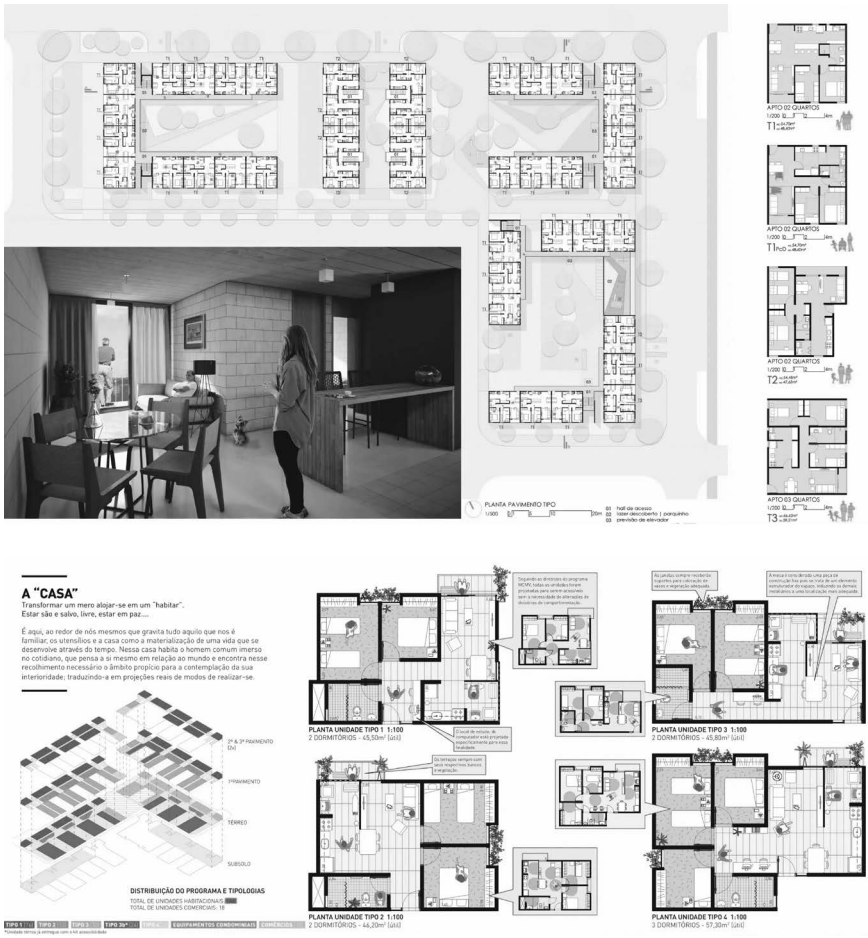

Figure 5.2 Housing typologies. Top: winning project typical building floor and typical apartments. Below: honourable mention project typical apartments.

Source: Edited by authors, from concursosdeprojeto.org

axes" aim to explore the potentiality of the landscape, with green spaces integrated into squares and pavements. The "connecting axes" are designed with the purpose of linking leisure and commerce areas.

The honourable mention proposal, as far as urban issues are concerned, presents a more complete analysis of the relation between public and private spaces. Along the presentation boards, through texts, images and diagrams, one can observe a set of design strategies relating the building to the city; the individual to the collective. On the first board, authors highlight the importance of the "everyday user perspective", specially the need to create "community attachment"

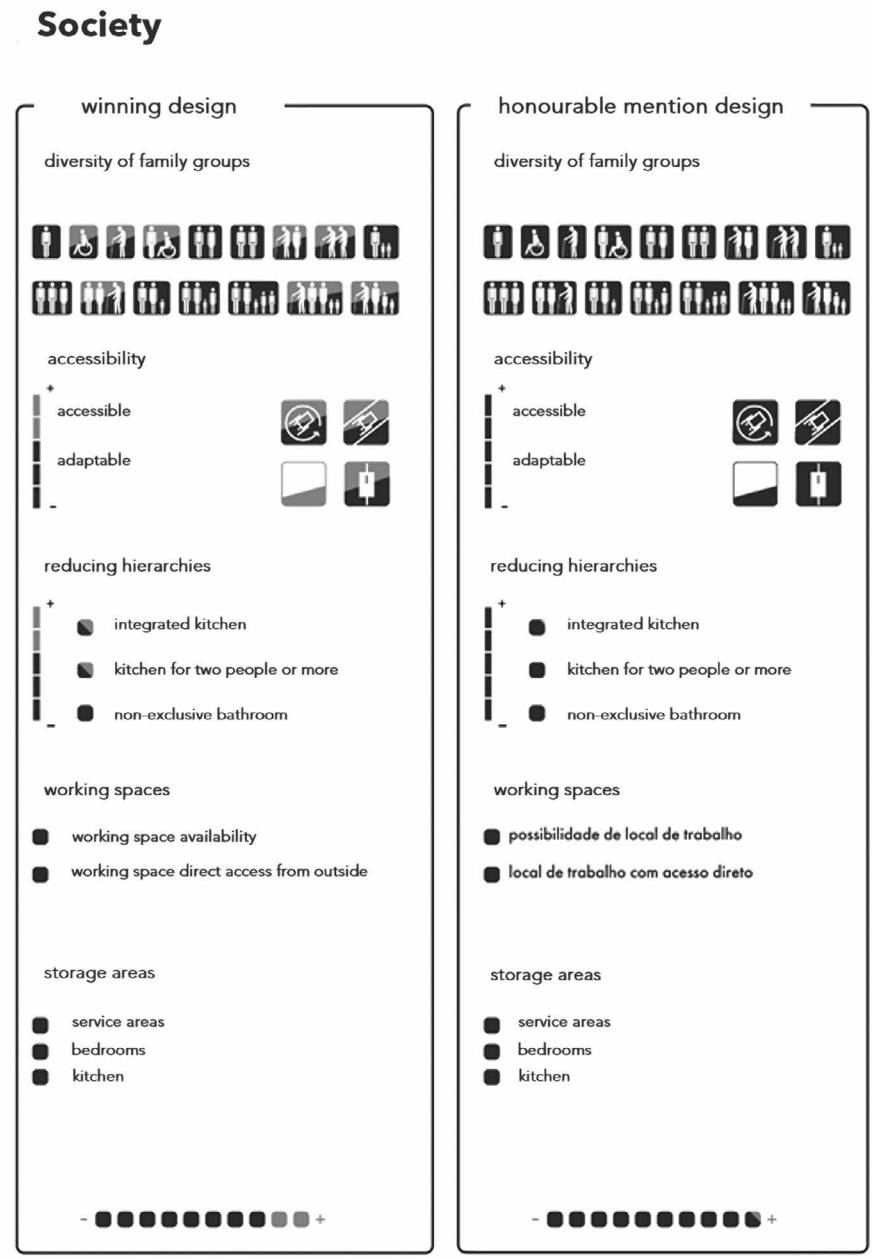

Figure 5.3 Society concept assessments: winning and honourable mention projects. Sol Nascente Mixed Use Architectural Competition (DF, Brazil). Adapted by authors, according to the analytical tools proposed by Falagan, Montaner e Muxí (2011).

to the place and to enhance the "collective dimension" of the project. They also emphasise the need of active community participation for space appropriation and management, with design strategies which stimulate such dynamics. Through a graphic strategy, authors "express the voice" of the people who are represented in visualisations of buildings and spaces. While for other competitors the image of people in renderings are limited to indicate scale and simulate the use of space, for the honourable mention proposal, people inserted in images are presented as active, talking characters. Among the characters' speeches, it is worth mentioning some of them: "From the window of my individuality, I acknowledge the collective landscape", or "The true value of my home is outside". On the second board, authors define the difference between "to occupy" and "to live", and present design strategies which, according to them, allow the "architecture complicity in creating ambience for human activities" (Figures 5.1 and 5.4).

Potentialities and Perspectives: Competitions and Qualitative Judgement

The preliminary results of this analysis, concerning the concepts of Society and City, indicate an expressive quality in the competition design proposals. The first question raised in this chapter, about the proximity between competition solutions and contemporary premisses for social housing, is confirmed, despite limitations of housing policy in Brazil. Regarding the second question, about how to evaluate quality in the architectural design of social housing in the Brazilian context, preliminary results indicate that the "Inhabiting the Present" analytical tools are useful and permit an objective and sensitive approach to the social housing issue, combining broad criteria, multiple scales and diverse perspectives on design quality. One can observe that an important part of design evaluation depends on predefined conditions of the context (both positive and negative), defined by institutional or political decisions, prior to the design competition. As to the positive aspects of such decisions, one can highlight issues as accessibility and sustainability. On the other hand, some negative aspects are related to the peripheral location of buildings and the absence or precariousness of urban infrastructure. Despite the limitations of urban context, the design proposals analysed respond to the competition challenge in an innovative and creative way.

On the subject of conflicts between the qualitative approach of competitions and the quantitative and financial approach of the MCMV Brazilian Housing Programme, the competition results suggest that the Housing Programme itself is not a limitation to creativity, but rather the lack of creativity and innovation in its application. Winning competition designs indicate that it is possible to fulfil MCMV demands and, at the same time, to achieve quality in social housing architectural design. The main difference is in the design choice criteria: instead of the usual quantitative, speculative and financial perspective, to invest in qualitative judgement.

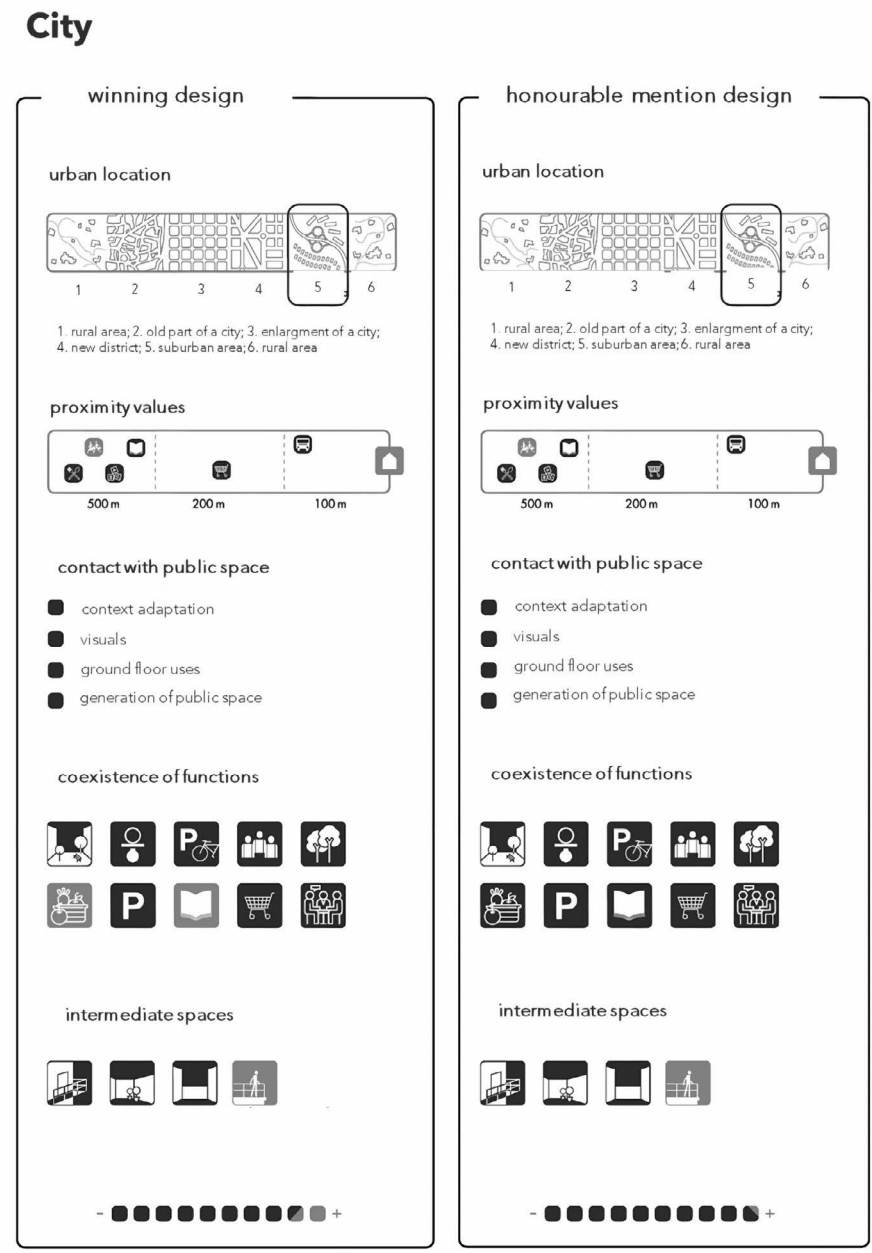

Figure 5.4 City concept assessments: winning and honourable mention projects. Sol Nascente Mixed Use Architectural Competition (DF, Brazil). Adapted by authors, according to the analytical tools proposed by Falagan, Montaner e Muxí (2011).

It is important to emphasise, as mentioned in previous studies (Sobreira e Romero, 2017; Sobreira, 2019), the importance of architecture competitions as instruments for the selection the architectural and urban design of social housing, not only because of the transparency of process and its democratic values – foundations of such procedures – but also because of the resulting quality of proposals, as observed in this chapter and other recent studies on this issue. A good competition management, centred on qualitative judgement and acknowledging the complexity of the process, is essential to obtain the desired creativity and design quality. Competitions should be based on solid briefings, with appropriate contextualisation, at the same time detailed and flexible, respecting the creativity and potentialities of competitors. Thus, it is important to avoid excessive rules and restrictions, opening the way to innovation. Another important "component" of the procedure is to acknowledge the "dynamics of the game" (Sobreira, 2019, 2020), considering that the Jury is responsible for the choice, based on the promoters' perspective, synthesised in the briefing. When the Jury ignores the established premisses of the briefing and defines its decisions with no clear criteria, it puts the whole competition at risk.

Regarding the analytical tools proposed by Falagan, Montaner and Muxí (2011), it is possible to affirm that they deal with contemporary and urgent issues, even ten years after the text's first application. It is also possible to conclude that the greater part of the analytical parameters are applicable in other geographical, social and cultural contexts, with a few adaptations. Regarding the issues related to "Society", one can conclude that in Brazil, social housing proposals lack the inclusion of themes related to the diversity of family composition; hierarchy reduction or elimination and space for work in domestic space. This last issue is even more relevant in the context of the COVID-19 pandemic. With the concept of "City", the lack of attention to the need for connecting social housing to urban centralities and urban infrastructure continues to be a problem in Brazilian housing programmes. Another problem is the lack of initiatives which combine several uses in the same space (housing, services, commerce, amenities …) and a poor relationship with public space. Other aspects could be considered in future studies, adapting the proposed analytical tools to specific contexts, considering the introduction of weighting factors of parameters according to the purpose of the analysis. Finally, one can conclude that the challenges of social and collective housing of the 21st century, presented ten or more years ago, continue to be valid and urgent, both in Catalonia and Brasília.

Notes

1 For more information on these projects, see: https://concursosdeprojeto.org/2017/03/01/premiados-edificios-de-uso-misto-no-sol-nascente-trecho-2-codhab-df/
2 First Prize. Authors: Luciano Suski, Rodolfo Luís Scuiciato, Simone R. N. Born Hoppe, Aline Proença Train, Suzanna de Geus, Moacir Zancopé Junior, Igor Costa Spanger (Curitiba/PR).
3 Honourable Mention: Hector Vigliecca, Kelly Bozzato, Jéssica D'Elias, Carolina Passos, Luiz Marino Kuller, Neli Yumi Shimizu, Ronald Werner Fiedler, Luciene Quel (São Paulo/SP).

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6 One Piece of the Environmental Puzzle

The Relationship between Architectural Practice and Climate Change

Juliane Freire and Paulo Pereira Almeida

The chapter presents a study about the stage before the programming phase. The main focus is on showing that the possible changes introduced into the business plan could be positively reflected directly in the built process results. Introducing the environmental concerns to a project's business plan directly affects the following stage: the architectural programming phase.

The authors organized this chapter's framework and structure into seven chapters. The first chapter is the present introduction, where the readers can understand the author's concerns and research; the second chapter is about the methodology used to elaborate on the current work. It explains the ways and types of documents the authors have considered to develop this chapter; The third chapter is about relating policies on the chapter focus, the United Nations' targets, and an explanation of architectural Programming; Chapter four focuses on the Sustainable Development Goals (SDGs) of Agenda 2030 of United Nations; Chapter five approaches the relation of design and climate change; Chapters six and seven are the conclusion and acknowledgments, respectively.

Just as past human action has had side effects and unintended consequences, new actions should be thought as having a broader and further impact beyond their immediate effects. In this manner, the architectural practice should contribute to creating buildings and spaces with added environmental value. Architectural practice is preceded, most of the time, by a desire to develop or accomplish an activity that will benefit humans in one way or another. This desire and its process generate several instruments, one of which is the business plan, of which the architectural project is a part, with its cost and schedule impacts on the overall plan. With larger actions or developments, the range of anthropogenic impacts is often addressed through an environmental impact study that creates a biunivocal relation between impacts and actions that must have a place in the business plan and, later, further downstream on architectural programming. Often, for medium and smaller projects, no such process exists. In these cases, architectural programming reflects only the desirable parameters established in the business plan; the anthropogenic impacts of a medium and small development are compensated only by the energy efficiency of the proposed building or development. In this sense, for buildings and their architectural projects to have more efficacy, the moments and processes

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that proceed and succeed in the act of building must also be considered – the idea of restorative and regenerative needs to be part of the adaptation (or conception) strategy. The paradigm shift in the built environment should be part of the target for "restoring capability of socio-economic and ecological systems to a health state" (Brown et al., 2018, p. 12).

A "green building" is known as a building that uses less energy and often incorporates a water management system. In these buildings, their environmental impact is reduced through careful considerations of the building design and their siting. The indoor air quality is often superior to conventional construction due to natural ventilation and material selection. Usually, references are made to the life-cycle impact of the decisions made considering materials, furnishings and furniture. A responsible site development practice, design and construction choices, operation, maintenance, removal, and reuse of building materials and systems selection is directly linked with green building measures (Yudelson, 2010).

The concept of adaptation can be described as "an adjustment in the natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploit beneficial opportunities associated with climate change" (IPCC, 2007a). Adaptation aims to reduce vulnerability to climate change and variability, thus decreasing climate change's economic and social costs" (IPCC, 2007b). "Adaptation action can take the form of policies, practices, and projects" (European Commission: Directorate-General Regional Policy, 2009).

Adaptation practices might reduce vulnerability to climate change and variability due to human responsibility. The objective will decrease the economic and social costs of climate change as the action can take policies, practices, and projects (European Commission: Directorate-General Regional Policy, 2009).

Preceding architectural design and construction, the intention of development first takes shape in the form of programming, a comprehensive list of the needed spaces and their requisites. The goal is to examine whether intention and programming could be influencers for fundamental steps that follow in the process, i.e., architectural and construction projects. It thus becomes valid to question whether the bases of sustainability or principles of combating climate change used in architectural practice can enrich the decision-making chain in the intention phase to generate a more effective process and final product in contending with climate change and other anthropogenic manifestations. This research aims to identify the vectors and mechanisms that might be considered for possible incorporation in the intention phase.

Buildings and developments have evolved from green to sustainable, from sustainable to restorative, and are now moving onto regenerative. These facts are likely to happen because of the growing understanding of the human impact on the environment. In this sense, several environmental and energy management tools, such as LEED and BREEAM certifications, are in place during the architectural project development phase and during the construction, stage to minimize the impact of the building on the sustainability perspective. There are also standards for environmental development, at several levels, in organizations: ISO 14 001 (specifies requirements for an environmental management system) and ISO 5 001

(particularizes energy management systems), for example. However, the initial phase of the process, which starts with the intention and precedes project development, does not seem to benefit from these tools.

Climate change is a driver in biodiversity change, with growing impacts and cascading effects on human survival. The biodiversity loss and the degradation of natural systems, such as forests, significantly impact negative contributions concerning climate change. Measures to care for environmental systems can prevent the harmful effects of climate change (Unesco Portugal, n.d.).

The construction type and building occupation and use (commercial, residential, public, industrial, or transportation) are also responsible for buildings' vulnerability. The exposure of each building does not depend only on its location but also depends on its characteristics to support specific activities that determine its underlying exposition, sensitivity, and resilience (Global Alliance for Buildings and Construction & OID, 2021).

The hazards to human health can include poor indoor air quality, discomforting temperatures indoors, and, in some cases, mental well-being. Furthermore, the effects of extreme temperatures or weather events impede construction processes and create difficulties in their completion (European Commission: Directorate-General Regional Policy, 2009).

As we move to a beyond sustainability approach, this chapter proposes revisiting the United Nations SDGs and their respective targets to verify the possible incorporation of actions to fulfill those targets through their consideration at intention and programming phases, allowing for a more holistic approach in the act of building.

Methodology

This chapter reflects a literature review resultant from a bibliometric study and scoping review. We found several themes associated with each other. First, the bibliometric study provided some relevant information on understanding how climate change and architectural practice affect the environment and, consequently, emotional, and societal well-being. After the bibliometric studies, relevant chapters and books were selected to create a substantial bibliographic revision and provide suitable material to discuss in the objective approach. We also consider a study from the United Nations – SDGs for this methodology. Most official sources are extracted from official websites and reports and are organized on a relational matrix, summarized in Figure 6.1, to establish the possible correlations with the architectural programming phase.

Policies, Targets, and Architectural Programming

Policy is an effective way to create conditions for goals to be achieved on a macro scale. Decision-makers need "physical, ecological and spatial" factors to develop social costs and benefits when selecting strategies. Policies are effective on a larger scale but incorporating a clear path of action at a smaller scale,

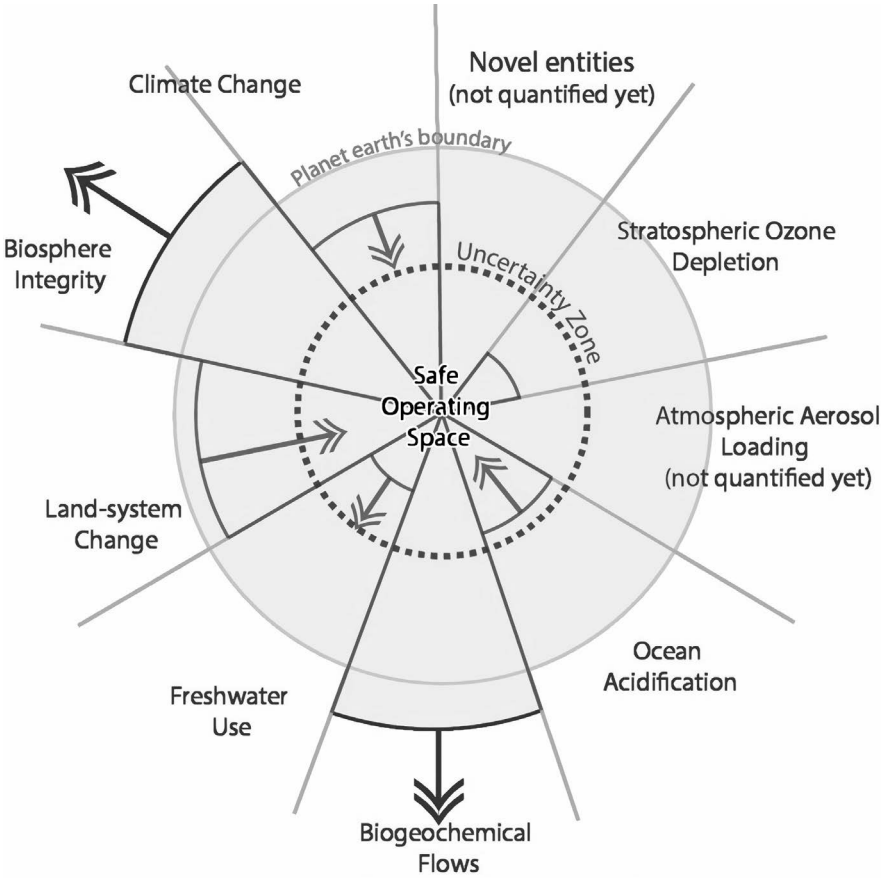

Figure 6.1 Planet Earth boundaries and policy trade-off.

Source: Author's design. Developed based on the analysis of Sterner (2019).

such as the incorporation of some targets during programming, can possibly result in a process and product that offers more than sustainability (Sterner, 2019, p. 7).

The climate change threats can be minimized when policies are designed to create adequate conditions and stimulate technological innovation that supports sustainable growth and simultaneously discard less beneficial ideas and hazardous technologies that endanger the environment and ultimately ourselves (Figure 6.1).

Land-system management needs to equate and recognize the benefits and trade-offs when we think that climate limits are simply the combinations of steep reductions in greenhouse-gas emissions and healthy ecosystems to store up carbon. Instead, it is a path toward a socio-ecological system (Sterner, 2019, p. 6). A healthy environment prevents biodiversity loss, safeguards freshwater resources, and offers multiple other linked benefits (Sterner, 2019).

Practical policy choice and design must be based on efficiency, accomplishing the anticipated effect at low costs, but must also be concerned about "political" criteria such as allocating costs and resistance by powerful vested interests (Sterner, 2019, p. 7).

The instrument selection depends on the appropriate analysis of the socio-economic cause(s) underlying the problem. The guiding powers behind some of the unjustifiable use of environmental resources, which cross global borders, are principally economic. It is essential to perceive in this situation the impact caused by population growth and modifications, performance, and new technologies.

Some of these uses are caused by growth in population and income and changes in behaviour and access to technology. Creating policies and institutions to deal with these issues requires an understanding of how economies work, the related trade-offs, and the functions of incentives and political barriers to policy implementation (Sterner, 2019, p. 3).

Sustainable Development Goals

The timeliness of this discussion comes from the measures, projections, definitions, and targets assumed by the United Nations, worldwide governments, associations, and populations regarding resource use and global warming for 2030, 2050, and 2100. In addition, it is expected to value greatly contributions generated with the knowledge and proposed mechanisms, actions, and methods to make architecture practice more sustainable, especially in its early stages of development. These include the idea – decision – feasibility and post-use phase.

Society undergoes constant changes concerning the environment. Global warming, carbon dioxide (CO_2) emissions, and the need to handle the more conscious consumption of natural resources are a reality. And this is common in the agendas of meetings between private and public organizations around the world.

The Stockholm conference presented some principles that are relevant to take into consideration and relating directly to this study. Principle 3 showed the necessity of maintaining, restoring, and improving the planet Earth's renewable resources; Principle 4 highlighted human responsibility for protecting and handling well wildlife heritage and its habitats, and also the importance of looking thoroughly and deeply into nature conservation and wildlife on economic development planning; And Principle 5 addresses the importance of using non-renewable resources wisely, preventing their exhaustion, and ensuring that all humanity is sharing their benefits (UN, United Nations, 1972, p. 3).

The main objective of the ECO-92 conference was to discuss existing global environmental problems and their implications. The results of this conference generated a declaration of 27 principles on environment and development, where the objective was to establish a new and equitable global partnership through the creation of new levels of cooperation between states, critical sectors of society, and peoples (UN, United Nations, 1992).

In 2015, after many other conferences and meetings to discuss socio-environmental changes, at the summit at the United Nations headquarters in New York (USA), the 2030 Agenda was established with the 17 SDGs.

The 2030 Agenda is a plan of action focused on people, the planet, prosperity, peace, and relationships, with the ultimate goal of poverty eradication and sustainable development. All states and other stakeholders assume their responsibilities for its implementation, emphasizing that no one should be left behind (European Commission, 2019).

In the 2030 Agenda, there are nine SDGs, with a few targets (purposes and intentions) directly linked to architecture practice, and the built environment (Figure 6.2) (World Green Building Council, 2019).

It is worth noting the interferences and interests among all stakeholders involved in this process (civil society, investors; enterprises; and the environment) in the nine SDGs relating to the built environment and their targets. Better decisions at the programming phase can create conditions in architectural practice to deal with the environment for the next generations.

The 2030 Agenda proposes the monitoring and follow-up of its objectives and one hundred and sixty-nine targets. In addition, it sets a deadline for further tracking after fifteen years (2016–2030). In short, this period will correspond to a transition to more efficient economic activities, with low carbon emissions, which value climate neutrality and the use of adequate biodiversity resources. The 2030 Agenda illustrates that economic growth must rely less on non-renewable resources to maximize renewable resources and sustainably managed ecosystems (UN, United Nations, 2015).

To recognize the importance of the relationship between architectural practice and the SDGs it is necessary to perceive that it is not straightforward to link some of these SDGs with this sector. Exemplifying, SDG 3 – Good Health and Well-Being could seem to be merely a medical goal. Yet most human activities take place in a built environment, contributing to healthy living and well-being. Therefore, this goal could also be adequate for architectural practice, requiring some scrutiny. Furthermore, looking at the 13 targets within this goal, we can highlight two related to previous decisions for changing the future of subsequent generations. According to the United Nations, target 3.8 states: "Achieve universal health coverage, including financial risk protection, access to quality essential healthcare services and access to safe, effective, quality and affordable essential medicines and vaccines for all," and 3.d aims to: "Strengthen the capacity of all countries, in particular developing countries, for early warning, risk reduction and management of national and global health risks" (UN, United Nations, 2021). Goals and targets are of great importance to the initial decision process. The architectural practitioner needs to learn, evaluate, perceive, consider, and incorporate these points in process planning.

According to the report Towards a sustainable Europe by 2030 (2019, p.10), the most severe sustainability deficit and the most significant challenge for society is the excessive extraction of natural resources without concern for the satisfaction of future generations on the planet. According to the Footprint Organization,

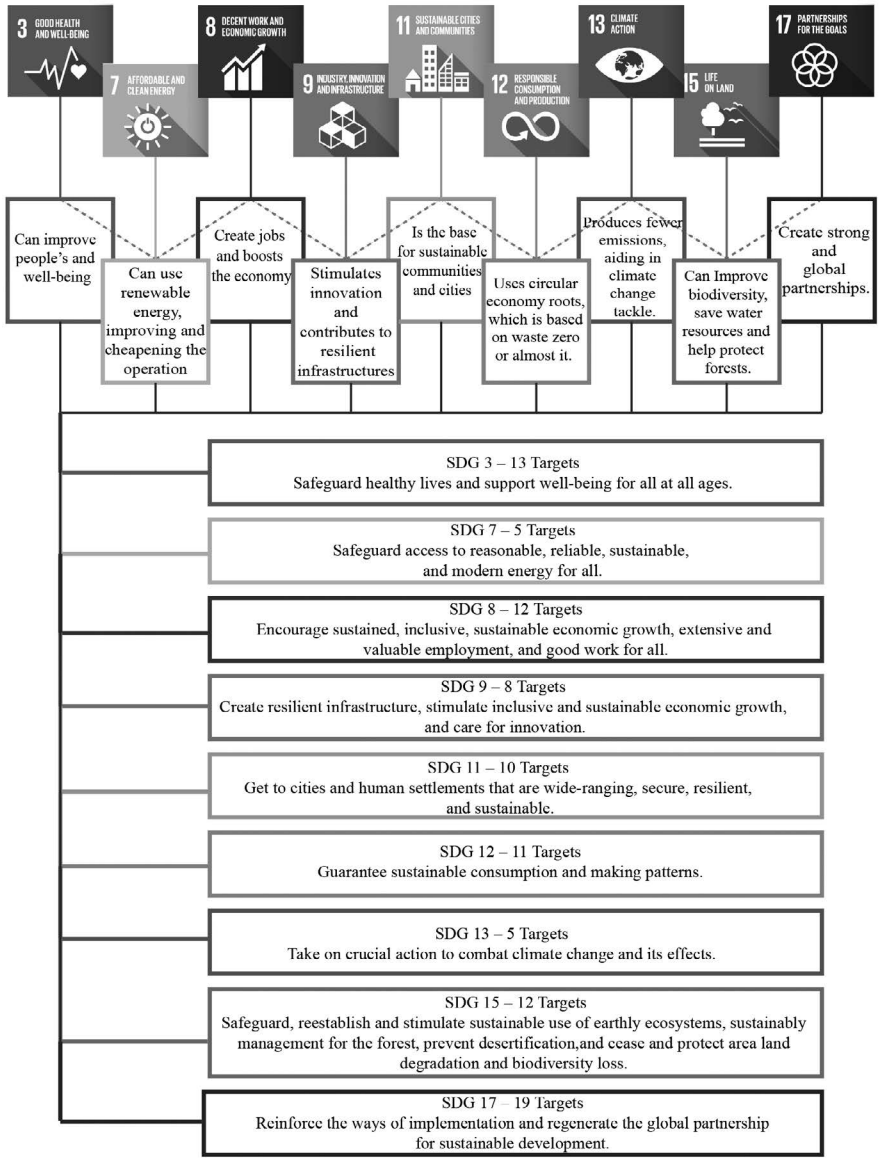

Figure 6.2 Sustainable Development Goals relating to the built environment.

Source: Author's design. Developed based on United Nations (2017), and World Green Building Council (2019).

humanity consumes the equivalent of 1.75 planet Earth per year. This means that the Earth takes one year and eight months to regenerate what we consume in a year. Consequently, more resources are used than nature can replenish. The range of overused resources is extensive and includes, for example, fishing and forests.

According to The European Green Deal, the construction, use and renewal of buildings have a relevant share in the amount of energy and mineral resources consumed. It directly affects the European intention to be the first continent to achieve carbon neutrality by 2050. For the European Union to achieve its energy and climate efficiency goals, it will be necessary to double the annual renewal of the building stock in the Member States. Currently, these vary between 0.4% and 1.2%, i.e., a significant amount of modernization of public and private buildings should be promoted (European Commission, 2019, p. 9).

In architectural practice, this can boost the industry by creating new projects and processes at the local level. However, without correct handling of these refurbishment processes, what could be an advantage to the environment can further contribute to global warming.

Design and Climate Change

Vitruvius explained climate as a determining factor for house style and siting. According to climate and sun, the distinctive characteristics of the regions must be considered so that the buildings adapt to each nation's physical qualities (Polio, 1960, pp. 37–39).

In 1993, the International Union of Architects (UIA) signed the Chicago Declaration of Independence for a Sustainable Future (CIALP, Conselho Internacional dos Arquitectos de Lingua Portuguesa, 2014), demonstrating the architects' intention to commit themselves to greater involvement in environmental causes. A few years later, in 1995, the book "Europe and Tomorrow's Architecture" was published (CAE, Architects' Council of Europe, 1995). Both documents identified that for better control of greenhouse gas emissions efficiently and cost-effectively, greater emphasis on environmental performance and energy efficiency in all buildings would be necessary. In addition, the importance of the sustainable implications of project design, construction, operation, and habitats, and neighbourhoods are highlighted in these documents. Also outlined in these documents is the interest and importance of improving existing buildings.

Tackling climate change needs to be expressed in several human activities. First, it requires behavioural changes, i.e., the way the intention is thought. According to "The Circularity Gap Report 2020," a dynamic system will be called into action for a more sustainable economy, reflecting directly on efforts to tackle climate change. There will be no end to the life cycle of the final product, and this implies a disruptive model in regard to the current economic model. For this model to succeed, it must have its foundations divided into seven premises: a design for the future; incorporate digital technologies; sustain and preserve the existing ones; rethink

the business model; use the waste generated as a resource; prioritize renewable resources; value teamwork to create community value.

After analysing the report cited above, one could classify Southwestern Europe and most of Europe as shift countries, with limited natural resources and a high consumption rate. Thus, a socio-environmental problem is generated. These countries, which are prominent in terms of climate responsibilities and post-industrial legacy, are under increasing pressure to become efficient. This report highlights the need for an architectural design with an initial intention that reflects the life cycle of the product and the adequate use of materials that uses regenerative resources during construction and reflects an approach that can either prolong the building's existence, reuse, or guarantee its recycling. The authors also suggest a combination of ideas and perhaps a change in the business management model (Schmidt et al., 2020, pp. 54–59).

Better design can make products more durable or easier to repair, upgrade, or remanufacture. It can help recyclers disassemble products to recover valuable materials and components. Overall, it can help to save precious resources. However, current market signals appear insufficient to make this happen because the interests of producers, users, and recyclers are not aligned. Therefore, it is essential to provide incentives for improved product design while preserving the single market and competition and enabling innovation (European Commission, 2015, pp. 3–4).

Incorporating some of the SDGs in the architectural practice at the programming phase could be helpful in the building process and make a substantial contribution beyond the three spheres of sustainability (environmental, social, and economic). The paradigm change in the architectural process could improve the current business management model in this sector. The evaluation of this contribution needs to be measured in each sphere of sustainability. These assets could be a "new line" to be followed for architectural practice and designs.

Conclusion

To devote significant attention to the nine goals and their targets from the 2030 Agenda is an urgent and crucial "break of paradigm" for the built environmental process and contributes to the holistic approach in the building process. The considerable analysis and a concentration on these topics can assist architectural practice to influence and better inform the programming phase of the process. It implies getting outcomes with adequate and necessary improvement for the society and environmental space.

To get beyond sustainability (regenerative development), a dynamic system needs to be considered. It means a rupture model with the current economic plan – Disrupt model (Schmidt, et al., 2020, pp. 54–59). This Disrupt model could gather the sustainable objectives of the European Union and the United Nations, mitigate inadequate actions against the climate, and control the environmental impacts (UN, United Nations, 2015).

Incorporating dynamic aspects into a "socio-environmental system" is an essential factor for national, regional, and local policies. Socio-environmental

systems can be complex adaptive systems in which local interactions give rise to change at local, regional, and even global scales. Therefore, complexity managing changes can be profound and complex, with variable temporal and spatial periods (Sterner, 2019, p. 6).Following this study, we will continue investigating the assets generated, incorporating some SDGs targets in the programming phase. The new European Green Deal and its connection to the built environment through the New European Bauhaus will also be considered. Concomitantly, it will be relevant to study the incorporation of study and findings within the realm of the Horizon Europe Programme for research and innovation.

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Part II

Applying

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7 Modular System of Small Wood Components, Self-Built and Gender Equity

Alanis Larissa Fernandes Boganika

Introduction

One of the biggest issues in Social Architecture is the housing deficit; more than 220 thousand people live on the streets in Brazil (Silva, Natalino and Pinheiro, 2020), in addition to individuals whose housing is part of irregular occupations, near rivers or risk areas. The difficulty in accessing decent housing and construction materials at affordable prices can be a hindrance for many families whose income is close to or below one minimum wage. In present-day Brazil, in which 5.5 million children do not have their father's name on their register (IBDFAM, 2019), almost half of Brazilian households are supported by women. In this scenario, it is appropriate to think about materials and building systems that can be used by women, bringing more freedom, economy and autonomy in the construction and modification (renovation) of their own homes.

The system that will be studied below arises as an alternative to the problem of the need to hire outsourced professionals, master builders and bricklayers for the construction of housing, which for many women, single mothers, mostly black and peripheral, has a price above their income and possibilities. Today there are no systems on the Brazilian market aimed at self-construction that are easy to assemble, have a low cost and whose components can be carried and assembled by women, dry (without the use of mortar or water), and without the help of other people.

The search for female emancipation has occurred since the beginning of patriarchy and is further strengthened in times of crisis. Thinking about the freedom won by women during decades of struggles that still exist and also the loneliness of feminine heads of families who, often alone, need to bring sustenance into the house (Barbosa, 2020), a system constituted by small and lighter pieces would seem to provide an alternative that furnishes constructive autonomy and speed in the assembly of decent housing, which brings not only protection but also spatial and material quality. In any of the situations, it is recommended that women seek guidance and technical assistance from CAU – Architecture and Urbanism Council before starting the construction or renovation of a house.

In Brazil, there are already projects that teach peripheral women to design and build their own homes in order to bring independence and freedom as well as theoretical and practical knowledge to them. The project Architecture in the Periphery

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("Arquitetura na Periferia" in Portuguese), for example, emerged from Carina Guedes de Mendonça's master's thesis and has been running since 2014, offering autonomy and assistance during the process of building these homes. As we know, the male figure is far more prominent than the female in the scenario of the construction industry (9.9% are women) (Ministério do Trabalho e Emprego – Brasil, 2016), making design decisions that do not take into account the real needs of the routine of those who take care of the home, the vast majority of whom are women. Enabling the protagonism of the work to the female figure is a huge step in the fight for gender equity, especially in a mostly male context.

This research, developed during Scientific Initiation at graduation, intends to explore the modular constructive system [PATENT LETTER No. PI 1107472-8], its applicability and relevance in the Brazilian construction industry and its architectural, constructive, social and environmental importance, especially for small single-family housing projects. Consequently, this will occur through the detailed analysis of the system and its corresponding components, explaining the fitting, assembly and diversity of existing components.

Peripheral Women as Protagonists

For hundreds of years architecture was linked to elite projects and associated with large public buildings, and rarely to the working class. Even so, when architecture reaches this part of the population, such projects are carried out as charity or governmental actions, creating housing estates without any authenticity or differentiation, forming villages or neighbourhoods in series. Social housing does not take into account the user during its process, how many people make up that family nucleus, what the needs of those users are, etc.

The construction processes known by the peripheral residents are empirical, very frequently extremely close to areas of risk such as rivers or hills with the threat of landslides and they build their houses as fast as possible merely with the intention of having a roof over their heads. Generally, the houses are already designed, and built with a ready-made and generic layout, disregarding the peculiarity of each individual or family nucleus.

According to the IBGE, in Brazilian in 2019, more than 51.7 million individuals live below the poverty line, receiving the equivalent of U$5.50 a day, or R$436.00 per month, and 13.6 million people live in extreme poverty, with an income of less than U$1.90 a day, equivalent to R$151.00 per month, according to the dollar value of that year. In Brazil, the number of single mothers, that is, women who are the sole or main person responsible for the child, comprises 11 million women (IBGE, 2020), a condition that makes them even more vulnerable in the pandemic context in which they lived in 2020 and live in 2021, with closed schools, increasing unemployment rates and undeniable gender inequality. "Every single mother is a whole village in herself", says Sofia Benjamin, 30, "working hard to keep everyone alive, happy, feed body and soul with the internal and external spaces organized and doing what they don't do for her: caring" (Monteiro, National Geographic Brazil, 2020, our translation).

The gender approach in architecture should take into account not only femininities but also a whole history of the construction of patriarchal society. The feminist movement in Brazil – already identified as a social movement and having this name – started at the end of the 19th century (CPDOC, 2009). But before that there were already women who fought, in the most literal sense of the word, with bodily clashes and the use of firearms for example, in important events in Brazilian history, showing that the reduction of woman only to biological difference is susceptible to criticism, as Simone de Beauvoir says in *The second sex*:

> It is not as a body but as a body subjected to taboos and laws that the subject gains consciousness of and accomplishes himself. […] And once again, physiology cannot ground values […] the woman's body is one of the essential elements of the situation she occupies in this world. But her body is not enough to define her; it has a lived reality only as taken on by consciousness through actions and within a society.
>
> (Beauvoir, 2011, p. 70–71)

Besides the gender approach, the female category is divided into many others, such as race, social class, religion, etc., and there may be even more specific characteristics of each experience, after all, Brazil is a colonized country with continental dimensions, thus, according to Silva (2010), it is unfair to simplify the woman as a single, immutable and proportional category. However, one thing is certain: according to Kaley Overstreet (2021), in an article for ArchDaily, in architecture and urbanism school four out of ten students are women. However, male personalities are studied almost exclusively, with rare exceptions, such as Lina Bo Bardi, who until a few years ago was rarely mentioned. The lower number of women in leadership positions, when compared to the number of men in the same positions, is flagrant.

At university, women account for almost half of the students enrolled in architecture and urbanism, but even though they are in a privileged position with regard to access to information, they are still not heard with due urgency (Faustino, 2018). Knowing that the formation of the city occurs irregularly and unequally in the distribution of land, a parallel can be made with the voice that is given to individuals who live far from the centres or even to those who resort to occupying irregular areas and, especially, white, black, yellow and indigenous women who, in addition to the burden of oppression and violence of social class and race, suffer even more severely from silencing based on gender.

Self-construction is something common in the experience of the less favoured parts of society (Figure 7.1), the acceptance of men for manual work or work that requires physical strength has always been higher than the acceptance of women. Within the gender struggle, much is said about equity, but there is still a very strong culture built by patriarchy to reinforce women's inability to succeed in jobs that require strength and decision-making, with construction being a predominantly male area for these reasons. However, the maintenance of inequality

Figure 7.1 Women in the workshop of the project "Arquitetura na Periferia" in the Dandara community – Belo Horizonte.

Source: Arquitetura na Periferia – Carina Guedes de Mendonça (2013)

and the perpetuation of this culture fall even more heavily on peripheral female bodies, which, in a hierarchical patriarchal relationship, are at the lowest levels of society.

It is worth remembering that the periphery referred to here is not just about the less favoured social classes and/or those far from city centres but, as Loboda (2016) explains:

> [...] it is also linked to the concept of 'amenities', characteristic of the recent process of 'voluntary segregation' of the more affluent class in gated communities, for example, which sell the idea of a direct relationship with nature, green areas, leisure spaces and, above all, the idea of security.
>
> (our translation).

Wooden Construction

The viability of such protagonism in the construction for residents and users themselves is of incomparable importance; in states of emergency the system studied below manages to be a fast, robust alternative and at the same time easy to assemble and transport for people of any physical size. The pieces are light and when compared to the dimension and weight of ceramic blocks they become a constructive possibility with excellent potential.

The system-components developed in Andrea Berriel's doctoral thesis *Arquitetura de madeira: reflexões e diretrizes de projeto para concepção de sistemas e elementos construtivos (*Wooden architecture: reflections and design guidelines for the conception of construction systems and elements) are solid wood structural sealing panels (Figure 7.2). The system parts come from the combination of solid wood panels and platform systems, segmented into smaller parts. The system's guidelines involve flexibility of the architectural project and simplification of the operations involved in the construction of buildings, from transport to assembly. The design and construction of the modules aim to optimize raw materials, speed of assembly, thermal control and high-quality moulding and finishing. The aim is to develop a low-cost system that can be built without any special labour. The use of wood in the system-component is a consequence of the search for a renewable

Figure 7.2 Experimental assembly of the system module in the wood industry.
Source: Berriel (2009).

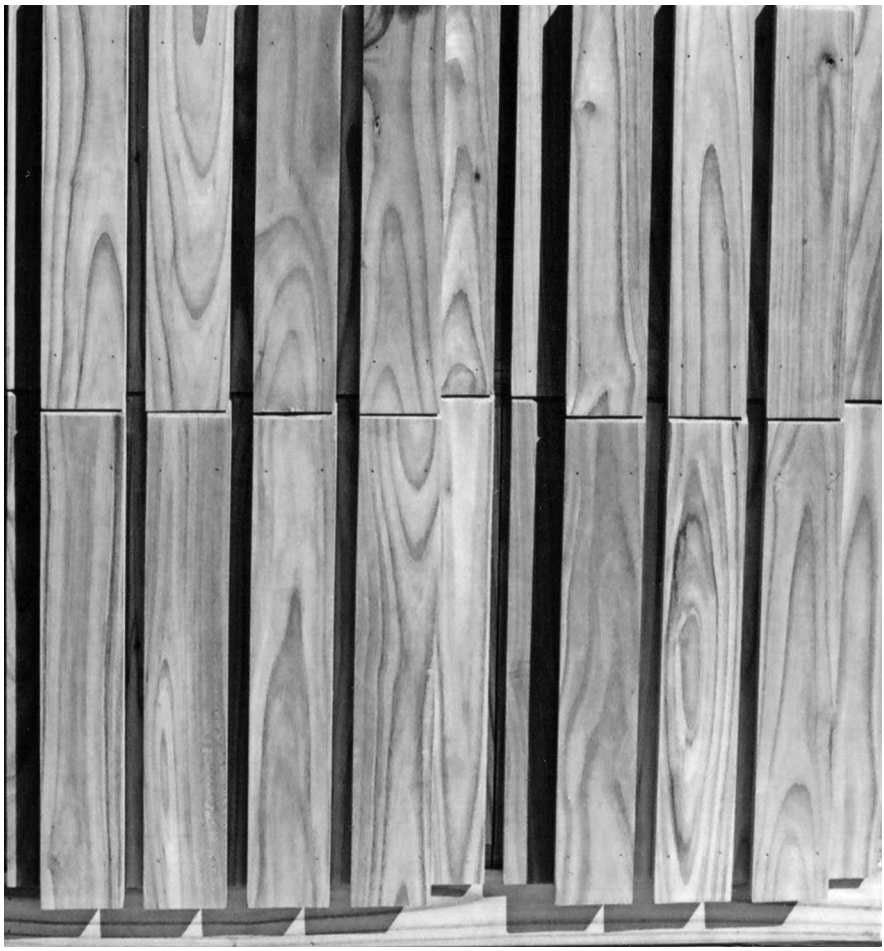

Figure 7.3 United modules in experimentation.

Source: Berriel (2009).

material with a positive impact on the environment, in addition to its plastic and structural quality (Figure 7.3).

The flexibility of the modular system developed is related to the possibility of vertical and horizontal growth every ten centimetres. Despite the existence of a wall construction mesh, the system requires its own sealing structures in window and door openings, which can make it difficult to use standard frames and doors available on the market because of the dimensions of the modules that follow the decimetric system, unlike many parts on the market (Figure 7.4). The system also provides the possibility of expanding and rearranging the construction structures, in a practical way and without material loss. The flexibility of the system-components allows their use in projects of different scales and with different levels of finish,

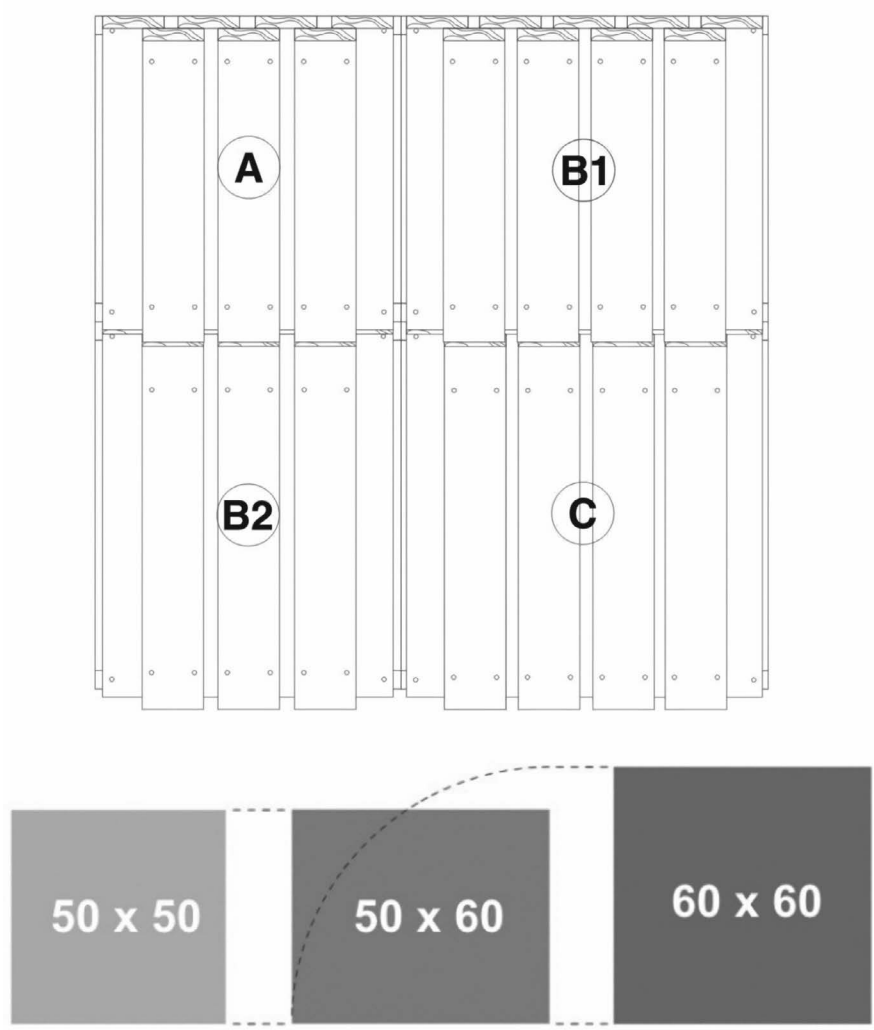

Figure 7.4 Illustration in view of the four proposed components.

Source: Andrea Berriel (2009).

and they can easily be used for the construction of social, single-family and emergency housing.

Beyond the design issue, the dimensions and weight of the pieces were planned (the structure of the largest module measures 60 × 60 cm and weighs 5 kg, being made of the Brazilian wood called Bracatinga), so that they could be transported in personal vehicles by people of different physical constitutions, without requiring specific strength or stature. Leaving aside the gender cut-off, this type of system enables the low-income population to have access to specialized technology

developed within the university, in addition to the practicality and self-sufficiency that the assembly of the system employs for women, people with disabilities and the elderly, for example.

To seek and explore alternatives so that the way of building and thinking about a project is changed and accessible to the poorer sectors of the population in Brazil, through national and renewable raw materials, can help to generate self-confidence and free the individual from the thought of dependence. Promoting self-construction, especially for the female element, helps to solve problems of inability reinforced by the patriarchal cultural system and to submit to the need of a male figure, as Carina Guedes de Mendonça (2020, our translation) cites, there's nothing natural about the fact that people don't have access to a right as basic as housing, while few make it to university and also explains that:

> Allowing people deprived of all kinds of information to have access to knowledge that is normally denied to them allows them not only to discover new options for building their space, but also fosters a sense of self-confidence that motivates them to realize their desires.
>
> Carina Guedes de Mendonça (2013, our translation)

Masonry construction in Brazil, especially for the low-income social classes, is considered an achievement, something like a move upwards socially, since ceramic blocks are popularly related to material stability, robustness and durability whereas wood is commonly considered fragile, archaic and as something that deteriorates easily (when used in a building). The term "material house" is often used to refer to buildings built with clay bricks usually in association with reinforced concrete structures, and this is precisely because of this overvaluation of clay blocks in relation to wood.

However, by treating natural resources as inexhaustible, we are moving faster and faster towards the destruction of our environment, and consequently towards our own destruction. The choice of wood as a material for construction and development of the system-components stems from the need to assume a more sustainable posture since construction is a huge emitter of carbon dioxide, the main aggravating factor of the greenhouse effect, and Brazil is the sixth country with the highest emission of these gases (GHG) according to the Angelo (2019). But where does this Brazilian obsession with masonry comes from? According to Andrea Berriel (2009), through colonization:

> Stone and mud buildings, taipas de pilão and taipas de sopapo or pau a pique were introduced to Brazil. Since then, wood has been used in the pau a pique weave, as a roof structure, in window and door frames, floors, ceilings and stairs. Rarely has wood been used as a structure or wall, in other words, historically it was considered a complement and not the main element of the construction.
>
> (our translation)

Although the preference for masonry is mainly cultural, it is important to remember that it was reinforced by a commercial interest, which came about through the Portland cement monopoly (Ficher, 1981). Therefore, reinforced concrete structures were widely used in the construction of bridges, sewage galleries and stadiums, becoming an expensive option to be employed in single-family houses. In the current context of sanitary crisis, construction with wooden systems becomes a more viable option than reinforced concrete and masonry for structures that need to have the ease of self-construction, quick assembly and disassembly, and dry construction.

It is urgent to think about long-term sustainable alternatives and not only emergency ones, because not only is it not possible to predict how long the pandemic of COVID-19 will last but there is also the possibility of other pandemics, since one of the main causes of viral epidemics is large-scale environmental degradation (Evanildo da Silveira, BBC, 2020).

Reflections and Perspectives

The initial stimulus of this research was the desire to explore ways of using wood in construction as the main input and what progress could occur through this in the construction of housing in a time of crisis. Social and gender inequality is an important factor when it comes to access to decent housing and quality of life in Brazil, so analysing these points was essential for the research to be consolidated.

It is necessary to rethink the way we build and the consequences of traditional construction in Brazil, not only in the choice of materials but also in the maintenance of gender inequality and design decision-making that most of the time does not benefit the users. Considering that it is in the peripheries and informal settlements that people are being most affected during the COVID-19 health crisis, it becomes important to study alternatives for designing housing that can be built quickly and that require as little skilled labour as possible. During the research, it was fundamental to think of gender, since women, although in greater numbers when it comes to domestic care, are the least involved in decision-making in the design of their own homes.

Architecture is able to not only form spaces but also the relationship between the bodies present in this space (Figure 7.5), therefore, based on the assumption that urban space is built from the vision of men and therefore reflects the dominance of male power in the management of this urban space (Silva, 2007) providing protagonism in design decisions for women, even if on a small scale, is of immense use also for other social minorities because when a woman acquires conditions to become the subject of rights, all other users of the city start to benefit as well. Another relevant factor was the choice of wood for designing the modules studied here, which not only aims at preserving and improving environmental conditions but is also a strategic alternative to increase access to housing, generating products, elements and system-components with constructive qualities that meet current demands.

Figure 7.5 Window fitting in the workshop of Arquitetura na Periferia of Carina Guedes.
Source: Arquitetura na Periferia – Carina Guedes de Mendonça (2013).

Although this research represents a small contribution to the area of knowledge, it has made it clear how fundamental and necessary it is to continue developing alternatives, not only more sustainable but also more accessible to the poorest parts of the population, promoting quality architecture for all.

"Together we are building not only houses, but also self-esteem and self-confidence". Carina Guedes de Mendonça, in TEDX Talks – Mulheres, construir sua casa é construir também sua independência.

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8 Experimentation with Building Techniques Using Earth in Professional Training

A Path for the Architecture of Response

Ana Valéria Soares Nunes, Ingrid Gomes Braga, and Taynah Machado Pacifico de Sousa

Introduction

Brazilian cities exist in a state of response to and confrontation with conditions of social, economic and environmental vulnerability imposed on the population. Faced with the plurality of contexts, the presence of the architect and urban planner is necessary for the construction of an architecture of response to such crises.

The Charter for the Education of Architects produced by the United Nations Education, Science and Culture Organization (UNESCO) emphasized the role of the architect in contributing to the improvement of the quality of life of those who "are not accepted as citizens with full rights in the city and are not amongst the normal architectural clients" (UNESCO/UIA, 2017, p. 03). It reaffirms that it is of public interest and importance that architects know and interpret in their projects local characteristics and needs in order to provide quality of life for people and to enable them to assume such a professional posture.

The precariousness in the functioning of architects in areas of socioeconomic and environmental vulnerability, such as rural, peripheral and anomalous agglomerated areas, favours the prevalence of urban dynamics of corporatism and capitalist marketing interests (Arcipreste, 2012). To be prepared to adapt oneself to different cultures and contexts which require the service of an architect, following less authoritarian and more inclusive models of working (Arcipreste, 2012), is still a challenge, even for professionals already active in the market.

Emphasizing the importance of the work of the architect in correlation with the characteristics of a place demands questioning regarding the methodologies employed in the training of these professionals. As Ferreira and Flório (2018) affirm, rethinking professional activity for the comprehension of society as a whole is of the highest importance for the training of professionals able to reflect, collaborate and create, who aim to develop a better and more just society (Figure 8.1). It is the role of education in universities to train architects prepared to work in any arena, contemporary or traditional. The current observable scenario does not value these aspects of training, since there is an increasingly business-based model for universities, which prioritize quality as a means for competing in the market (Ferreira &

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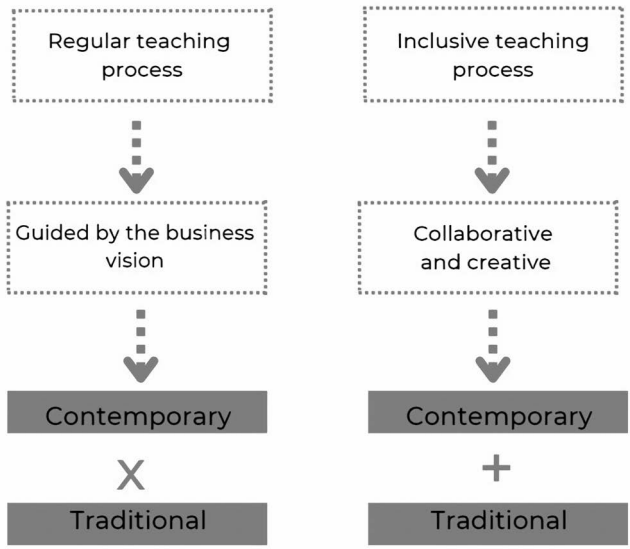

Figure 8.1 Synthetic diagram of different approaches present in the educational process of the architect.

Source: Personal archive (2022).

Flório, 2018) and neglect the more human aspects and ethical-social undertakings of the profession.

The processes for the development of the conception of a project aligned to the final user is a challenge substantially present in the life and training of the architect and urban planner, taking into account the fact that the process is, for the greater part, a group of activities characterized by the search for architectonic solutions that equip a particular space for specific human needs (Kowaltowski & Moreira, 2016). Amongst these solutions is the structuring of sustainable building which, for Ayres et al. (2006, p. 14), must be analysed as a "holistic process which leads to the re-composition and to the maintenance of harmony between natural and built environments, ensuring the creation of bases which affirm human dignity and encourage economic equity." In this perspective, the exploration of traditional earth construction techniques means the widening of horizons to include this potential, and to include in a sustainable way a layer of the population which does not usually have access to an architect who understands such practices.

Hand-rammed earth (clay and water) is a vernacular earth construction technique widely used in rural zones and traditional communities throughout Brazil, and it is particularly present in the state of Maranhão, according to historical and socioeconomic data (Burnett & Sousa, 2017). Very often marginalized, because of the association of such practices with illness, diseases and to the lower stratum of society which employs it, this technique, when properly executed, has the potential

to restore and strengthen the historical and cultural roots of traditional peoples and to be recognized as a healthy and sustainable means of construction.

The present work presents a methodology applied in the course of architecture and urban planning at the State University of Maranhão (UEMA), in the discipline of traditional construction techniques, the result of collaboration between the teacher and two students directly involved in employing the methodology, thus including the voices of the students in the process. The work is aimed at the training of professionals who, in their designs, might take into account the plurality of the socioeconomic, environmental and cultural contexts of the Maranhão region, principally those in a greater state of vulnerability, as a way of attaining an increasing architecture of response to the crises of the local population. In this context, the use of vernacular techniques is included as a sustainable means of intervention and the methodology seeks to draw the students' attention towards collective and collaborative design processes that give value to the place.

Applicability of Earth Construction Techniques

Design processes with attributes that emphasize local aspects are of increasing importance. Covering multiple spatial questions, they bring with them values that contribute to more sustainable environments. As demonstrated by Souza (2011, p. 65), "sustainability indicates a series of actions in different instances, such as: social, economic, political, technological and environmental, which, when worked on together, can lead to sustainable development and to sustainable cities."

In this respect, the ways of producing built environments have a strand, though recent, as Costa et al. (2018) describe, of new options that comply with directives touching on sustainability in the widest sense and initiate a resumption of some traditional values with relation to, for example, traditional techniques and materials, considered as possible tools for attaining such objectives in the direction of the production of sustainable spaces.

In the face of this, traditionalities in earth construction are understood as a resumption of potential that covers in sustainable ways questions which promote communion between buildings, their users and the environment. The use of earth has a low environmental impact in that is uses abundant raw materials from the region, with a consequent diminishing of use and consumption of energy and CO_2 emissions in transport, thus lessening the impact on the environment and the construction costs; furthermore, these are techniques already familiar to the end users in some situations (Costa et al., 2018). In addition, they bring to the surface social values in terms of participation and cultural values, linked to these methods.

The use of earth as raw material in construction has existed since prehistory, and presents, across the world, different possibilities existing independently of climatic, physical and cultural factors (Neves e Borges, 2011; Romero, 2013). An example of this, and underlining the fact of it being a contemporary architecture oriented by sustainable principles with the use of abundant materials of low local cost together with communal labour, would be the work of the architect Diébédo

Francis Kéré, which takes up the knowhow already employed in local dwellings in rural areas. One of the great indicators of the success of the architect's work derives not only from technique, but above all the involvement of the end users (Kéré Architecture, 2018).

In this way, the use of this kind of construction gives us a real possibility for contemporary civil construction. It is obvious that for this to happen, the study and deeper knowledge of techniques are fundamental to overcome risks in the use of earth and limitations. According to Fathy (1980), traditional construction methods act in rural communities as an economical and sustainable alternative, since they use abundant raw material which is directly involved in the daily life of the end users, and in addition has the potential to involve the local population in the design and construction project.

The Brazilian Institute of Geography and Statistics (IBGE), seeking to present aspects which might interfere with the well-being and quality of life of the population, prepared a study, a synthesis of social indicators (IBGE, 2018). In the item relating to housing, the North and Northeast of the country had the highest number of inadequacies. Analysing the data for the state of Maranhão, it may be seen that it has the second worst placing in human development in Brazil, with 30 municipalities counted amongst the worst in the Index of Municipal Human Development (IDHM).

The State Social Housing Plan (Plano Estadual de Habitação Social [PEHIS], 2012) indicates a housing deficit of 544,000 houses in the state of Maranhão. This reality leads to autonomous strategies on the part of the population in order to fulfil these needs by the use of the technique of earth construction. This has an effect on the important presence of vernacular techniques in the territory of Maranhão, which points to a relationship between construction with earth and other socioeconomic, cultural and environmental aspects of the day-to-day of the population, with the possibility of a solution for these problems. The use of vernacular construction techniques is important, not only for understanding these territories, but for contributing with possible methods of intervention intrinsically familiar to their users.

The Process

Bearing in mind professional training with knowledge of vernacular techniques, the course of architecture and urban planning at UEMA has within its range of disciplines that of traditional techniques of construction. It follows a methodology which begins with the definition of a place, the collection of data, the identification of techniques popularly employed in the region, the understanding of these techniques and the outlining of an architectonic proposal based on the data collected. On account of being one of the municipalities with a lower index of human development (IDH) in the state, it was decided by the course lecturer that the study would concentrate on Jenipapo dos Vieiras. Thus, the initial activities consisted of a survey of general characteristics and socioeconomic indices of the municipality. This stage took place using the technique of documentary research with a survey of the data of the IBGE (2010) and the Instituto Maranhense de Estudos

Socioeconômicos e Cartográficos (IMESC, 2016a). This aimed at the understanding of the local context, the identification of possibilities for proposals for intervention and grounding using local data for the development of a strong concept, as a starting point for the subsequent phase of the architectonic proposal.

With data referring to the municipality in hand, the concept, or main idea, as then developed; this, when applied to real communities, begins with concrete information, and culminates in a collaborative design process between community, architecture students and teachers on the course. This methodology is the same as that used at the International Workshop for Urban Design (EQUINOX), described by Oliveira de Souza (2014). In it, one begins with local data for the development of an orientating concept for the project, a main idea which drives the discussions and decisions within the project. The working out of a concept, according to Oliveira de Souza (2014), is an exercise which incentivizes creativity and involvement in a collaborative process, in which there is the contextualization of the project in relation to the locale in which it is placed, and the end users. Applied in the lecture room, it is not possible for the end users to participate in a real sense, but the incentive to research the locale, including singular data relating to the means of construction, is intended to make the student understand the end users as particular and plural individuals, incentivizing the adaptation of the process to different socioeconomic and cultural contexts.

With the concept formed, the process moves on to the definition of the vernacular construction technique which is traditional in the region. This stage consists of research into the technique and tests to understand the means of construction characteristic of the locale. Once the technique is understood, a volumetric maquette can be made, which, according to Maragoni (2011), is a versatile strategy that allows the expression of creative thought and the development of the idea in three dimensions. Rosa (2016) also notes that the use of a physical manual maquette as a three-dimensional representation orientates spatial perception and allows better understanding of proportion, colour, light, textures and volumes.

Vernacular techniques were incorporated into the project, and specifically the technique of hand-rammed earth,[1] as a construction method, on account of being the traditional way of building in Jenipapo dos Vieiras.

Results and Discussion

The methodological exercise had as its research profile a municipality of the state of Maranhão in the northeast of Brazil, Jenipapo dos Vieiras, which has one of the lowest IDHs of Brazil, the municipality is 1.962,897 km^2 in area, with 15,440 inhabitants and is of predominantly rural character: 83.68% of the inhabitants. The urban centre of Jenipapo dos Vieiras occupies only 0.22% of the municipal territory (IBGE, 2010). Indigenous reservations make up 42% of its area: the reservations of Lagoa Comprida and Cana Brava/Guajajaras (Figure 8.2), are managed through the National Policy of Environmental and Territorial Management of Indigenous lands (PNGATI).[2]

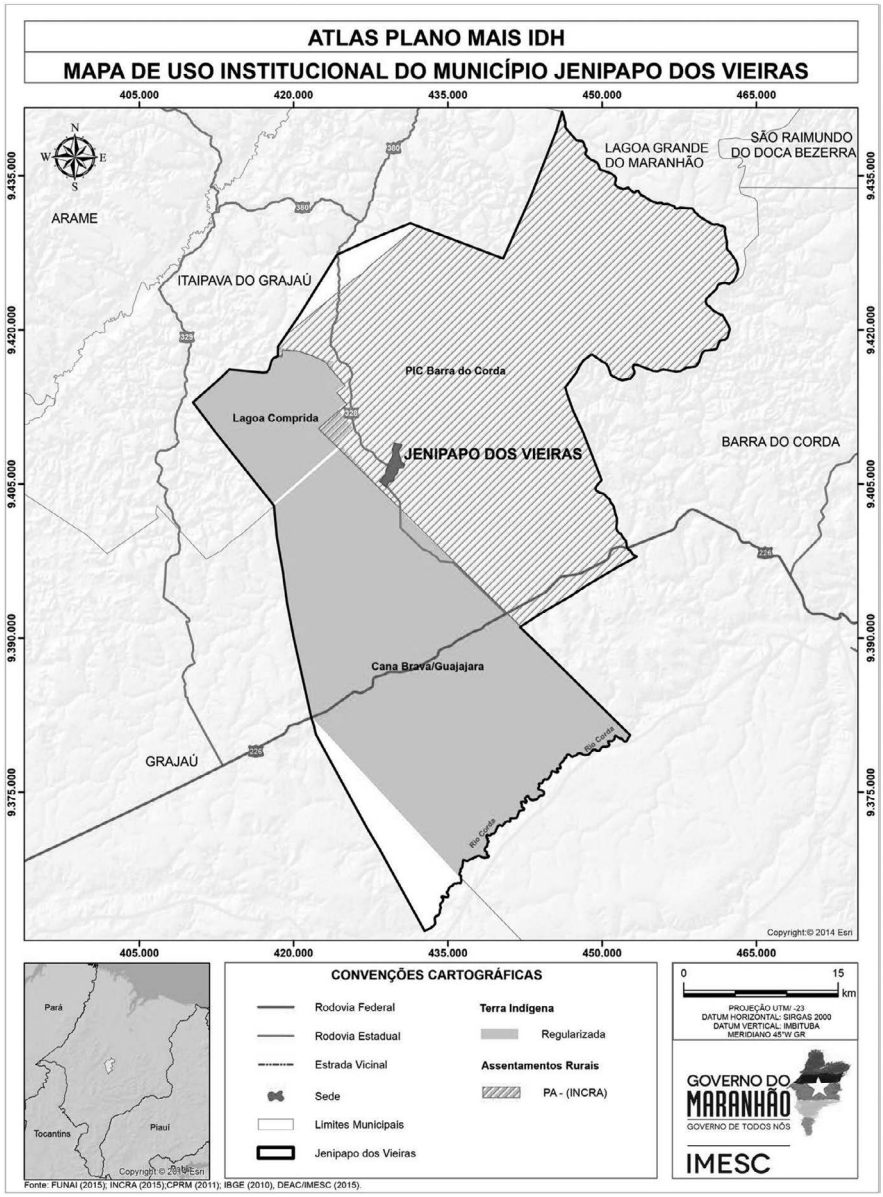

Figure 8.2 Map of the demarcation of the indigenous reservations (green area) of Lagoa Comprida and Cana Brava/Guajajaras in the municipality of Jenipapo dos Vieiras.

Source: IMESC (2016b).

According to the diagnostic carried out by means of documentary research in the studies of the IBGE (2010) and the IMESC (2016a), the municipality is in the third place with one of the highest percentages of extremely poor people in Maranhão, 56% of the population. Jenipapo dos Vieiras also occupies one of the lowest IDHs,[3] with 0.490, according to the United Nations Programme for Development (PNUD). Education was the most negative of the elements studied, with the lowest index, 0.346 (PNUD, 2013).

Nevertheless, it is rural areas, mainly those of indigenous reservations, that the highest indices occur. With regard to income, it may be seen that of the 8,605 who are below the poverty line in the municipality, 95.3% are in rural areas (IBGE, 2010). In education, the high level of illiteracy in Jenipapo dos Vieiras is even higher than 50% in some rural regions and indigenous lands of the municipality, well above the average for the state of 20.9% (IBGE, 2010).

This high index of illiteracy was behind the working out of the main idea of the proposal, concentrated on rural areas occupied by indigenous communities, and including education. According to Silva (1994), indigenous school education in Brazil, from the very beginning, was directly connected with colonialism and religious proselytism, and was employed as an instrument of the civilizational method itself established during the colonization.

Schools and institutions we created so that western knowledge could be passed on and assimilated during different contexts and temporalities until the present day, however, as explained by the Secretary for Further Education, Literacy and Diversity (Secretaria de Educação Continuada, Alfabetização e Diversidade [SECAD/MEC], 2007), in spite of the development and improvement of indigenous matters with the initiatives proposed by the Brazilian government, many still reflected policies of the colonial and imperial period, which sought to adapt indigenous peoples to society, imposing values and removing their sociocultural traces. Taking the school as an important element, with local information as a connecting thread, it was decided to work on a design for an educational space, aimed at reception, comfort and harmony with the surroundings.

The socioeconomic and cultural data, in the lecture room, were understood as material learnt from the people and the place, being part of a process of seeking out its specificities, which in the case of Jenipapo dos Vieiras, are to do with the fact that the municipality is in large part made up of indigenous Guajajara people. They are interpreted in order to be converted into information for the project, so that the main idea is the starting point, stimulus and an inductive element, determining aesthetic and functional architectonic solutions for the project.

For the indigenous person, the culture of painting the body means more than aesthetic attributions; it is a form of communication. It serves to show their culture and traditions to the world (Figure 8.3). In this way, when the indigenous person paints his/her body, it is an indication of his/her place in the world. Education is also a way of delimiting this space, providing resources so that he or she may represent him/herself in very different and important spaces in society. In an attempt to represent these forms of language and expression, the concept employed as a central idea was *Zanipá-iu*. Zanipá-iu is the word used in the Tupi-Guajajara

Figure 8.3 Guajajara tribe during a cultural ritual in Jenipapo dos Vieiras.

Source: Collection of the Laboratory of Territorial Analysis and Socioeconomic Studies – (LATESE)[4] (2018).

vocabulary to mean a person from Jenipapo. It is a tree that provides fruit used in the production of paint for body painting, valued in indigenous culture and found abundantly in the indigenous reservations of the municipality. A person from Jenipapo for the Guajajara comes from the raw material for cultural expression and language.

The choice of this concept had as its objective the development of a proposal that would also fulfil the role of raw material for the expression and communication of indigenous peoples, metaphorically through access to education, a right guaranteed by the constitution to all citizens, and in a practical way by the connection of the project with cultural roots by means of the use of regional materials, construction solutions and vernacular techniques. Following a brief study of the social, economic and environmental characteristics of the region, it was possible to establish a starting point, taking into consideration the costs of transport, manual labour and construction materials. The central mesoregion of Maranhão has rainy and warm summers, and dry winters, leading to a long period of isolation over the course of the year, as well as flat areas and proximity to the Amazon forest.

With the aim of making the proposal sustainable, bearing in mind the local and cultural peculiarities of the region of which the municipality is part, it was decided to adopt the hand-rammed earth technique as a constructive method for the design, in order to cause the least possible impact, and being adapted to the routine of the inhabitants of the region in order that it might benefit them and, at

Figure 8.4 Earthen house in the rural area of the municipality of Jenipapo dos Vieiras.

Source: Collection of the Laboratory of Territorial Analysis and Socioeconomics Studies – (LATESE) (2018).

the same time, allow the possibility of becoming involved in the project. Traditional techniques of earth architecture, in this case hand-rammed earth, are notable for having a sustainable character in their application (Torgal et al., 2009) and for already being widely used by the population in the rural areas in the interior of Maranhão (Burnett & Sousa, 2017), including the indigenous villages of Jenipapo dos Vieiras (Figure 8.4).

The structural grid typical for hand-rammed earth makes use of local raw materials, such as wood from native trees, already present in local constructions. The inclusion of the grid not filled with earth was proposed for part of the design, in order to allow the entry of natural light and a flow of ventilation. The grid is similar to the body painting found in indigenous culture, a visual element that goes back to the concept/guiding idea. Straw was the local material chosen for the roofing, as it is made using vernacular and traditional techniques of the region. The ground floor was then conceived in the form of a U, which is welcoming in terms of architecture and in the structuring of some indigenous villages. The form provides a central space conceived for various manifestations of Guajajara culture and to serve as a collective meeting point for its users. The straw roof was constructed in twelve sections, with a bevelled appearance caused by the gables.

The methodology employed has as a starting point the process of the development of the concept (Figures 8.5 and 8.6) and as a final design phase the construction of a maquette as a tri-dimensional model intended to gather together all the ideas

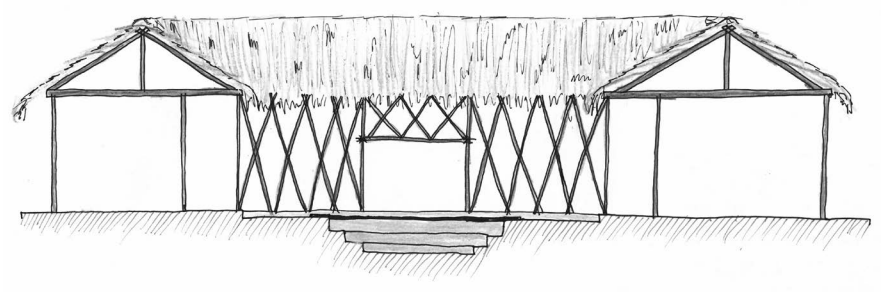

Figure 8.5 Elevation drawing made during the creative process.
Source: Personal archive (2022).

and values previously conceived in a practical exercise of experimentation with vernacular construction techniques, in this case hand-rammed earth (Figure 8.7).

The maquette was made in 1/75 scale and used as a base a panel of MDF and Paraná paper to give it height and stability. Bearing in mind that the design was based on the technique of hand-rammed earth, the constructional procedures of the walls of the maquette were all carried out on the basis of a scale reproduction with the use of similar materials, following the constructive process of the internal grid of the wall, testing and handling of earth, and filling in of the frames of the walls with earth, using the hand-rammed earth technique (Figure 8.8). For the construction of the thatched roof materials were used which reproduced the structure of the roofing straw, in the final phase of building the maquette (Figure 8.9).

Final Considerations

The methodology described is an instrument of training for architects and urban planners with awareness of the sociocultural characteristics of a locale. Each stage seeks to contribute to an ethical, aware and human professional interaction of lesser environmental and cultural impact. The stages of bibliographical research, deepening knowledge of techniques of construction with earth and the dynamics of rural spaces augment the vision of the students of the various

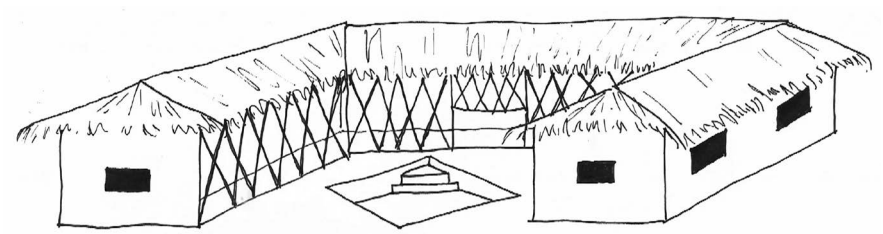

Figure 8.6 Perspective drawing made during the creative process.
Source: Personal archive (2022).

Figure 8.7 Photograph of the process of making the maquette.
Source: Personal archive (2019).

realities in the locales of intervention. The utilization of a concept as a guiding idea functions as a guide by means of the signification of the space to be built and its constructional aims. Practical experimentation of construction techniques with earth in the production of the maquette increases the horizon of the architect's intervention, since it deals with vernacular techniques with real possibilities for application, taking into account the sociocultural context of the end users.

The experience underlines the attention which should be paid to rural areas, traditional communities and populations in situations of socioeconomic and environmental vulnerability, as was the case with the indigenous reservations of Jenipapo dos Vieiras, where limitations of transport, budget and practical application of designs make the use of earth architecture, and specifically hand-rammed earth, a possible alternative kind of construction of low impact. This method shoes the necessary valorization of traditional knowledge and the inclusion of the perspective of the end user in the process of the project in the field of architecture and urban planning, not only of techniques as an element of construction, but also as traditional knowledge lived in the empirical reality of the end users which goes beyond the technical-scientific barrier of the profession, bringing together in training and the understanding of the importance of those involved in various stages of the process as an element of satisfaction for the users of the project (Sanoff, 2000).

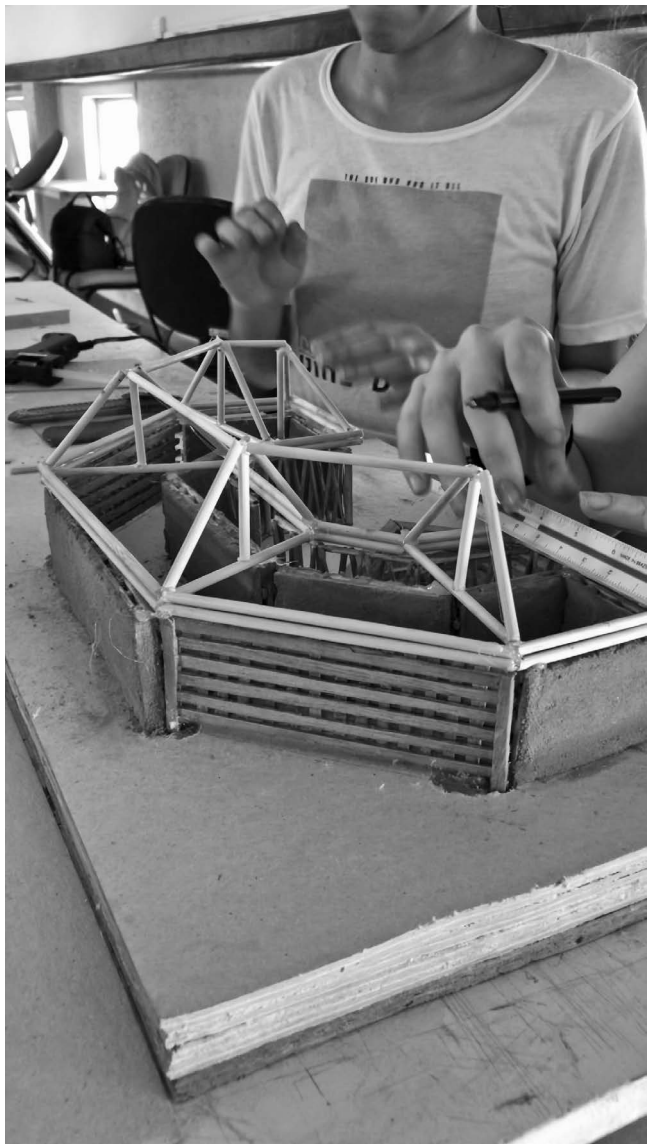

Figure 8.8 Photograph of the process of building the maquette.
Source: Personal archive (2019).

In spite of not having any real participation from the end users, given that this was a lecture room exercise, the process made the students aware of the plurality of existing contexts. In researching how customs related to the Guajajara tribe influence the routine of the population and understanding how they affect each member of the population, the student understands in a more realistic way the way in which

Figure 8.9 Photograph of the finished maquette.

Source: Personal archive (2019).

the architectonic project may influence a locale, and consequently its inhabitants. The creation of the *Çané Zanipá-iu* (Our Jenipapeiro) proposal by means of the methodology presented above had the intention of serving as a stimulus for architectural projects that contribute to strategies for improving the living conditions of indigenous rural communities through the use of earth construction techniques.

The exercise contributed as a tool for academic training that orientates the students in an ethical and aware fashion, in territories excluded from the logic of marketing, targets of social injustice and situations of socioeconomic and environmental crisis, so significant in the panorama of contemporary Brazil. The possibility that the architecture should be part of these realities generates fruitful discussions for the future architect. The experience provides an understanding of ways of living that are outside the restrictions present in standard methodologies of applied projects during the course of the architect's training, allowing them to come closer to the customs and knowledge present in this cultural plurality.

Notes

1 Hand-rammed earth is a construction system that uses essentially two materials: earth and wood. The building of walls is by means of an internal net which forms a grid that functions as a support for later filling in with a mixture of earth (Lopes, 1998).

2 A federal initiative which has as its object to guarantee ad promote the protection, the recovery, the conservation and the sustainable use of the natural resources of indigenous lands and territories, ensuring the integrity of the indigenous heritage, improvement in quality of life and full conditions for the physical and cultural reproduction of current and future of indigenous peoples, respecting their sociocultural autonomy (FUNAI, 2012).
3 The IDH is a summary measure of progress adopted by the United Nations, which covers three basic dimensions of human development: income, education and health.
4 Research Laboratory of the Faculty of Architecture and Urbanism at State University of Maranhão – UEMA (Universidade Estadual do Maranhão).

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9 House, Body, and Windows

Space-Time Interferences during the COVID-19 Quarantine

Paula Gabbi Polli, Fabiana Ferreira Carvalho, and Michele Baruffaldi

Background

Within the context of the pandemic, caused by the new coronavirus, it is assumed that a large part of the population, living in confinement, was in a state of intense living within its own home, and the consequent social isolation boosted the subject's approach to himself/herself. The "outdoor body" has been significantly reduced to an "indoor body". The time of the city, and of life, has changed for a great proportion of the population. Therefore, this scenario established the individual's connection with the space of the house, with the other and with the person to himself/herself, and also has gone through a process of reinvention to continue (re) existing.

Thus, in order to investigate aspects of the relationship between time, space and place, this study adopted as a focus of investigation the media records of the "Project Con:finis – A border in common" of the Nomads.usp group at the University of São Paulo (USP), publicly available via digital media – the Instagram platform. Thus, 53 videos, posted from 1 May to 6 July 2020, were observed, containing narratives of individuals who spontaneously participated in the project. Such records expose different relationships of users in the face of aspects of social isolation, such as the relationship between borders, confined living, communication bubbles, many faces of the self, dangerous of proximity, among other aspects that permeate the reality imposed by social distance (Con:finis, 2020).

Considering the purposes of this research, the chapter adopts three criteria for analysis and investigation: the subject's relationship with the space of the house, the windows, and the other, as well as the body and movement. To this end, visual ethnography (Silva, 2020) was used as a methodological tool, and 53 records were analysed, in which 15 frames were removed for each category of analysis (body, house, and windows). The result of this methodological process was the elaboration of three picture-diagrams, which present distinct relationships of the subjects, associated with the alternatives presented. Thus, the chapter is organized in four sections, in which there is a theoretical discussion in relation to time and place in the context of the COVID-19 pandemic. Subsequently, the methodological strategies studied to carry out the research, are expounded. After that, the diagram-pictures, resulting from the evaluation of media records and the analysis

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the theoretical framework, are presented. Finally, the results of the study as well as reflections on the study are given.

Time, Space, and Place in the Context of the COVID-19 Pandemic

Changes in the architecture of the house and in the urbanism of cities are not the only characteristics of the pandemic, but also traits of time that bring fears and many doubts. The events that used to give rhythm to daily life, such as appointments, meetings, social gatherings, and commuting were drastically reduced. With the change in the urban rhythm that trigged a decrease in the number of conflicts in the city, we redirected this time into the private space, generating, therefore, a restructuring of the domestic routine.

It is estimated that, during the COVID-19 pandemic, more than a third of the world's population was in confinement (Torres, 2020). As the days passed, a quarantine process began, in which uncertainties permeated several aspects. It is a process, characterized by temporal deficiency, and, consequently, a feeling of anguish and fatigue for those who experience it was observed (Torres, 2020). Faced with the impossibility of physically moving, new solutions were sought, considering the need to survive in a period that was full of uncertainty, such as the occurrence of "couch trips", according to De Botton (2020). These processes, by breaking the boundaries of residence, relate to the imaginary character of space, in which the notion of place extends beyond its physical limits (Pallasmaa, 2016).

Associating these concepts with the context of the house, the chapter employs the contributions of Pallasmaa (2016). The author states that inhabiting is an event, as well as a physical, mental, and living experience, that is, it is endowed with individual values and placed in a temporal context. For the author, inhabiting is related to the notion of home, which is much broader than the notion of house (understood as the physical support, the setting). Characterizing the relationship between space and place, according to Tuan (1983), it is understood that the space (house), when receiving attributes, starts to represent something in the individual's imagination and becomes a place (home).

The notion of home is also described by Bachelard (1962), who states that when we inhabit the house, we do not do so only in its positivity. It is through dreams, imaginations, and inventions that the multiple "homes" come to be. Since the new conditions drove the space of the house to be further explored, it opened the path for new possibilities and reinventions that started to permeate the way in which the subject and the space were related in the pandemic. In addition to implications regarding the perception of a new place/dwelling, the new ways of life in social isolation also changed the temporal aspects that we used to experience in the daily life of the cities. Daily life, permeated by interruption, inconsistency, surprise, conditions, that were previously considered common in our lives (Bauman, 2001), began to be adapted to the routine and to the restrained context of the space of the house. Such aspects modified the way we relate to time, which becomes a tool for conquering space.

According to Bauman (2001), when distance, travelled in a unit of time, began to depend on technology and artificial means of transportation, all limits to the speed of movement could, in principle, be transgressed. Thanks to its flexibility and expansiveness, time has become the main tool of power and domination, being able to move with the speed of an electronic signal (Bauman, 2001). In this way, on account of technological advances, it was possible to shorten distances through the territorial expansion of the body, and place it in other dimensions, through screen space (mobile phone, computer, tablet), and these factors play a significant role in this period. It is understood that such aspects emerge as possible escape routes for the confined subject when the displacements and borders of the safe space became limited by the presence of the new virus.

When the change in daily rhythms and the implication of this context in the way we perceive, feel, and relate to places are observed, the body presents itself as a means of understanding and expression in the face of new forms of relating to the confined subject. This question is supported by Rolnik's theories (2011), in which the body, when touched, activates itself, demonstrating itself to be sensitive to the effects of meeting with other bodies and their reactions. These "others" are understood, in this research, as the other place, the other subject, the other city, which start to interfere in the experience of everyone who experiences the context imposed by the pandemic. In this process, we are constantly affected and crossed by the temporal, spatial, and social context that exposes the way the learning of body modalities, and the individual's relationship with the world occurs throughout life, in accordance with social and cultural changes that impose new lifestyles (Le Breton, 2012). This fact leads to the comprehension that we perceive, feel, express, and shape ourselves as a response to new contexts through our bodies, consolidating the sensorial and corporeal way of being in which we inhabit the world (Pallasmaa, 2016).

Based on the discussion presented that involves aspects of a reality, (re)invented by the context of the coronavirus pandemic, we highlight the fact that isolation accelerated a change in people's behaviour, in social relationships, in the way we deal with this new time, and in our relationship with space, having the body as a means of perception and communication. In order to find evidence that portrays this assumption, this work analyses videos made as part of the Con:finis Project, examining the records of individuals who expose, from a personal point of view, the collective experience of confinement.

Methodology

It was a qualitative approach methodology, carried out through an ethnographic technique of participatory observation, in a digital environment (Silva, 2020). This methodology, called netnographic,[1] is ideal for investigating the consumer's behaviour within cultures, and communities which are on the Internet. Its origins, its uses in research of consumers and its evaluative standards focus on the history and the techniques of cultural anthropology (Kozinets, 1998). The evolution of the method has followed the advancement of data transmission technology through digital means, as well as the increase of virtual relationships and communities. It is

considered an extension of ethnography, but it has an axiological orientation in the recognition of online social experiences (Morais *et al*., 2019).

Thus, to analyse and understand society and its cultural features, manifested in social media in this study, we carried out observational research, in an online field (Morais *et al*., 2019). Considering the purposes of this chapter, for the refinement of the contours of the research and the unavailability at the time to interview people personally or go to their homes, the only option was visual language, as an object of investigation of the different narratives that characterize the subject-world relationship in the context of the pandemic. It was a way we found to integrate different experiences in the construction of a collective reflection without, however, removing all the complexity of this system triggered by confinement (Con:finis, 2020). To this end, the analysis was organized in six stages which are interrelated and make up the methodological path of the research: (1) Discussion and reflection about social, temporal, and spatial aspects, resulting from the pandemic, all those aspects associated with the theoretical framework adopted in the study; (2) Viewing the Con:finis Project records; (3) Identification of the investigation categories: house, body, and windows; (4) Elaboration of the analysis fragments through the collection of representative images; (5) Assembly of visual diagrams, building a collective reflection through different narratives; (6) Analysis of the fragments and association between the picture-diagrams and the theoretical framework adopted as the basis of the research.

It is pointed out that the categories of analysis – house, windows, and body – were adopted by the recognition of the frequency of records, which portrays the new realities of confinement through the relationships that the subjects began to experience in the context of a pandemic. Most of the videos that were sent adopted a personal perspective, incorporating individual and subjective aspects of each subject's experience, through the construction of narratives created by the participants in the housing space (Con:finis, 2020).

In this context, the analysis of the videos allowed the elaboration of three portrait-diagrams (Figures 9.1–9.3) that have 15 frames each. These diagrams represent the narratives of different subjects who experienced and recorded their personal experience in the face of social isolation, shaping an assembly that presupposes a fragmentation of reality (Bürger, 2012). It is also spotlighted that the aim of the study was not to identify new uses, behaviours, or expose a single representation which can express the relationships that the subjects began to experience in the pandemic. Therefore, the objective of the research was to investigate and portray what was narrated by the participants of the project, to build a critical analysis of the experience of the pandemic and the possible consequences on the body and movement, the space of the house, the windows and on the other.

The Space of the House

Social isolation, triggered by COVID-19, caused the urban space to face a process of emptying and, in the opposite direction, the housing space became highly populated, responding to a need to readjust spatially to the new reality. Through

Figure 9.1 Picture-diagram "Housing space".

Source: Adapted from Con:Finis (2020) by authors (2021).

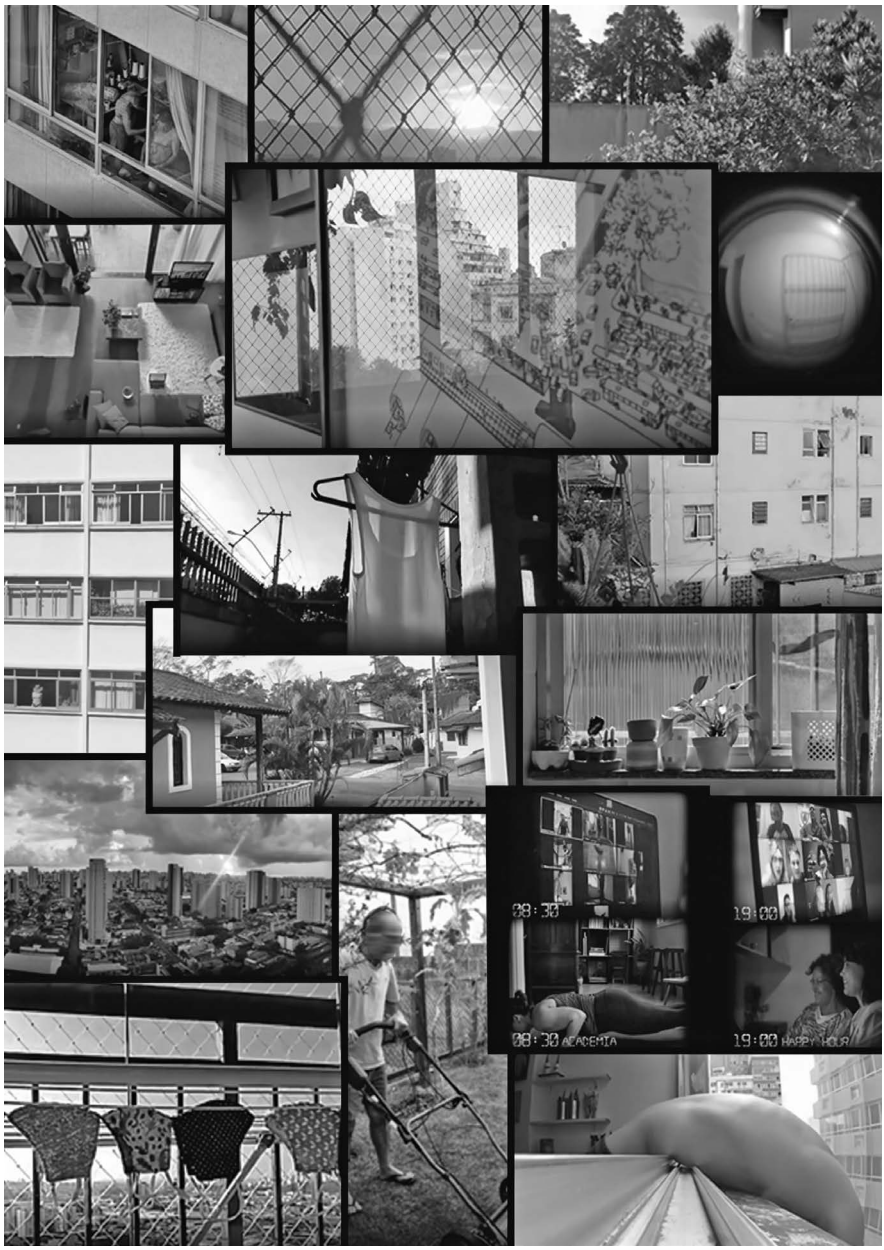

Figure 9.2 Picture-diagram "The windows and the other".
Source: Adapted from Con:Finis (2020) by authors (2021).

Figure 9.3 Picture-diagram "Body and movement".
Source: Adapted from Con:Finis (2020) by authors (2021).

analysis of the videos provided by Con:finis Project, it was possible to observe an expansion of the range of uses of the house. Routines were adapted, and new perspectives emerged for old spaces. The house began to be perceived and experienced in a new way. The backyard, the bedroom, and the neighbourhood took on other meanings, as pointed out by Silva (Con:finis, 2020), when he reported that his house became a street, a school, a movie theatre, a restaurant and a bar as illustrated in Figure 9.1.

It was found that the spaces previously intended for everyday tasks and, in general, very small for carrying out work and distance learning activities, were remodelled differently from the way they had been planned in their conception. In these situations, sensations, such as strangeness, arising from the discovery of angles that had not yet been seen, smells, sounds, and landscapes that were not perceived started to be recognized by the residents. As Beatriz Bezerra Silva (Con:finis, 2020) explains in her video: "I show how my daily activities have been adapted, and how simple things started to have greater meaning".

From the participants' records, it was possible to perceive how the space of the house presents as a multiple field, without *a priori* meaning that, when experienced, understood, and modified, acquires values (Tuan, 1983). According to this approach, through many possibilities of (re)discoveries of the house by residents during the confinement, we can verify that many "places" can emerge from the same space of the house. For example, the living room can be the place of the family gathering, workplace, contemplation space or gym: diverse meanings were adopted faced with different uses.

Considering Bauman's ideas (2001), life experience is directly affected by the understanding of the speed we have of time. As happens in liquid modernity, accelerated conception, characterized by the overlapping of several activities, leads people to a certain inability to observe what is around them (Bauman, 2001). Differently from what happens in the context of deceleration, imposed by the experience of social confinement, it is believed that the imposition of a more contained and slow routine can open space for new perceptions and sensations of the residents. This is seen in Jade Grigoletti's speech (Con:finis, 2020), in his video: "What I have noticed the most, since the beginning of the quarantine, was the sunlight invading my house, maybe because I used to go out before sunrise".

Associated with the change in perception, phenomenological time is characterized as slow and suspended, placed in brackets, understood as a moment of authorship, and also personalized. This time is completely different from any boosted speed (Santos, 2011). In this "new" time, perception, memory, and imagination are seen in constant interaction (Pallasmaa, 2016). Thus, in the pandemic context, new sensations are observed, new spaces perceived, new possibilities discovered, and the house reinvents itself through a more intense and slower approach to the place.

Through analysis of the videos, it was also possible to notice the conception of the domestic space as a "virus-free zone", that is related to the feeling of security, when faced with the outside. This perception reinforces the idea of home, which refers to the notion of protection and warmth (Pallasmaa, 2016). Tramontano

(Con:finis, 2020) expresses, in his video, the duality of the spaces inside and outside the house, as "the new buffer space between the inside-clean-protected and the outside-dirty-dangerous".

Therefore, the choices of the scenarios that express the subject's relationship with the house, verified in the videos, indicate different ways to interact with the living area, considering the context of social confinement, where home appears as an extension and refuge of the body, and the constitution of the subject (Pallasmaa, 2016). Such processes, characterized by a rediscovery and renewal of old perceptions about the space of the house, contribute to the understanding of how different temporal scales lead to the construction of a reflection that points to different ways of inhabiting. According to Maini de Oliveira and Alexandre Baxter (Con:finis, 2020), during confinement, the city presents itself as a house, the city is confused with the body, the body as the house, and the house, in short, as the whole.

The Windows and the Other

The window, an architectural element that connects the house with the outside, was much portrayed in the videos of the Con:finis Project, allowing the subject in isolation to see and live the outside world. While observing the other's windows, it can be perceived that several habits, previously undertaken in other establishments, started to be taken inside the house. If, before the pandemic, it was possible to go to a park or to the beach to sunbathe, now the windowsill became a chair, as in Letícia Garcia's video (Con:finis, 2020), and it is, in this place, that you can relax to sunbathe. Going to the hairdresser was replaced by a haircut in the living-room at home, as recorded by Ricardo Silva (Con:finis, 2020), that portrays the process of reinventing domestic spaces.

From the analysis of the videos, it was found that the window became the central element of the approximation with the other, through the observations or filming of the others' lives (Figure 9.2). In accordance with Le Breton (2012), the essence of man is to see and be with others, so it is necessary to observe him to have references about our customs, values, time, and space. The speech in Ricardo Silva's video (Con:finis, 2020) confirms this reflection: "Looking out from the window of my living-room, from my small apartment, I can see the city, and no longer the others in it, but the windows; the gaze is exchanged, and we don't look at the others' eyes, but through their windows. I recognize myself in the other through his window and mine, and I ask: Would it be a window, or a mirror after all?"

Taking into consideration the perspective of Anderson (2006), being in contact with the other, whether through physical contact, music, or other means, stimulates the phenomenon of affecting and being affected, and the author calls it an "emergency of affection". The affected body undergoes several proprioceptive and visceral changes, expressed in the form of feelings, which can change the subject's experience in the space (Anderson, 2006). This perception of the modification of the experience can make the body full of hope for something that has not happened yet, and this feeling is related to previously identified fears and anxieties.

Being closer to the outside, through windows, balconies, and external areas, was portrayed by sensoriality, and perceptions of some inhabitants, who exposed the form as the phenomenological space, and the subject as an inhabitant that maintains a relationship of extreme active commitment to the physical environment (Santos, 2011). The records portrayed the presence of smells, sensations, winds, touches, allowing the subjects to have many moments of contemplation, as expressed in the videos of Braulo Vitorino, Jade Grigoletti, and Frederico (Con:finis, 2020). The latter commented that, with the quarantine, he increased the "use of his house; the daily observation of his garden, the new leaves, the sprouting buds, the flowers that open; and watching the birds that visit us".

With the interruption of several external activities, the streets became quieter. If before the daily life was permeated by a great urban noise, during the lockdown period, the sound could be perceived as more singular, and slow. As Pallasmaa (2011) stated, sound sharpens imagination and curiosity. The possibility of imagining or experiencing the other through sounds, recognized during the confinement, allows the subject to get closer to what happens outside, helping people to have the sensation of the passing of time and a feeling of social interaction. This is portrayed by Paulo Mendes and Giovanna Hasimoto (Con:finis, 2020), when recording the sounds coming from the street. This is a constant factor in the experience of confinement. Other windows, often portrayed in the videos, were virtual, the computer screen, tablet, or mobile phone. Work, when possible, became home office: meetings adopted an online format, educational activities began to be mediated by virtual rooms, and meetings with friends adopted conversation and game applications as a space for interaction. This process portrays what Bauman (2001) states as a conquest of space that overcomes the barriers of time and physical distances and is supported by current technological inventions.

It is believed that this whole process may lead to the design of a new type of interaction, in which, far from each other, we still remain connected to this huge digital cloud, a hyper-visible and fully exposed image, as indicated by Wisnik (2020). In the context of social isolation, these aspects emerge as possible escape routes for the confined subject. In this sense, it can be observed how different windows can allow contact and approximation with the outside, breaking the physical barriers of the house, modifying the borders of inside and outside, mixing conceptions of space, such as indoor, outdoor, personal, public, individual, and so forth. João Cassaro's video (Con:finis, 2020) summarizes this perception, by filming a picture from his house, in which there is a reflection of the external landscape, and the images mix. At a given moment, it is no longer possible to distinguish what is inside and what is outside.

Body and Movement

When studying the impacts of the experience of confinement on the subject, the body is initially understood as sender and receiver, involved in a relational process with the environment, with the other, with itself in a social web of meanings (Le Breton, 2012). In accordance with this approach, the body is in a constant process

of affectation, affected by the temporal, social and relational context of the pandemic, exposing, therefore, the possible assemblages between the body and the house, the body and the window, the body and the other, and the body itself.

The observation of the records of the Con:finis Project allowed us to analyse different possibilities of the relationship that the body started to establish with space, from the temporal context in which it is inserted, exposing the affections, from an intimate scale of relationship, and affirmation of the self, to a domestic scale, referring to the process of the constitution and social construction of the individual as illustrated in Figure 9.3. According to Le Breton (2012), through corporeality, man can transform the world into an extension of his experience. Through the analysis of the videos, it is possible to perceive the ways in which different subjects portray their pandemic experience, exposing, by gestures, narratives, movements and performances, the affections of a body, exposed to the experience of loneliness, emptiness, and abandonment, caused by the confinement (Martins, 2020).

The lonely dance of Jorge Lopes (Con:finis, 2020), in his house, brings transversality with the architecture of space, as a means of representing this body. The intimate stage, which we now understand as a medium that exists in transition and the only way to connect to relationships, allows us to achieve a sense of sharing. Such a need to express emotions leads to the lamp as an improvised spotlight; the privileged view, through the camera, as the view of the other; and the Internet, as the audience; the applause in the contained moment, conditioned to the number of likes on social networks.

The subjects search for contact with the other – windows, balconies, screens – new possibilities of inhabiting this body-city, now limited and restricted. These relationships are characterized by the strong presence of borderline and bordering affections (Martins, 2020). We find ourselves in relationships that should be framed and limited. The body, in this context, expresses these symptoms of anguish by attempts to adapt to the new spaces, compressing itself. This fact is portrayed in the record, presented by Camila Paulucci (Con:finis, 2020), in which the body tries to fit into the previously forgotten parts, remnants of the house, by experimentation. It is through the investigation of the new possibilities of reinterpreting the space of the house that the body seeks, through gaps, to find spaces of relief from the anguish of the confinement.

In the improvisation of the dance around the house, the subject "produces his own and autonomous narratives, regardless of specific skills" (Santana, 2020), awakening to other approaches, since people need to tell their stories. Still, in this context, it is clear how the bodily experience is configured by an external and extensive movement, though visible, made by displacements, gestures, movements; it is also intense, and happens inside his soul, associated with human existence, with a set of memories and sensitivities (Duarte & Pinheiro, 2009). The body that moves and tries to rebuild itself through the paths in the house is the same body that breaks apart when facing so many uncertainties and instabilities. This fact becomes evident in the records of Natália and Gabi Barros (Con:finis, 2020), whose participants represent paths of movement and pause, in which the body is able to express and transmit the sensations that living in confinement awakens, portraying the idea

of the body as a mobile home, as the limit of the skin that portrays a constant search for updating, different from the notion of a static (physical) house (Fragnani, 2012). From the analysis of the records of bodies that experienced confinement, considering Le Breton's (2012) ideas, it is possible to understand that existence is corporeal, and that the body can produce meanings, as a tool, to survive, to resist, and to express and feel the place and time of the limit, experienced in the context of confinement.

Conclusion

By adopting an investigation focused on the intimate and personal report of the subject, it was possible to develop, through different experiences, the construction of a collective reflection, able to expose the complexity of the set of experiences, triggered by the confinement, caused by the pandemic. Based on the personal records of each participant, it was inferred that, despite the singularities of the narratives, they lead to a process of rediscovery and collective reinvention of everyday life, by experimentation with the body, reinvention of spaces and of domestic uses or searching for new horizons through the windows.

From the videos examined, it was noticed that the quarantine impelled the expansion of the territory of the body and space to other dimensions – daily life, daily chores and personal activities – such as the screen space; the way we use and move in these spaces, communicate, and transmit information that has been modified, above all, by the intense incorporation of technology during the new coronavirus pandemic. In addition to the effects, caused on the spatial context, bringing up reflections on the physical and imaginary limits of the residence, the experience of confinement raised concerns regarding temporal issues. Such aspects, portrayed in the participants' records, through different senses of the place, different communication windows and perceptive scales allowed the subjects to reinvent new ways to deal with the barriers imposed by confinement.

Finally, it is estimated that the contribution of this research comes from the fact that it allows us to glimpse a contextualized panorama of the use of the house in this unique moment of the pandemic in which physical, subjective and psychological aspects of individuals in their homes were verified. Factors related to the process of (re)adaptation and reinvention of space and time were recurrent in the records analysed, exposing how the experience of confinement has promoted changes in the relationship that people started to have with the place of residence, with the other, through windows, and with their own bodies.

Note

1 Netnography represents a challenge, because of the large amount of data available online, with regard to the selection, classification, limitation and analysis of information. Cyberculture is conceptualized as shared patterns of behaviour, and its associated symbolic meanings are primarily expressed through computer-mediated communications. It has been recognized, in cultural anthropology, that cyberculture represents a new and important locus of human cultural activity (Kozinets, 1998).

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10 Children's Mobility in the City

The Attachment to the Urban Environment as Formation for Citizenship in Quixadá, Brazil

Diego Freire Martins and Verônica Maria Fernandes de Lima

Introduction

This study[1] is part of a broader discussion on the child-city relationship, in which the child, as one of the most dominated groups in society, is usually invisible in the decision-making processes of urban space and collectivity. Children have experienced less and less of the public space, being displaced to the private level (Oliveira, 2004). It is necessary to recognize them as citizens and active subjects of the present, and not only as citizens of the future. They build their experiences today and must be heard now.

The decrease in urban mobility of children, especially independent (without direct adult supervision), is a phenomenon registered in several countries, especially in large cities in emerging nations (Sabbag *et al*., 2015). This trend has considerably decreased the very environmental knowledge of children who have in the experience when moving in the city one of the key elements for their acquisition (Tonucci *et al*., 2002).

This has been impacting children's experiences by altering their physical activity levels, their mental and social development, and their spatial competencies. On the other hand, when children enjoy more autonomy, especially in the city, they have a better physical, cognitive, emotional, and social development, exploring more of the environment, creating a sense of belonging (Kyttä, 2004).

This sense of belonging is fundamental to the child's relationship with the city. We understand this discussion based on Moser (1998) regarding the person-environment interrelationship, in which the human being mutually transforms and is transformed by their surroundings. Children can transform the public space into their place, starting from their knowledge of it and by creating affective and symbolic bonds with the environment (Tuan, 1980, 1983).

The record of the distancing of children from the city is problematic for the city itself, since if there are no children or other vulnerable groups such as the eld-erly and people with disabilities, public spaces deteriorate even more rapidly. The city's characteristics as a place of encounter, of exchange between people, are lost. Little by little, the sense of commitment to take care of the children, the different, the "others" is also lost. It is a vicious circle that aggravates this as the weakest group, feeds back the adult as the protective figure, and exempts the public power from

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guaranteeing the access of this group to the city, to leisure and to the exploration of the public space (Tonucci *et al*., 2002).

Thus, we decided to research outside large centres, since there is less research on the displacements and experiences of children in this scenario (Sabbag *et al*., 2015) and the level of urbanization affects the mobility and experiences of children; the more urbanized they are, the less freedom they tend to have (Cordovil, 2015). In Brazil, non-metropolitan and small-medium-sized cities reproduce urban problems of large areas, such as urban violence and poor infrastructure of public spaces. However, they retain specificities of smaller centres, such as possibilities of stronger community networks.

These greater possibilities of community networks, among other factors, lead children to understand their position beyond the individual, aspiring to thought of collective welfare and, consequently, of education for citizenship. According to Bomfim (2010), the quality of being a citizen is directly related to the space where the subject lives and builds their ways of life, so investigating how they perceive themselves and connect to these places becomes a means of access to discover the citizenship possibilities of children in a given context. Thus, displacements in the urban space, for example the school itineraries, may be one of the ways in which children attribute values and read the spaces based on their experiences are revealed.

These reflections led us to the following question: how do children form an attachment to places in a non-metropolitan context and what are the possibilities of the formation of a citizen in this environment? This led us to the objective of this chapter, which was to analyse the existence and characteristics of children's attachment to the urban environment in Quixadá/Brazil in order to indicate challenges and potentialities for the development of the formation of a citizen.

In the following sections, discussions about the theoretical review on children and attachment to place are presented. Next, we present the methodological course and the topic of results and discussions. Finally, we address the concluding considerations of the chapter and the references used.

A Reading on Children's Attachment to the Urban Environment

The connection or attachment with the place is based on the affections/cognitions that are processed in the individual in interaction with the environment, in this case, the daily experience in the city. Bomfim (2010) believes that this attachment demands affirmative/positive or negative dispositions in relation to the constructed and experienced.

The term comes from "Place Attachment", being a sector of human experience directly linked to affection – feelings, emotions, etc. – in different ways, degrees, and with different awareness in relation to the places where they are born, live, and act. Attachment to a place can be either positive or negative, pleasant or unpleasant. It may occur in the present, be rooted in the past, or be oriented towards the future. This attachment varies in scale, encompassing spaces such as a house or a street, and involves individuals connected to these places, such as neighbours or other associated groups. It composes our identity and can establish the feeling of belonging to a place, essential for appropriation, and care of the environment (Giuliani, 2003).

The connection goes through the term "place" understood not only in the geometric sense of "space", but related to affective and symbolic human-environmental aspects that are built over time regardless of the scale on which it happens. Places are then experienced as intermediate points between cognition and affection (Tuan, 1980, 1983). According to Elali and Medeiros (2011) the attachment to place has three dimensions: functional, symbolic, and relational, detailed in Table 10.1.

To register this attachment to place, it is possible to access the representation of mental images with mental maps created by Kevin Lynch (1982) and amplified by Bomfim's (2010) Affective Maps Generator Instrument, which brings together cognitive-perceptual aspects of the former and adds affective layers. When experiencing the city, individuals perceive the environment through the body and senses, being able to represent and manipulate meanings about it through mental images. In children, with advancing age, the experiences increase (of the house, the street, etc.) and the image becomes more complex (Lynch, 1982; Vigotski, 2011).

This stored image generates environmental knowledge, essential for the connection and orientation in space. This knowledge can be accessed through the mind map that demonstrates the image of the environment in the dimensions of identity, structure, and meaning and is represented in a drawing or model (Lynch, 1982). The image formation is a response that starts from an integral individual, in which the relationship with the environment is, at the same time, cognitive and affective (Bomfim, 2010).

In the child, drawing is a direct indication of knowledge, emotions, imagination, and memory. It is necessary that the researcher accompany the process of drawing production, because the meanings of the representations are not in the line itself, but in the relationship between the spoken language allied to the shapes and colours used in the drawing. The imaginary and the reality of the child when drawing is presented in the relationship between perception and affections with the world (Ferreira, 1998), to have this reference of the senses understanding how the inhabitant is involved in the city is already an indicator of its action in the urban environment. Thus, the representation by mental maps is then an expression of ethics and citizenship in the city (Bomfim, 2010).

In Vigotski's interactionist view, the reason-affectivity relationship would be directly related to the age and experience of the child, perceiving the environment in the first years of life through speech and vision, and with advancing age,

Table 10.1 Process of implication of the human being in the environmental interrelation.

Functional dimension	*Symbolic dimension*	*Relational dimension*
Related to physical space as an attractor or inhibitor of movements and behaviours of the subjects, generating a sense of well-being and productivity	Content of sociocultural and individual origin acting as an intermediary in human-environmental relations, modifying how the subject understands and impacts situations	Dynamic interaction through social everyday life involvement (mainly friends and family) and environmental characteristics, favouring the definition of personal and community identity

Source: Corraliza (2000), adapted by the authors (2021).

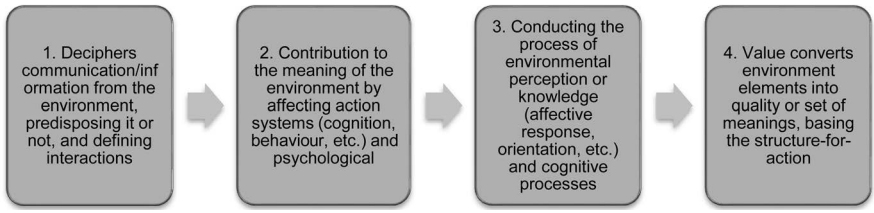


Figure 10.1 Process of implication of the human being in the environmental interrelation.
Source: Corraliza (2000), adapted by the authors (2021).

experiences and symbolic maturation, speech, and exploration of the environment would gain even more protagonism (Vigotski, 1999). When we talk about this interaction with the socio-physical space, we face, the process of implication of the human being in the interrelation with the environment (Figure 10.1).

In this last step of structure-for-action, from the child's implication in the environment, qualifying it, it has been demonstrated an indicator of how the child perceives it and this serves as an ethical parameter (Bomfim, 2010). Ethics (to what end one acts) and politics (how and why one acts) take place in the encounter with the other in the city. It is in sociability that this active subject of rights/duties is built, affecting and being affected by people and places. The public space is the stage of these encounters par excellence (Serpa, 2018). Thus, we speak of an ethic not relegated to the plane of individual subjectivities and compliance with collective legislation, but constructs of children's experiences in the public space seen as part of their citizen formation concerned with the individual and collective well-being.

For Sarmento (2018) the city can potentiate or depotentiate the citizen development of the child. It de-potentiates when it seeks to domesticate and insularize the child in the predominant experience in adult controlled spaces, such as playgrounds, or closed spaces; when it dualizes the child, offering unequal opportunities and fulfilment of rights based on social class, gender, etc.; when it reduces the child to institutionalization, for example, when the school is one of the only spaces of experience of the child in everyday life outside the residence.

However, for the author, the city can also be a locus of empowerment for children, especially through the public space – par excellence, a place of multiple social interactions, in which the functions of individual and collective life have a leading role. Public policies play a central role in citizen empowerment, especially in the recognition and participation of the child in the decisions of the public life that surrounds them. Sarmento (2018) states that city spaces need to enable (Table 10.2).

These implications and possibilities of involvement of the child with the city offer the opportunity for guidance within a structure-for-action, in which the subject evaluates the environment and qualifies it, deciding how to act and, consequently, their stance on it ethically (what they act for) and politically (how and why they act) (Bomfim, 2010). Ethics does not refer to individual subjectivities, but constructs the experiences of children in the public space, being seen as part of their citizenship formation, which is marked, simultaneously, by the concern with the individual dimension and the collective welfare.

Table 10.2 Factors empowering the city for child citizenship.

Factors	*Descriptions*
Personalization	The child is able to assign specific value to the place, for this, the spaces need to be experienced, and from their affectation (attachment or rejection), build their maps of circulations and permanences, etc.
"Affordance"	Concept derived from social psychology referring to the properties of objects or the environmental context that can be appropriated and perceived by the subject. This concept aims to register the opportunity that these objects or environments offer for the construction of the subject's personality and actions. The interpretation of these elements (buildings, streets, gardens, etc.) offers different perceptual opportunities to children and adults. So, it has a positive or negative relationship depending also on the individual.
Participation	The child is restricted from socially participating in the city's decision-making processes. This happens because of their exclusion from direct political action, in which they cannot be active political agents with the right to vote and be elected by representative bodies. However, children do not stop having opinions and proposals for the city. The Convention on the Rights of the Child enshrines the right to participation, in which the different childhoods need to be heard and considered in the actions that influence their own lives. Children's participation does not eliminate the need for protection by adults; it results from the dynamics of recognizing children as social actors and subjects of culture, not as mere reproducers of the adult social and cultural order. This vitalizes democratic life around the sense of the common good.
Urbanity	The child is configured as a generation in terms of its political capacity to develop urbanity: by participating in common life, children become aware of power relations, social, generational, class, ethnic, and gender ties and, in this context, they confront their weaknesses. This knowledge is fundamental to their affirmation as citizens.

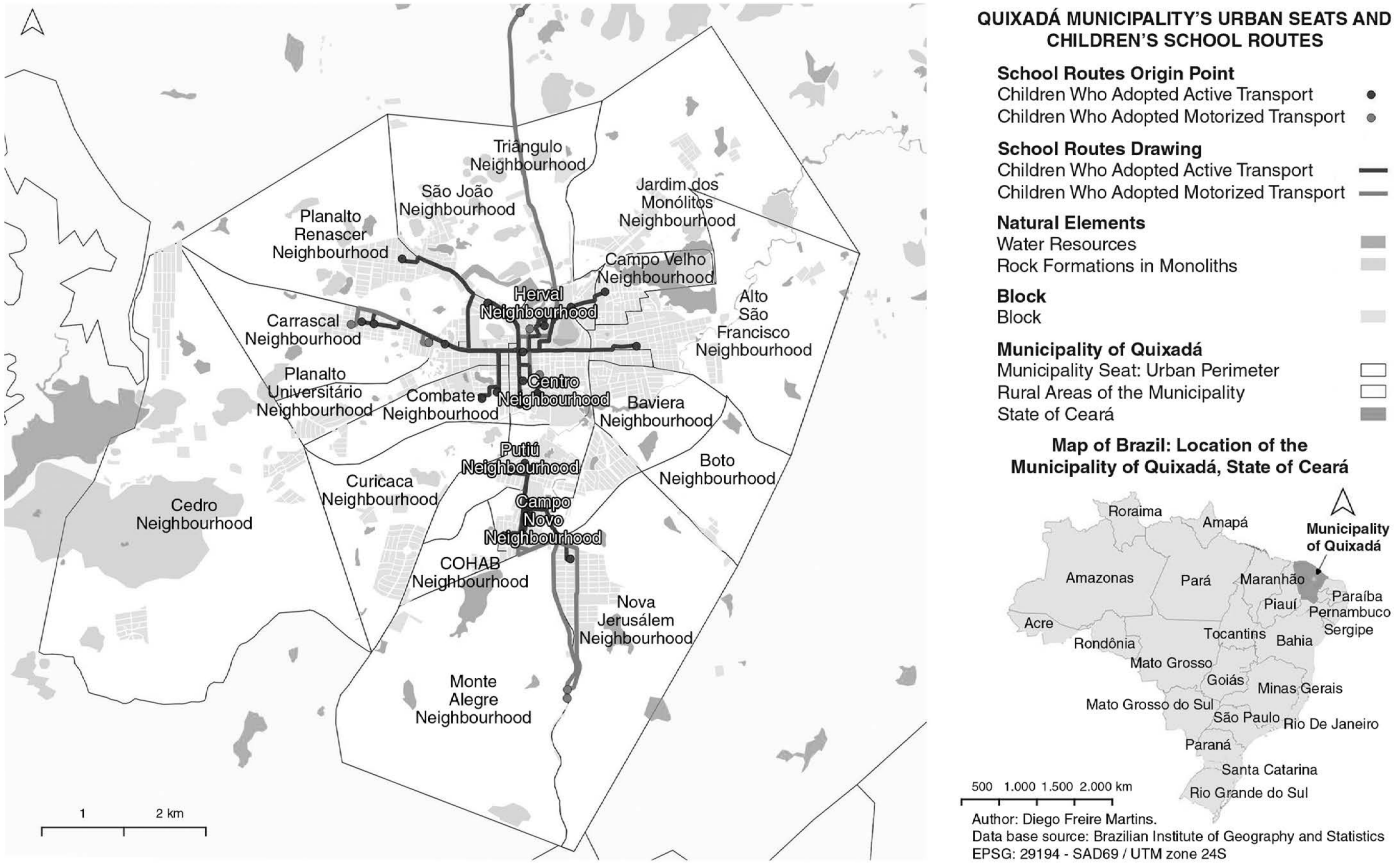
Source: Sarmento (2018), adapted by the authors (2021).

Methodology

The methodological path was based on the following steps: (i) production of affective maps; (ii) creation of subgroups from children's experiences of urban mobility; (iii) interpretation and identification of elements of the affective maps that enhance the positive attachment to public spaces in Quixadá, Brazil.

This research was characterized as exploratory and a case study. The method used was mixed, combining quantitative and qualitative data. The sample composition was at times by judgment in the choice of schools (centre and periphery criteria), and at other times by convenience (willingness of participants to participate). The field collection period with participants was from January to March 2020, before the recognition of the COVID-19 pandemic.

The municipality of Quixadá is located in the Sertão Central Cearense region (Map 10.1). From estimates by the Brazilian Institute of Geography and Statistics (IBGE) for the year 2020, the municipality has approximately 88.3 thousand inhabitants, 71% in urban areas and 29% in rural areas. It is classified as a centre



Map 10.1 Quixadá urban centre and children's school paths.

Source: IBGE (IBGE, 2020, 2021), adapted by the authors (2021).

of sub-regional importance due to the concentration of commerce/services and as a regional pole of convergence of higher education with the installation of seven university campuses (Haiashida, 2014; IBGE, 2020, 2021).

We chose the home-school commute as a physical-spatial cutout. The data collection sites for this chapter were three public schools in the main urban perimeter of the municipality, in three neighbourhoods (Centro, Planalto Universitário, and Campo Novo). We sought to cover possible differences in urban experiences according to the levels of consolidation of urbanization and access to public spaces and equipment.

There were 36 participating children, 54% girls and 46% boys. The participating children were aged between 8 and 11 years; this group, according to the specialized literature, tends to be in a stage of development that tends to have greater spatial experience and ability to grasp and represent this environment (Vigotski, 2011). They were distributed in the neighbourhoods according to Map 10.1, in which the children's routes were represented: those who made motorized school trips (represented in purple) and those who took active routes (represented in green).

The affective maps were drawn based on the children's home-school routes (Table 10.3). The reference was the Affective Maps Generator Instrument developed by Bomfim (2010) that analysed the affections and feelings of people in relation to the urban environment in Barcelona and São Paulo. In this chapter the objective was to understand elements of attachment to place by children through affective maps based on Bomfim (2010) that focuses on the symbolic by expanding the methodology of Lynch's (1982) mental maps that focus on structure and identity.

We defined the groupings based on the mode of transportation, with 26 participants from active modes and 10 from motorized mode. The type of drawing was analysed (cognitive or metaphorical); the perspective of how the child saw the route

Table 10.3 Synthesis of the affective maps.

1. Representation of the Home-School Route		**2. Identification**	
Cognitive map design based on Kevin Lynch (1982)		Gender, age, education and neighbourhood of residence	
		3. Structure	
		Lynch's cognitive map: (drawing of landmarks in the landscape, paths, boundaries, etc.); Metaphorical: drawing of analogy of feeling, mood of the child.	
4. Meaning	**5. Quality**	**6. Metaphor**	**7. Dreams**
Explanation from the child about her drawing.	Ways of qualifying the home-school route by means of adjectives and nouns.	The child's representation of the comparison of the path to something or other that they associated with it.	The desires and wishes for the path and the elements attributed to it.

Source: Adapted by the authors, from Bomfim (2010).

(omnipotent or reduced); drawing elements (urban, nature, humans); indication of emblematic signs; structure of Lynch's (1982) mental maps; meaning, qualifications, and metaphors of the drawings about the routes for the participants.

Results and Discussions

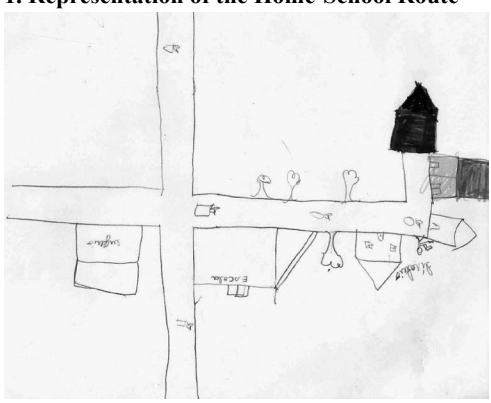
Most children – both motorized and active travellers – were able to perform a representation from the elements of urban structure such as roads and other land uses. However, the children of active modes showed more details of the routes than the children of motorized transport. In Table 10.4, a child of active mode represented in detail the intersection of streets, distances, residential, and local commercial uses.

The understanding of the city in more detail takes place at low speeds and on the pedestrian scale (Gehl, 2013). However, this greater knowledge did not represent a more positive view about the environment, but rather gave more attributes by which to judge it. In the example in Table 10.4, the paths travelled were synonymous with fear and negativity. This fact corroborated the idea that children need not only to experience the public space, they need it to have an adequate infrastructure consistent with their wishes and demands. The trajectory of this participant was marked by representations of streets with rough stone paving, uneven sidewalks, and stigmas of violence in the city – as perceived by her.

At the macro level, this experience and perception of violence have created an image of public space as hostile to the child, in which it becomes a terrain of

Table 10.4 Affective map of a 9-year-old girl with active home-school commuting.

1. Representation of the Home-School Route



2. Identification
Gender: Female
Age: 9 years old
Schooling: 5th year
Area: Campo Novo neighbourhood (Urban Zone)

3. Structure
Cognitive, elements of urban structure

4. Meaning
"Straight line of the path I take"

5. Quality
"Horrible, ugly, destroyed and violence"

6. Metaphor
"Straight"

7. Dreams
She and her family and friends on motorcycles, but without police, thieves, or politicians

Source: Study participant, adapted by the authors (2021).

uncertainty and insecurity, which can further reinforce the private space as the only locale suitable for childhoods (Müller and Nunes, 2014). As a consequence of this experience, the actions of individuals in space are modified to avoid the perceived risk. The individual starts to evaluate the environmental contingencies to adapt their way of life to possible freedom from risks (Ittelson, 1978). However, in Table 10.4, the participant kept going down the same routes perceived as unsafe, including without the company of adults. For her, there was a lack of choice.

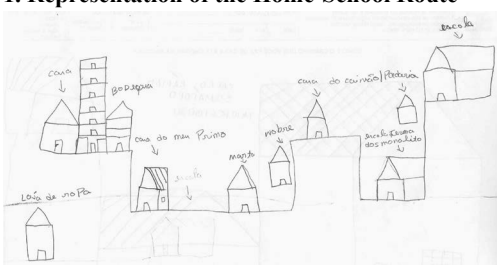
The spatial and social details of the commuting environment appeared in a generalized way in the participants who moved actively, children from more central areas of the city brought more reports about traffic problems, either through fear of crossings or through noise pollution. On the other hand, children from non-central areas, such as the one highlighted in Table 10.4, brought up reports that saw violence as common in everyday life, as in metaphors created by the children when referring to the public spaces in their commutes as summarized in "shooting" or "violence and fear."

On the other hand, the drawings and speeches of children of active modes made clear the high level of connectivity with the neighbourhood, as expressed in Table 10.5 – representation of an 11-year-old girl, living in the commercial/services centre of Quixadá with a home-school distance of 1.4 km. The built elements, such as residences or commercial areas, were named by the name of the people who owned them, whether family, friends, or acquaintances, i.e., besides demonstrating expansive environmental knowledge, it also made clear their symbolic relationship with the place.

This community network would only be possible in the exploration of the space, and here we also highlight the autonomous character of this experience, building a non-institutional safety net through Jacobs's (2011) "eyes of the street". In this way, this community strengthening and the creation of an apparent support network

Table 10.5 Affective map of an 11-year-old girl with active home-school commuting.

1. Representation of the Home-School Route



2. Identification
Gender: Female
Age: 11 years old
Schooling: 6th year
Area: Centre neighbourhood

3. Structure
Cognitive, urban structure elements

4. Meaning
"Straight line of the path I take"

5. Quality
"Very dangerous sometimes"

6. Metaphor
"Fast car and traffic light"

7. Dreams
Have more contact with nature and ride a bicycle

Source: Study participant, adapted by the authors (2021).

among neighbours, help to unblock what Sawaia (2001) calls a potentiality for the wholeness of the individual to emerge that is produced in collectivity through body and consciousness.

The participant attributed paradoxical attachments to the place; at the same time that the paths were considered dangerous, she also wished to have more contact with nature and ride freely on her bicycle. It was clear in this example that her attachment was positive from a functional, relational, and symbolic point of view in what refers to the attraction of movement through the city from involvement in social daily life, but a functional inhibitor because of the dangers of traffic.

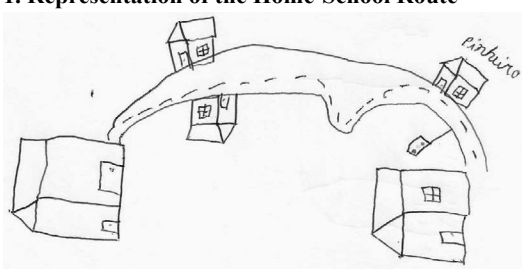
Having a more positive than negative character, we could say that it also exemplified what Sarmento (2018) states about key empowering factors for the child's active citizenship: in this case, experience (through active commuting) and urbanity (intense public life in public space). As the child experiences more of this social context marked by community relations, the more the child will be able to care about the city, both in the present and in the future. Thus, we also have an expression of non-formal learning, a way of knowledge through exchange, constituting itself as essential for the formation and affirmation of these children as citizens.

In the representations and speeches of the children who did the routes in a motorized way (car or motorcycle), we noticed little detailing of the routes, either in terms of physical structure or social components, which pointed to a restricted and fragmented environmental knowledge. The experience based on speed and the restriction of parents/guardians to active transportation must justify this low knowledge. Unlike the children of active modes, those attributed to the public space have more positive than negative meanings.

In Table 10.6, the affective map of a 10-year-old girl with a home-school distance of 2.3 km, her mental image was strongest in moments of stops in daily motorcycle circulation with her father. The child highlighted her residence, some

Table 10.6 Affective map of a 10-year-old girl with motorized home-school commuting.

1. Representation of the Home-School Route



2. Identification
Gender: Female
Age: 10 years old
Schooling: 5th year
Area: Carrascal neighbourhood (urban zone)

3. Structure
Cognitive, urban structure elements

4. Meaning
"The houses, sign, Pinheiro, Uece and bridge"

5. Quality
"Cool, because I hop on the motorcycle I'm going and it's looking nice"

6. Metaphor
"It looks like an animal road"

7. Dreams
An amusement park near home

Source: Study participant, adapted by the authors (2021).

unidentified buildings in the immediate surroundings (places of direct experience) and traffic infrastructure elements that reduce speed such as "speed bumps" and traffic lights (moments of stopping at continuous motorcycle speed), this corroborated what Sennett (2003) talks about the experience of the city being stronger and more vivid at low speed.

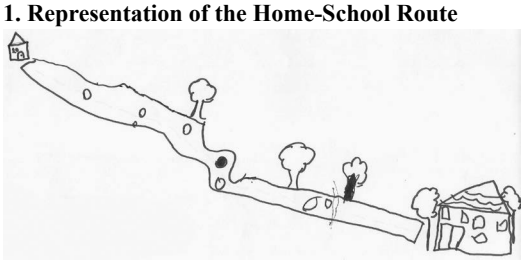
In this example in Table 10.6, we talk about an attachment to the path at the level of the child feeling attracted to being on it – for the fun of being on a motorcycle with her father, but with little evidence of a symbolic or even relational attachment, for example, recognizing the neighbourhood, having greater connectivity that could help in the creation of a differentiated space for her. Undeniably, this distancing represented a barrier in the process of socialization and orientation in these spaces – verified in the lack of detailing of the path's elements – and, consequently, of their formation as a citizen.

In general, as shown in Table 10.6, children who had motorized displacements tended to smooth the curves and changes of direction, indicating distortion in estimating distances due to less detailed environmental knowledge, reinforcing the correlation between little experience and low environmental knowledge expressed by Aragonés (2000). This reality of little environmental knowledge represented materially a child-trajectory relationship based on a structural relationship; sometimes identity – by the presence of distinct elements such as the supermarket; and weakly symbolic – because they remembered little cognitively/affectively.

When during this research we came across children who made the home-school commute by motorized means – specifically school buses – we found an even more acute panorama of lack of attachment to the public space. A significant number of the children who used this method travelled a little more than 42 km (round trip) in rural areas on roads, as in Table 10.7, an 11-year-old girl from a rural district.

Table 10.7 Affective map of a 9-year-old girl with motorized home-school commuting.

1. Representation of the Home-School Route



2. Identification
Gender: Female
Age: 9 years old
Schooling: 5th year
Area: Daniel de Queiroz District (rural zone)

3. Structure
Cognitive, urban structure elements

4. Meaning
"Lots of potholes, tree and bush"

5. Quality
"Bumpy and sometimes I get seasick on the bus"

6. Metaphor
"People walking"

7. Dreams
Presence of a rainbow and the implementation of an asphalt track in the path

Source: Study participant, adapted by the authors (2021).

The participants themselves reported to the researcher, when making the maps, about the difficulty of drawing the paths, with the justification of not remembering how they were. The perception referred to the intoxication and passivity caused by speed, as in the following excerpts of the participants' comments at the time of the maps' production: "spinning straight ahead", "kind of keeps passing by", and "people walking". This impression certainly came from the observation through the window, perceiving the landscape in a visual sequencing of vegetation in rural areas, and buildings and people in the public space of the urban area near the school.

It was clear that there was little objective environmental knowledge of the representation of the socio-physical structures of the routes, as shown in Table 10.7. Allied to this, the fact of passively experiencing this path through the bus window has made them not even remember and unable to build symbolic relationships, which may have favoured the negative qualification of the paths. One might read this situation through the lens of Tuan (1983): these routes were functionally spaces of passage; they did not become a place in which the child saw as a differentiated place, developing a symbolic/affective relationship.

In Giuliani's (2003) view, for the individual to have a positive attachment to place, there must be a balance between the demands of the environment and the intentional dimension of the person. In the example in Table 10.7 there is an incompatibility between these two fields, especially because of the lack, or even repetition of environmental information, of landmarks that could make it more legible - the result of a markedly homogeneous and monotonous landscape.

This negative attachment, or even indifferentiation of the subject in relation to space, leads to subjective depotentialization of the child, resulting in greater restrictions on citizenship (Sarmento 2018). In the case of subjects who commuted by motorized modes, especially buses, there were fewer opportunities for the child to personalize, experience, and have contact with urban life on commutes.

In isolation, the previous finding would not lead to a movement of insularization of childhood in the spaces studied, since these same children reported experiencing public spaces to play in near their homes, which indicated to us a lesser confinement in private spaces. However, on account of the distance and speed experienced, the way to school became an almost unknown space, nullifying any playful or pedagogical possibility on this path.

Final Considerations

The children demonstrated that the level of environmental knowledge was directly related to the experience by mode. Participants who took active transportation showed more details in the affective maps compared to those with motorized transportation, differences that appeared both in structure and in uniqueness marks (identification). We perceived a direct link between this finding and the opportunity to qualify and load the space with symbolic/affective meanings.

The representations, besides showing the urban structure, also indicated the symbolic-affective relationships: from the absence noticed in part of the children

of motorized modes to the network of connections apparent in the detailing in the drawings of the children of active modes. This situation revealed a lack of environmental knowledge as a factor that led to a more positive qualification of the public space represented. On the other hand, a greater environmental knowledge provided a more critical position in the children.

Thus, we can say that it is not enough to have the presence of children in public spaces for them to create positive attachments to them; it is necessary that there be compatibility in the needs of children and the information of the environment. In experience based on low speed, the child was able to perceive even more the nuances of the attributes of the environment, enabling a more critical reading as well – which strengthened their potential as citizens through the experience obtained in these displacements.

In the context analysed, children have developed a refined environmental knowledge of the urban environment with its symbolic sense of attachment to the place, for example, with the creation of neighbourhood networks, especially in children who adopted active modes. On the other hand, the children who adopted motorized transportation had a symbolic attachment to the public space as a locus of desire and not of experience, the urban environment being seen as a transitional space and a significant affective-cognitive role, especially in those who travelled by bus.

For more children to experience public spaces and become positively involved with them, it is necessary that these spaces also meet their demands. This strategy could potentiate the development of a sense of belonging in children, transforming undifferentiated spaces into places of adventure and freedom by combining experience in the environment, adequate infrastructure, symbolic relationships, and a commitment to the collective well-being.

Finally, we reiterate that every implication of the subject in the city is also a structure-for-action. Therefore, children's urban experiences have the potential to transform cities as we know them today. If we aspire to an urban space, especially the public one, which is more democratic, fair and plural, this necessarily goes through having children involved in this process, especially if encouraged by an active public power that creates networks that envision the city's playful and pedagogical potential. Thus, we will be able to develop children who are citizens today and not only tomorrow.

Acknowledgements

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Note

1 This study is part of a broader research project led by Martins (2021) that investigated the urban mobility experiences of children on home-school routes in Quixadá, Ceará State, Brazil.

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11 Teaching-learning Spaces in Architecture and Urban Planning

A Challenge in Time

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Bodies in Spaces and New Realities

Since we are born as bodies, or even before, after conception, and early development takes place inside our mother's body, we establish relationships with the spaces we inhabit. The first bodily human experience is perhaps the feeling of not being able to fit in the womb's closure; and the need to escape; the normal birth process relies on the help of the baby in need to find a way out of the situation in which they find themselves. Instead, outside the mother's body, the baby will need the comfort of their mother's lap and feel better when wrapped in clothes that comfort and remind them of the previous situation. Such statements are difficult to prove in science, in the male world, but experienced by mothers and all of us as babies. We are not animals easily adapted to nature while we need to transform our habitat to survive since prehistoric times, we have sought shelter and protection for life. The essence of architecture is shelter.

Along with history, life in society and the production of culture have dictated or influenced ways of dressing, living, and building cities – three scales of human life adaptation to the planet Earth in two spheres, the individual and the social. Such spheres do not work without the other and live with vague and interdependent boundaries; they may add, multiply, overlap, and even divide to form a whole. Within this movement, there is architecture, which excludes the scale closest to the skin only – dressing – but connects to all other forms of human adaptation to the planet Earth.

In the environments it creates, relationships are established with other beings – whether human or not – also with objects, within the reach of the five or more senses. These myriads of relationships feed the substrates of personal repertoires, which return other connections in continuous flows. It is possible to say that environments influence human ways of relating to the world and vice-versa. It is also possible to convey that such an environment affects teaching-learning relationships in architecture.

Some people are more sensitive and interested in the spaces they inhabit and choose to become professional architects and urban planners. There would be no

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reason for this sensitivity to stagnate suddenly; it continues to occur in the trajectory of those who choose to study Architecture and Urban Planning. The learning environments these students are exposed to during their undergraduate years influence their education. Barossi (2005) highlights the role of the building of the Faculty of Architecture and Urban Planning of the University of São Paulo – *FAU USP* – in the learning process of its students:

If architecture expresses the mode of production, the society, and human relations, we may say that the school building and the way it is occupied – as a teaching facility – is a totalizing expression of this teaching today. Moreover, if such an environment contributes to a better performance of human activities, its planning should be part of the course in all its instances.

Thus, all activities having teaching as an objective, whether part of the courses or not, have in the form of the space of their realization, as a shelter of determined human relationships, an moment essential for the outcome. Either as a pure and simple expression in which space and its occupation is a consequence, or as an affirmation of its objectives so that space contributes to achieve such objectives. After all, this is the primary teaching the school must provide (Barossi, 2005, pp. 207, 208).

To deepen the discussion on the teaching of Architecture and its interrelationships with the spaces it occupies, some issues related to the most physical learning environments, more commonly part of some schools of architecture, are discussed together with new virtual learning environments. Such virtual learning environments have been expanding for a few years since distance learning (DL) was implemented in face-to-face higher education courses, a fact substantially reinforced by the situation of confinement demanded by the pandemic.

Virtual Realities: Communication without Bodies

The intermediation of electronic communication media enabled the continuation of teaching architecture even with the outbreak of the COVID-19 pandemic: teaching became the transmission of images and sounds with neither bodies nor contagion, with either synchronous communication or not. Adaptation to this new way of teaching was rapid, giving continuity to education with no idea of when this situation would end. Three semesters went on with distance classes with no evaluation of the effect of this abrupt change on the students. What is the human cost resulting from this migration to remote learning? What are the losses of continuing to teach at a distance? What kind of professionals are we teaching? To what extent will adapting to this new scenario transform social life and cities themselves?

In the mid-1990s, American film director Hal Sawen produced a fictional film about the near future,[1] showing the social repercussions of the mass dissemination of the internet – 'Denise Calls Up' (Reyes, 2005, pp. 111–113). In that society, people got so used to staying at home working remotely, that they experienced serious difficulties in meeting in person, even though they did not realize it. There was an eternal postponement of meeting friends, always neglected in favour of work, which almost totally dominated life. Here are two publicity posters for this

film; on the right, people are literally boxed in, relating to each other only through telephone hooks:

It is inside homes, over the phone, that almost the entire plot of the film takes place, except for a single character, Denise,[2] who is never in her house. This character spends the whole movie in public spaces and outdoor streets while she develops a peculiar relationship with the father of her daughter, Aphrodite, the Greek goddess of love and beauty, born at the end of the film. In the poster on the left of Figure 11.1, Denise appears in zoom and connects all the people in their individual 'bubbles'. The film allegory is clear: healthy life, permeated with love and beauty, 'flourishes' from social relationships, from the culture created in cities, from public spaces, where encounter is possible. Locked up at home, human beings can only weaken and get sick; '**Life is the art of encounter** even though there is so much mismatch in life' (Moraes, 1967).

Freire (1996, pp. 68–70) says that education is a gnosiological directive human function, therefore, political, artistic, and moral, dealing with fears, frustrations, and desires. According to Imbernón (2012, pp. 64–77), one of the facilitating

Figure 11.1 Posters from the movie, 'Denise Calls Up', by Hal Salwen, USA, 1995. Dystopia that showed a society where people worked all the time on the internet and never met.

Sources: https://blognauu.wordpress.com/tag/denise-esta-chamando/, poster on the left. Accessed on 22 June 2021. https://filmow.com/denise-esta-chamando-t8256/, poster on the right. Accessed on 22 June 2021.

components of the teaching-learning process is emotion. Which emotions will fail to infect architecture and urbanism students when opting for an exacerbation of virtual teaching platforms use? Emotion and aesthetic enchantment can fade as well as the perception of the other, of the different, of socially excluded people, culminating in the weakness of the future architects and urban planner citizen education.

Planetary Communication: Worlds that Open, Environments that Close

The teaching-academic cut of a given contemporary subject is not able to contain its totality, even without the scientificity that historical distance offers; sometimes it is necessary to analyse facts of the present moment and act at the exact moment they are happening, with the aim of 'changing the future'. On the other hand, current problems have become increasingly unsolvable, and with each scientific advance, more gaps than answers accumulate. Morin et al. (2003, pp. 29–39) says that it is necessary to review the scientific methods themselves, and proposes to transform them into strategies: replacing a predetermined organization of action, which needs stable conditions for its execution, with an open one, which faces unforeseen events, improvises, and innovates.

It is also necessary to consider that method and paradigm are inseparable. Any methodical activity exists as a function of a paradigm that directs a cognitive praxis. Upon a simplifying paradigm that consists of isolating, disuniting, and juxtaposing, we propose a complex thought that reconnects, articulates, understands and, in turn, develops its own self-criticism (Morin et al., 2003, p. 37).

Regarding the problems faced by the teaching of Architecture and Urban Planning, it would be unethical to include it only within capitalist logic, which aims to reduce costs and expand consumer markets: education cannot become a commodity. We understand that social isolation is a contingency of an emergency state; but to continue adapting teaching to the virtual mode at all costs means to respond to the current moment through a fragmented perspective. Defending life indoors cannot be a long-term solution: secure condominiums, home deliveries, internet shopping, etc. kill life in cities and increase the exploitation of workers.[3] The fear of contagion of diseases can become another justification for the sale of many things that surround the isolated and dehumanized way of life, as has been the fear of violence.

Shopping is not just about food, shoes, cars or furniture items. The avid, never-ending search for new and improved examples and recipes for life is also a variety of shopping […], 'We "shop" for the skills needed to earn our living and for the means to convince would-be employers that we have them […]' (Bauman, 2001, p. 87).

What are the pains that originated with the precariousness of Architecture and Urban Planning teaching? Since the middle of the second decade of the 21st century, private educational institutions have seen virtual education as a financial opportunity, while most of their actions in this field have been restricted to reducing

spending on human resources, especially teachers, as stated by Wilderom and Arantes (2020):

> […] from 2015, enrolments in 100% distance learning courses grew by 40%, reaching almost 1 million students in 2018, while the face-to-face modality lost 9% of applications in the same period, with a trend to fall (*Semesp* 2019 with data from the *INEP* Census - National Institute of Studies and Research). Business in the online education sector has heated up while large educational groups are announcing new areas dedicated to education technologies, receiving more contributions from investment funds, reinforcing the link between the digital and the financial, and their speculative and fictitious character.

Learning Environments in Architecture Teaching

Opportunities and at the same time deficiencies are being gestated in the new virtual learning environments. How will these compete with traditional Architecture and Urban Planning school environments? In order to understand this phenomenon and its interrelationships, we started to analyse in detail the main learning environments, commonly present in Brazilian AU schools in general. It is important to observe what activities take place in these environments and their objectives. Table 11.1 summarizes the main models and teaching methods.

The non-formal model descends from the approaches to teaching proposed by the so-called *Movimento dos Pioneiros da Escola Nova* – New School Pioneers Movement – early the 20th century, which broke with the educational paradigm in force for centuries. One of its prominent precursors was John Dewey, who incorporated ideals of freedom into his teaching practice, confronting traditional methods and the school institution itself. He believed in the potential innate human,[4] the basis for defending democracy, the only possible way to lead human life (Amaral, 2007, pp. 79–82). Information and communication technologies (ICT) have occupied a prominent place in discussions on teaching in recent decades, as well as discussions on the so-called active learning methodologies, related to non-formal teaching methods, such as problem based learning (PBL), flipped classroom, peer instruction, and gamification. It is possible to say that the active methodologies descend from the teaching methods focused on the students as defended by the

Table 11.1 Comparison between teaching models.

Formal model	*Non-formal model*
Focused on the teacher	Focused on student
Emphasis on teaching	Emphasis on learning
Emphasis on the teacher's activity	Emphasis on the student's activity
Focused on content	Focused on the development of activities

Source: Authors' text-based Perrone and Vargas (2014, p. 11).

Table 11.2 Classification of teaching categories, according to Kenski.

Teaching category	
Face-to-face	Apps use in the classrooms
b-learning: blended	Blending face-to-face and distant teaching
c-learning: cloud	Open virtual spaces for cooperation and action
e-learning: DL	Students and teachers separated with separated activities in time and space
m-learning: mobile	Use of mobile devices in a flexible and continuous process
p-learning: pervasive	Self-education, Massive Online Open Courses – MOOC's
t-learning: transformative	Use of several digital resources in face-to-face spaces
u-learning	ubiquitous, in any place, access to information and interaction by means of different channels, concurrently

Source: Adapted from Kenski (2017).

new school, but they are different on account of the almost inevitable use of technological media, that is, ICT. According to Kenski (2017), teaching modalities can be divided according to their degree of interaction with ICT into eight categories, as shown in Table 11.2.

Physical Presence: Encounters

This item discusses two sets of teaching-learning spaces:

- The environments most commonly found in most of the Architecture and Urban Planning schools are classrooms, labs to support technical courses, model and testing labs, construction sites (experimental/in-school). In these environments the presence of teachers is always constant.
- Places where key teaching-learning relationships also take place, but in a less established way: libraries, student unions, field visits, as well as continuing education programmes (where the city and the community/society come into play), and other coexistence spaces (cafeterias, university restaurants, corridors, etc.).

In both, the focus is on the relationship between physical characteristics and the forms of personal interaction provided by them, associated with the broader education of human beings who chose to study to be architect and urban planner.

The Classroom

The classroom is the fundamental cell of the school from the first years of education; it is where we spend most of our time, sitting. Its spatial characteristics and its most common layouts reinforce the hierarchical role of the teacher as a kind of

'manager' of this space, consisting of aligned chairs facing them as a focus of attention. There are variants of this organization related to different pedagogical models, but this is the general layout, and appears in virtually all educational institutions.

In Architecture and Urban Planning schools it is no different: this environment exists to house theoretical classes, in which the teacher is responsible for transmitting and debating the knowledge accumulated by the culture, in a participatory way or not. Traditional methods are still widely used in classroom environments, inducing the teacher to focus on teaching. Some older schools had platforms (at the front of the room) to keep the teacher's angle of view and reinforce an already implied hierarchy. For discipline, chairs are fixed to the floor, usually in rows, preventing variations in spatial layout and making it difficult to adopt more participatory organizational formats in which students could face their colleagues. In contemporary schools, chairs are usually movable, providing other functional arrangements: in a circle, in small groups, in pairs, and the like. These forms of spatial ordering are directly linked to participatory teaching practices, focusing on the student, or according to Table 11.1, to non-formal teaching models.

The classroom is also an environment recognized for having some occupation ritual: the students of an established course enter it to attend classes. It is a place that invites silence and organization so ideas can be communicated by whomever is speaking, whether the teacher or student. At the undergraduate level, the teacher must agree with the students from their first day to care for the learning environment,[5] which includes many things.

It is important to emphasize that there is no deterministic relationship associating the emancipation of students with the employed teaching methods. One notices a major potential for expanding the students' autonomy under certain conditions. Which interaction opportunities can different teaching environments provide? Despite its genealogy pointing to traditional methods/formal teaching models, classrooms can be adapted to active methods while enabling the incorporation of some ICT, as previously described. One of the most common ICTs in classrooms of undergraduate courses is screens and projection equipment.

Each classroom has a specific location, similar to an address, where an established group of students will take classes. In a school with several different courses, such as a university, the classroom also represents a meeting place, which becomes appropriated by its occupants. It is usual for students to organize themselves into groups of friends, which are always in the same location after these affinities arise. In this way, in addition to housing didactic functions, the classrooms also shelter sociability.

It is a closed environment, protected, in part, from outside eyes (except for the indiscreet cameras of the multiple mobile devices). In classrooms, people are whole, as bodies, which fact determines an infinity of communicative relationships between students and the teacher, and the teacher with his or her class. Bodies speak with gestures, speech tone, their look, and the way they dress: communication is more fluid and with fewer misunderstandings; therefore, more complete. The warmth of the beings confined in such spaces also spreads and is contagious: there is an atmosphere of learning.

Before words are spoken in the classroom, we come together as bodies. We read each other through the gaze. As teachers, we are the focal point of the collective gaze before words are spoken. Our students are looking at us and wondering what our bodies have to say about who we are and how we live in the world (Bell hooks, 2020, p. 231).

Experimental Labs and Construction Sites

Laboratories[6] help the visualization and application of the concepts of the technical courses related to Architecture and Urban Planning, facilitating the understanding of these contents, in addition to supporting research. They are:

- Labs related to comfort courses, thermal, luminous, acoustic, and others. In these labs, it is possible to perform experiments such as measuring the beams of the sunlight by using specific equipment called Heliodon; observing the effect of wind on urban flow or the aerodynamics of tall buildings, with wind tunnel; measuring light intensity, with luxmeters; measuring the intensity of sound, with decibelimeters; among other integrated experiments.
- Laboratories for the production of models: they provide devices and machinery to help students create their design prototypes and models using different materials, such as metal, fibreglass, and wood. More recently, labs incorporated 3D printers along with digital fabrication processes.

Experimental sites are usually outdoor spaces that simulate real construction sites, which is very useful for students to build using civil construction materials and become aware of issues related to this context. Contact with experiments and the possibility of constructing with one's own hands, from simple models to more elaborate elements, such as 1:1 scale prototypes, introduces to undergraduate students a significant experience, defended by several pedagogical currents as a catalyst element for learning.

Field Trips and Extension Programmes

Field visits and extension programmes also have a direct relation to meaningful learning; such experiences bring students a high level of emotional and cognitive engagement. The impact of a site visit for a fictitious project may sharpen all the senses and perceptions of fundamental architectural questions arising from the environment in which it is inserted, from its social perspective to physical elements of its surroundings. It is a moment of encounter (see Figure 11.2).

In extension programmes, where visits and interaction with the involved community are prerogatives of the work – and extends over time – the students' involvement is enhanced adding genuine responsibility and satisfaction for the production outcome. These practices are not only about the education of urban planner architects but also about engaging students, teachers, involved social players, and the overall community in citizenship, which are determinants and foundations for future professional practices.

Figure 11.2 Visits to construction sites and project sites with students.
Source: Personal archive.

Libraries

Entering a specialized library with direct access to the collection is also a unique experience where one can be in touch with the sedimented knowledge in books. Walking between books can awaken new interests and enable discoveries. Generally, libraries also provide study facilities, offering spatial support for students who do not have adequate spaces to study in their homes. Populated by books and by students from different stages of the courses, they also host relevant human exchanges.

Where Sociability Predominates: Squares, Corridors, Cafeterias

Human learning is not linear or contained in programmed spaces: human interactions are widely responsible for promoting interests and raising debates and questions. Several places attached to formal learning environments are prone to exchanges among the academic community: food courts, cafeterias, outdoor spaces for permanence, and even walkways, such as corridors and other areas of circulation such as ramps, indirectly shelter this function. For instance, generous and pleasant locales where one may sit, eat or stay in the shade of a tree are important for academic life as they promote sociability.

Student Spaces

Spaces dedicated exclusively to student activities, such as student unions, are capable of promoting autonomy, responsibility, and a sense of community in students.

In the design of the Faculty of Architecture and Urban Planning of the University of São Paulo (FAU USP) – Vilanova Artigas and Carlos Cascaldi dedicated a large area, the entire floor of the Museum, which students appropriated. In this area, they located the cafeteria-restaurant, an open multipurpose space (with only a half-wall occupying a small part surrounded by a curve, the spiral), photocopier, stationer, bookseller, and a closed glass room, where the student union meets. In this environment, the students have been meeting since its construction, where they can discuss different subjects, research, write articles, and work on extension programmes, exhibitions, and other activities of student interest. It is worth remembering that one of the quality indicators at FAU USP is the students' production.

Virtual Learning Environments

The plural to name this environment is mandatory; first, one cannot treat teaching platforms specially created for remote learning and the other more direct forms of virtual communication for teaching, in the same way. Second, screens are multiplied by the number of participants in their individual spaces in both situations: dispersed in any location of the Earth where the internet can reach. The meeting takes place in a fictitious shared room, produced and superimposed on individual screens with varying sizes and image and sound qualities. It is customary to identify virtual learning environments only with the content of these screens and to disregard what happens around them, making the actual spaces and the people who occupy them invisible. One of the objectives of this chapter is to deal with the same parameters of comparison among different teaching situations, at a distance or face-to-face.

Distance Learning (DL)

The first virtual learning environments made for distance learning (DL) courses were DL Platforms. One of the justifications for adopting these platforms is the significant autonomy and freedom offered to students to build their learning, considering the hours dedicated to it, and the speed in advancing the available content.

The inclusion of these media in the teaching of Architecture and Urban Planning is not only necessary but also mandatory, since most Architecture and Urban Planning students from private schools are taking 'face-to-face' courses whereas 40% of the subjects are on DL platforms, as authorized by Brazilian Federal Ordinance No. 2,117 of December 6, 2019.

It is essential to investigate the quality of this form of Architecture and Urban Planning education, since its implementation in most private schools used the criteria of making courses cheaper, as emphasized by Wilderom and Arantes (2020).

In terms of higher education, the pandemic has highlighted the brutal difference in nature and purpose between the public and private sectors. Most private institutions have advanced vigorously in the distance education model, radicalizing the recent business trend in the sector […]

[…] We wonder how the expansion of educational business assuring high-profit margins in the online format at the expense of teachers' precariousness may seriously compromise the professional education (Wilderom & Arantes, 2020).

Teaching Mediated by Internet during Pandemic

It is crucial to emphasize the differences between the two environments, the pre-existing DL and the adaptation of face-to-face online teaching with the support of online meeting platforms, such as Google Meet and Zoom, among others. These are very different situations, given that the first, pre-existing distance education, promotes unidirectional and mass education based on previously prepared teaching materials, such as recorded videos, making the dialogical construction of knowledge impossible. On the other hand, despite the second environment's initial emergency character and poor adaptation, it did not dispense, in most cases, with synchronous interactions aimed at the specific group of students in each class.

During the pandemic, teachers and students were exceptionally willing to face the situation without prejudice to learning. Firstly, because of the teachers' work contracts and the purchase of student learning in private universities, institutions kept the schedules of face-to-face classes and teaching-learning synchronicity. In this context, teachers' overload was constant due to activities such as the evaluations and supervision of students' final dissertation papers.

It was noticed that the time facing screens during the pandemic is much more physically and psychologically tiring than face-to-face time. Actions to prepare these shared meetings are much less diversified than in physical environments where different sorts of human interaction can naturally happen simultaneously, as in the workshops of Architecture and Urban Planning courses. In particular, students indicated that they did not have enough time to carry out their coursework, as they spend the entire online classes focusing on the teachers' lectures.

Potential and Gaps in Remote Teaching

Both previously described means of virtual teaching, either synchronous (during the pandemic) or asynchronous (DL), must be rethought and evaluated according to the same parameters. To create some assessment parameters in the future, we point out some characteristics of these remote learning environments:

- **Equal Spatial Sensation:** Both students and teachers are in the same position; they are seated, in their homes, facing a screen, either a computer or a mobile phone. The content seen on the screen is the same for everyone, except for organizational details. There is no longer a hierarchical physical position for the teacher; their power comes only from their function, and there is no environmental reinforcement of domination.
- **Multidirectional communication flow:** Even though the flow of information and content is still predominantly from the teacher, in most of the platforms used, there is the possibility of communication via chats, where students can

write openly to everyone. This does not exclude other communication conveniences through social networks, which circulate among groups of students, totally beyond the reach of the teacher.

- **Crossed personas:** The term persona refers to the masks used by actors during acting and points to a kind of character that the subject creates to interact socially. It is through a persona that individuals can interact with each other, even when they are very different, bringing benefits to life in society. The current problem is that there is confusion between the social persona, and what one is in one's personal life, causing some discomfort.
- **Expanded possibilities for cultural exchanges:** Internet use enables an immense expansion of exchanges between schools and students from different parts of the globe. The greatest difficulties in making them effective are access to the internet and mastery of a foreign language. With the pandemic, a much greater number of lectures and free online courses began to occur, in addition to subjects taught by teachers from different educational institutions.
- **Interferences in/from domestic environments:** Online work invaded home environments creating some unusual situations. Many people have adapted part of their home to obtain some privacy, but such private space is not always possible, and interference occurs in both directions. To keep the focus of attention on work may be problematic, and affective relationships with family members (children, spouses, etc.) can be affected.
- **Invasion of free time:** Until recently, work rituals, such as work time and free time, guided everyday life. With the pandemic and domestic confinement, there was a sensation of general availability of time. Deadlines for handing in work, for example, extend to 12 PM. The generalization of immediate communication through social media interferes in the organization of teaching, because at any time, the worker (or student) can be requested to fulfil some tasks. This is very harmful to the psyche, as it directly interferes with rest, and relaxation is only possible with the absence of worries. On the other hand, it is possible to relax during working hours, but rest is partial, as this attitude brings to the unconscious the feeling that something is wrong.
- **Absence of displacements:** Moving around cities, travelling through urban spaces, and using collective or individual means of transportation, were, until recently, experiences of social connection. On the way to work and school, the surrounding environment was sensorially perceived and socially analysed. There were confrontations of differences, the others, locations both pleasant and unpleasant, which would consolidate a repertoire for present and future urban architects. The absence of this time – which could be for rest or creative leisure – makes the day lengthen for pertinent tasks, which can be positive but also overload human brains.

By emphasizing these characteristics of this field of interaction – teaching work and university education – raised by the pandemic, some questions arise:

- Will be there a total disruption of the teacher-student vertical hierarchy in teaching-learning environments? What consequences might this have on teaching?

- Does the multidirectional flow of communication harm the maintenance of the attention focus?
- Will there be a new wave of overvaluation of the role of work in everyday life?
- How will virtual communications transform social relationships and new work and life environments?
- Immersed in this context, how might one become aware of inserting these and other questions in Architecture and Urban Planning teaching?

Suggestions for Future Directions for Blended Learning

Still, in an incipient manner, we present some suggestions for future directions in the area of Architecture and Urban Planning teaching. It seems that we are moving towards an inevitable blended learning that mixes remote and face-to-face modes. Moreover, we would like to point out the potential of some teaching tools, and raise the alarm about some inadvisable situations that are becoming commonplace:

- Provide distance education teaching materials, such as recorded classes, podcasts, and textbooks to complement and or update learning gaps of either first or further years in the school of Architecture and Urban Planning courses. For example, some high school content is necessary to understand specific undergraduate content. In this case, it is about students' self-taught revisions without academic assessment. It would be interesting to provide after-class academic support with specialized tutors for each subject.
- Avoid recorded classes when dealing with 'live' subjects, in which one expects current and dynamic discussions. Recorded teaching is rigid and do not contribute to the collective construction of knowledge while indicated for consolidated content only, such as some technical content.
- Prioritize synchronous classes, when in remote mode.
- Consider the technological means available to students to follow the classes, checking that it will not exclude those who do not have the same tech level as the others.
- Do not overload students by maintaining a feasible workload with assured rest periods.
- Create parameters for maximum hours in front of screens.
- Observe the level of qualification of teachers of Architecture and Urban Planning courses, with a preference for Masters and PhDs.
- Do not replace teachers with tutors or electronic tools without subjects.
- Do not split the teaching staff between remote and face-to-face teachers; they must both actively participate in the discussion and continuous updating of teaching, in an integrated way. Blended learning must remain cohesive and coherent with the mission of the educational institution, driven by universal standards of quality.

It is necessary to discuss the new blended education with depth and clarity while demanding from the Ministry of Education a less indulgent and more

resolute posture, taking attitudes against the precariousness of teaching work, and keeping the focus on quality education of tomorrow and future architects. The idea is that the definitive implementation of ICT in blended learning in Architecture and Urban Planning should make it flexible and helpful, gaining quality and not losing it.

Conclusions

The chapter sought to go through the most common learning environments in various educational institutions to emphasize the possible qualities and flaws present in the several experiential situations they provide. The objective of this study is to indicate points of attention for the new ways that these environments – somehow in constant transformation – can acquire in the post-pandemic Architecture and Urban Planning teaching universe.

It emphasizes the human need for encounter, possible only in physical environments and irreplaceable in virtual environments, at the expense of human mental health and the poor citizen education of the architect-urbanist. The need to travel to teaching places also provides time for brain rest, experiencing the city while interacting with others.

On the other hand, we recognize the enormous potential for expanding academic and cultural exchanges enabled by the use of ICT in physical and virtual learning environments; and the beneficial assistance of teaching support tools associated with active learning methodologies.

To create global parameters of comparison for different teaching situations in the future, we describe some circumstances that deserve highlighting in the current teaching context. The intention is to emphasize the qualities of both modes of teaching, virtual and face-to-face, and to alert to the commodification scenario in this field, tending to make the work of professors precarious in addition to lose student education quality.

Finally, we suggest some paths for relevant discussions on the implementation of blended teaching and its deepening by future academic studies to become objective guidelines for the maintenance and improvement of the teaching of Architecture and Urbanism, bearing in mind predictions of sudden changes in the post-pandemic context.

Notes

1 In this decade, there was a great spread of the internet across the globe as one of the effects of globalization.

2 According to the Dictionary of Proper Names, Denise is a French name, feminine of Dennis, the same as Dionysus, from the Greek Dionysios, name of the god of wine, goes back to the Sanskrit dyúnis, dyúniso. It is formed by the elements dyu, which means 'the father sky, spirit, day', and nis, nisa, which means 'night, water'. Thus, as a result of this junction, the name means 'creator of the waters', 'that which gives rise to water', 'that which gives rise to day and night'. In this sense, it carries with it the symbolism of water. For this reason, it refers to the origin of life, as well as growth, fullness and

decline, that is, essentially the cycle of life (available at: dicionariodenomesproprios.com.br, accessed on 15 June 2021).

3 Beccari (2020) discusses 'work pornification', a term borrowed from theorist Paul B. Preciado to describe the current work of confined and ultra-connected individuals, a trend that was instantly adopted with the need for confinement to control the pandemic of COVID 19. According to Beccari, 'pornified work emerged in the pandemic context under the sign of a multitude of available and disposable bodies'.

4 This way of considering the human being had already been exacerbated by Rousseau, approximately two hundred years earlier, in the 18th century. Inspired by his deep belief in the goodness of human nature and the human being's innate intelligence, Rousseau wrote, in 1762, the novel 'The Emile or on Education', opposing the ethical deviations of society and the rigidity of the school environment in force at that time (Ghiraldelli, 1987, p. 14).

5 It would be possible to analyse more closely the physical factors of classrooms. For example, the position of the entrance door: when positioned at the front, the teacher perceives or controls who is entering and who is leaving; behind, students can enter and leave with more discretion; ahead, causes greater dispersion, on account of the traffic of people that hinders concentration on exposed and debated matters.

6 Other labs, more common in Civil Engineering courses, should also be shared with Architecture and Urban Planning courses, such as those related to the strength of materials, regarding, loading, impact, and temperature. In these, there are the visualization of experiments and the testing of (new) materials in addition to equipment related to topography and soil probing.

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12 Adapt Cube

Conceptual and Material Narratives

Jorge Cruz Pinto and Ljiljana Čavić

Concept and Narrative Principle

The idea of creating the Adapt Cube emerged from the need to produce an installation that would exemplify the research conducted by the ADAPT Lab group[1] – Architectural Design/Drawing – Art – Project – Theory/Technology, on the occasion of the 5th Research Seminar of CIAUD[2] – Research Center in Architecture, Urbanism, and Design, in September 2023.

The ADAPT Lab seeks to affirm projectual processes as the central focus of research in architecture, urbanism, and drawing. It embraces dialectical evolution by integrating and connecting theoretical research with experimental practice and the practical application of design, production, and reception of artifacts. The ADAPT Lab combines various disciplinary and cross-disciplinary areas of knowledge which as theoretical foundations inform praxis and intervention in the real environment. Similarly, in university education, teaching and projects are approached as inseparable; they are both part of a process of interaction in the production and dialectical evolution of theoretical and practical knowledge. In the words of Otl Aicher: "It is no longer abstract, conceptual truth that is our problem, but correctness, the manufactured correct facts of the matter, living space that has been built. We must move over from thinking to making and learn to think again by making" (Aicher, 2014, 78).

In this sense, we proposed a form of self-referential objectual narrative that would enunciate and embody some of the most relevant conceptual principles of the group's projects, through the construction of a participatory experimental artefact. The installation was designed with a pro-functional, self-narrative purpose: to house two audiovisual screens showcasing ADAPT group projects, serving as a phenomenological alternative to the conventional exhibition of pre-formatted printed panels.

The idea emerged from the initial hand-drawn conceptual sketches by Jorge Cruz Pinto (Figure 12.1), which outlined the main narrative of an architectural journey, transitioning from the exterior to a more obscure, habitable interior space, shaped by a modular cubic structure.

The cube adheres to a 0.80 m × 0.80 m three-dimensional geometric grid. The dimension of 0.80 m, defined for the base module, combined the unit of body

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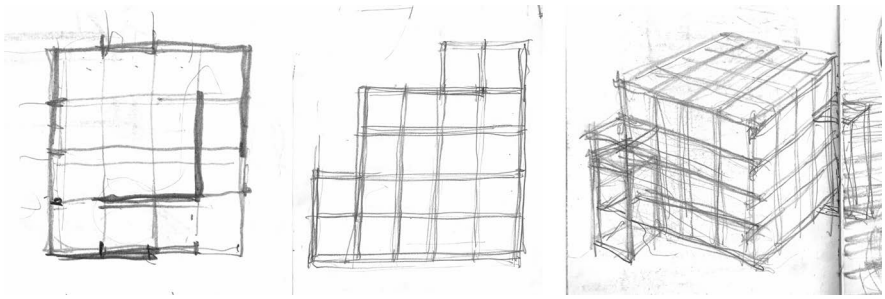

Figure 12.1 Preliminary hand of Adapt Cube sketches by Jorge Cruz Pinto.

passage with the intention of the structural and functional subdivision of the cube. The grid easily accommodates subsequent cladding with wooden doors from demolished traditional Portuguese buildings dating from the late 19th century to the first half of the 20th century.

From its conception, the narrative began to take shape through the approach to the cube, the experience of entering, traversing, and exiting the installation, which became three ritual moments of the spatial journey. The structure comprised the central interior space and two modular structural appendages, positioned diagonally opposite each other, indicating potential points of entry and exit and creating an anticipation of engagement. These entry and exit modules functioned as siphon-like conduits, facilitating fluid and smooth transitions. Together, they embraced the central structure, highlighting its cubic form.

The transition and interpretation from hand drawing to digital drawing in Revit made by Ljiljana Čavić (Figure 12.2) allowed for a dialectical evolution: through the exploration of alternative metamorphoses such as additive compositions of central entry, or the possibility of vertically increasing a structural module, which the initial abstraction did not justify, but later made sense by reinforcing one of the entry/exit points, creating an intentional compositional asymmetry in the modular structure of a tower that would reach total dimensions of 4.00 m × 4.00 m × 4.00 m.

The decision to use standardized wooden beams measuring 0.09 m × 0.06 m × 4.00 m was based on structural calculations by Professor Soheyl Sazedj. Among the potential construction methods for connecting the beams – such as miter joints, half-lap joints, or simple overlapping – the simple overlapping and screwing of the pieces proved most convenient. This approach was favoured for its ease of execution and the possibility to dismantle and reuse the components in future projects. The choice to use recycled doors for cladding led to the arrangement where the horizontal elements of the grid structure were positioned on the exterior, and the vertical elements were overlapped on the interior. This configuration resulted in the structure's corners being formed by the straightforward overlap of the horizontal and vertical beams.

In the Adapt Cube we employed the process of doors reutilization for valuing – doors became walls, windows, roof tiles, doors became rooms. The

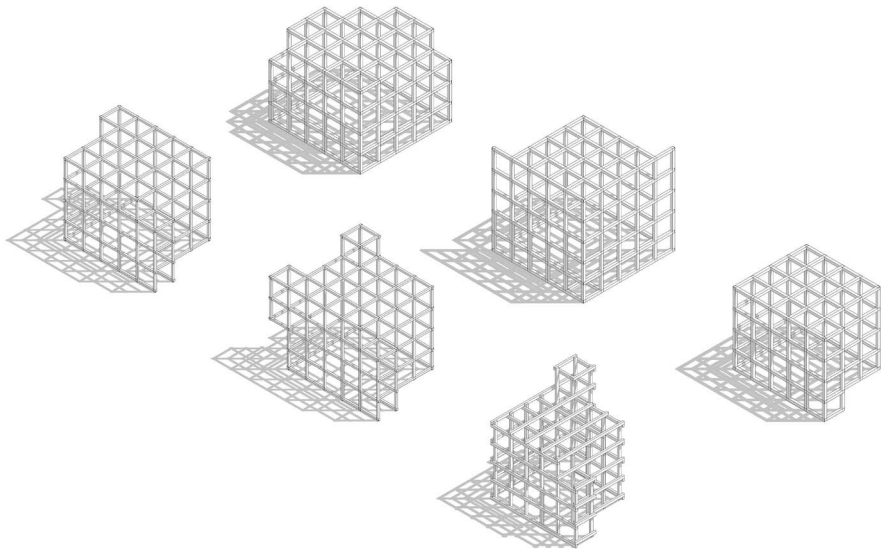

Figure 12.2 Revit 3D digital model of Adapt Cube by Ljiljana Čavić.

door, symbolizing a secure yet ambiguous boundary, both open and closed, enabled spatial change and transformation. Explored as both an architectural and metafunctional aesthetic element, the door acquired additional meanings, offering sensory experiences that extended beyond the simple act of opening and closing (Figure 12.3). This approach implied a different understanding and evoked various sensations and emotions in our interaction with the environment.

The Choice of Site

Although the structure was conceived from the abstract form of the cube and designed primarily based on the narrative of an architectural journey defined by entry, interior stay, and exit, it was necessary to choose a suitable location for its placement within the Lisbon School of Architecture. The question arose as to whether the cube should be placed indoors or outdoors, and whether it should be protected from atmospheric elements, especially rain, or left exposed.

After considering several possible locations, it became evident that the cube should be placed outdoors but under cover, as choosing an indoor space would constrain the functionality and flexibility of those areas. The chosen location was an outdoor, protected area under the glass and aluminium canopy connecting Pavilion 5 – the CIAUD Research Center facilities and the Ph.D. building. This placement enhanced the cube's visibility from the ramp and the back garden, while also benefiting from its proximity to the Research Center. The structure fit perfectly in this space, without obstructing access to the surrounding buildings

Figure 12.3 Old doors from demolished traditional Portuguese buildings prepared for metric survey.

or blocking the two existing side walkways. Additionally, the height of the glass canopy accommodated the vertical development of the structure.

Constructive and Participatory Narrative – The Adapt Cube Workshop

Wood construction has been one of the programmatic themes we introduced into the curriculum of Studio Design at Lisbon School of Architecture, over the past six years. The wood construction proved to be an exemplary pedagogical and didactic exercise, as it maintains an uninterrupted relationship between compositional and structural aesthetics of architectural matter.

Therefore, to accompany the construction of the Adapt Cube, we held a workshop with the same name in September 2023 with a group of enrolled students (Figure 12.4), accompanied by some teachers, supported by technicians from the School's workshop and from the communications office that assisted, filmed, and photographed the entire installation process.[3]

The construction of the installation proceeded in two phases. In the first phase, a wood company was contracted to build the pine wood structure. Over the course of four hours, three workers efficiently assembled the structure using the provided technical drawings and pre-cut wooden pieces. The second phase involved the direct participation of students and teachers, who carried out the following tasks: (1) Conducted a photographic and metric survey of the recycled doors (Figure 12.3)

Figure 12.4 ADAPT workshop – Participatory hands-on process of construction.

Source: Photos by authors, Miguel Miranda, and Daniela Barreto.

to be used on the structure, including cleaning and identifying the types of doors. (2) Created digital compositions for the application of the doors to the structure. (3) Built a 1/50 scale wooden model of the structure and conducted studies on how to attach the doors (Figure 12.5). (4) Experimented directly with mounting the doors on the actual structure. In short, the participants were encouraged to collaborate in construction within a discussion and hands-on learning environment.

The described tasks contributed to the project, but direct experimentation proved crucial for decision-making. Some initial ideas – such as darkening the entire interior space by covering it with newspaper painted black or charring the cladding doors – were abandoned. Confronting the realities of the work, including the urgency to complete it and spontaneous experimental discoveries, led to simplifications and key decisions that shaped the final outcome. Among these decisions were: the resolution to clad the interior of the cube with doors while leaving the structural pine grid visible from the outside; embracing the colours, textures, and marks resulting from the use of the doors; differentiating the upper plane with larger white doors, distinguishing it from the lower plane of the base emphasized by predominantly brown doors; accepting the gaps resulting from the wooden structure and the smaller width dimensions of the doors, both in the vertical cladding and the ceiling cladding, allowing light to enter the interior, thus converting the differences into

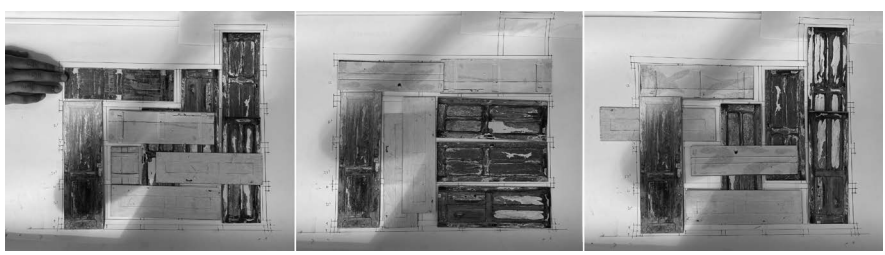

Figure 12.5 – ADAPT workshop – Experimental façade compositions, doors collage on the metric grid.

Source: Photos by author.

Figure 12.6 The Adapt Cube, exterior and interior view.
Source: Photos by authors.

intentional compositional rhythms of: structure, walls, voids, and light; similarly, the interior corner was resolved with the selection of two wooden shutters articulated with existing hinges, reinforced by an intentional zenithal opening; likewise, for the tower module, marking one of the access points or exits of the installation, glazed doors were intentionally arranged to frame the garden transparently against the background; and finally, placing a fixed door in the foreground reinforced the darkening, the ritual of entry, the anticipation, and the mystery of the interior space (Figure 12.6).

Reception Narratives

In the previous paragraph, we summarized some of the project intentions embedded in the work, aiming to anticipate the perceptual experience of the body and mind. This includes from the installation's external presence effect installation to allowing its peculiar form to create ritual of entry, expectations regarding the interior, permanence, exterior framing, aesthetic appreciation, and exit… in a back-and-forth between physical sensations, feelings, emotions, and thoughts, all tied to the personal experiences and memories of each user.

The installation of the Adapt Cube fulfilled its functional purpose during the internal evaluation process at the 5th CIAUD Research Seminar. Two screens placed inside it were used to present the various projects developed by the ADAPT Group. However, it was primarily the corporeal-spatial experience (Figure 12.7) that enabled impactful reception and appreciation by the committee members.

Figure 12.7 The reception narrative of the Adapt Cube.

After fulfilling its initial function, the installation's potential extends to other uses, highlighting its status as a meta-functional condition. This prior matter can further adopt various materialities and be coated with any material, evoking the idea of reutilization for valuing. One of the added-values is to use it as a test chamber for research related to neuroarchitecture experiments. Through *trans-figuration* operations (alterations in coverings, textures, colour schemes, mirrors, and lighting) and *transformation* of its interior (changes in internal geometric shape),[4] the cube will lend itself to various reception experiments, using the Kansei method to understand user's feelings, sensations and emotions responses to design elements. The Adapt Cube installation theme, which led to this chapter, also served as a preliminary trial for the embryo project entitled "Architectural Storytelling", approved by the CIAUD Internal Evaluation Committee during the 5th Research Seminar.

Imaginary Narratives – Cultural References

Although the architectural design practices and construction are, in themselves, narrative processes of conception and execution, like those we have just identified and described, there exists a whole set of cultural narrative references a priori,

which are sometimes conscious during the creative process, sometimes unconscious, and still other references found a posteriori through recognition analogies.

Some of these cultural references, stemming from philosophy, art, and the architectural discipline itself, belong to the imaginary narrative we present below, regardless of whether they were conscious, unconscious, or unknown during the conceptual and constructive processes.

In the field of architecture, we are aware of various wooden construction systems and the principles of G. Semper: related to the "*tectonic"* category, originally associated with wooden constructions and the post-beam system; the structural form that results from the materiality-technical binomial; and the "principle of cladding". Among some contemporary architectural paradigms of reference, we highlight: the construction system by overlapping and screwing beams in the buildings of P. Zumthor's Zinc Mine Museum, and the modular cubic grid structures of K. Kuma's GC Prostho Museum.

Bruno Zevi attempted to delineate the territories of painting, sculpture, and architecture by attributing to them successive dimensionalities and distinct modes of observation: painting connected to the second dimension and the frontality of the observer; sculpture connected to three-dimensionality and the dynamic contemplation of the observer around it; and architecture connected to the fourth dimension, by introducing the movement of the body within its interior space[5]. However, certain works of modern and contemporary art have blurred these dimensional boundaries.

In the book "The History of the Cube, Minimal Art and Phenomenology", Simón Marchán refers to the creation of a new aesthetic space: "between", referring to "art" halfway between artefact, sculpture, and architecture.[6] Examples of "between", that we took as references, are the minimalistic cubic sculptures that contain interior spaces such as: Sol Lewitt's grid modular cubes; the empty Oteiza's metaphysical boxes (Figure 12.8); and Carl Andre's wood crossed blocks.

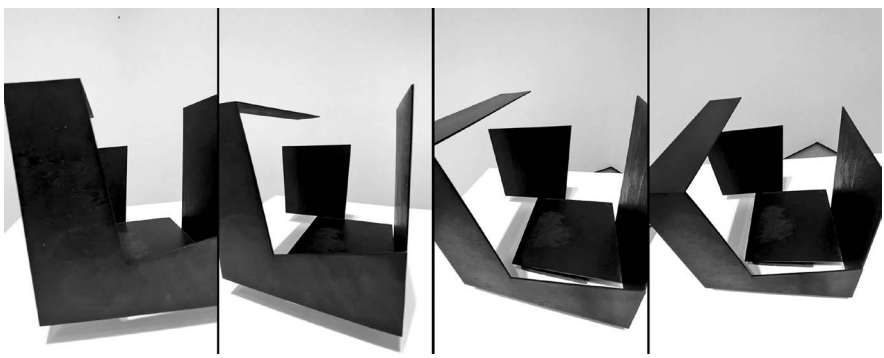

Figure 12.8 Experience of Oteiza's metaphysical box.

Source: Photos by authors.

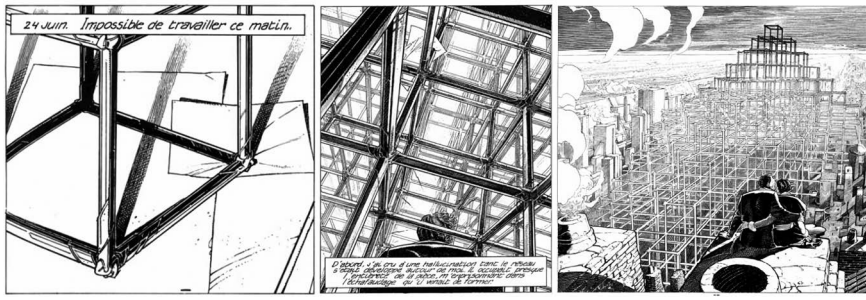

Figure 12.9 Grid cubic lattice from *La fièvre d'Urbicande* by François Schuiten.

As an experimental installation, the Adapt Cube is tridimensional grid that co-exists simultaneously in abstract and concrete realm. The model is ideally infinite and permits for endless interpretations as in Sol Lewitt "Variations of Incomplete Open Cubes" and its further variations through appropriation and concretization. This connection to the abstractness of the cubic lattice preserves the model's potential for formal flexibility – the form of Adapt Cube can be infinitely changed, subtracted or added. It can be altered in form and also in scale, converted into a piece of furniture or a whole city. Nevertheless, the principal aesthetic condition of the cube is intentionally meta-functional.

The Adapt Cube stems from this symbiosis between architecture and *conceptual art* grounded in the Platonic form of cube and the *metaphor of the box*[7]; composed of a structural mesh and intersects it with objectual art, materialized in the wooden structure, covered with reused wooden doors, recovered from demolitions of old buildings. The model converts recovered elements from "Objet Trouvé" and "Ready-Made" (in the manner of Marcel Duchamp) to objectual art, constituting a para-architectural[8] artefact, between sculptural installation and architecture. In phenomenological terms, the Adapt Cube unfolds the visual perception of an object into the spatial experience of the body, both around it and within it, in the invitation to the interstitial and interior space.

In its conceptual extensiveness the ADAPT abstract grid resembles cubic lattice from François Schuiten's and Benoît Peeter's *La fièvre d'Urbicande* (1985) which expanded uncontrollably from a single cube to a mega-structure invading and dominating the city of Urbicande (Figure 12.9).

Other Narratives Derived from the Adapt Cube

The Adapt Cube constituted the conceptual pre-architectural model for the subsequent creation of experimental houses for students and emergencies. In the context of the major current challenges related to climate change, consumer society, social crises caused by real estate speculation, gentrification, wars, migrations, and natural disasters, which corresponded to the theme of the Designing in Times of

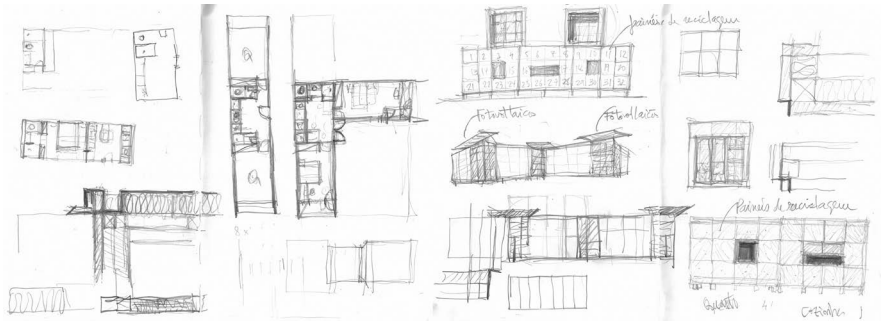

Figure 12.10 Hand sketches for student and emergency residential module by Jorge Cruz Pinto.

Crisis Seminar (2021) and the book in which this chapter is included, we proposed the design and construction of experimental houses for students and emergencies (Figure 12.10). The design of the experimental houses utilizes the same modular structural principles and recycling of construction materials and architectural elements as the Adapt Cube. However, it introduces other possibilities that make it a potential housing unit: being easily transportable due to its dimensions of 6.00 m × 2.30 m × 2.70 m; being energy efficient through the integration of photovoltaic panels and green roofs; separating and articulating water modules (bathrooms and kitchens) and dry modules (bedrooms-living rooms); and providing distinct forms of architectural and urban compositions through patios, sequences, and stacking (Figure 12.11).

Adapt Cube and Reutilization for Valuing

When built and brought into actuality, the abstract grid of Adapt Cube becomes para-architectural matter appropriate for architectural and sculptural exploration and interpretation, production and reception. As it gains its form in physical reality, the Adapt Cube permits different outer-inner[9] bodily experiences such as approximation, entering, penetration, immersion, escaping, and separation, turning it into

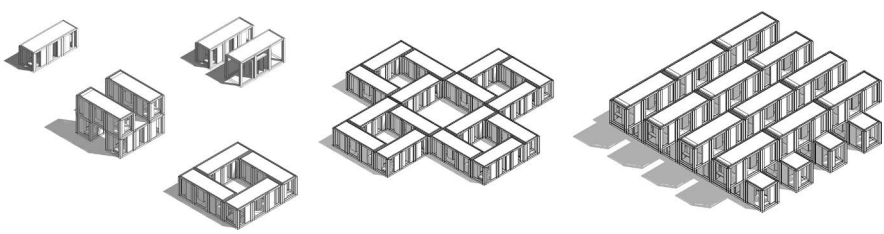

Figure 12.11 Agglomeration and stacking solutions for student and emergency residential modules by Ljiljana Čavić.

quasi-inhabitable or inhabitable space. From being an abstract idea of limitless, the Adapt Cube is turned into concrete matter of limiting and confinement.

This, a priori matter of Adapt Cube, can further adopt various materialities and be coated with any material. Here we evoke the idea of reutilization for valuing. We use residua or debris without finality together with spolia,[10] spoliation, and espolium, and put them into a process of reappraisal. This process adds new values to existing goods and elements removed and withdrawn from their original contexts without erasing their original qualities. Many of these components, such as handmade carpentry and metalwork elements with rich decorative and constructive details, constitute by themselves a great value full of memory and history in the context of arts and crafts traditions, and human experience they witness. Differently from up-cylcing, that reinvents the object, the **reutilization for valuing** ads a new layer of significance without negating its previous ones. In that sense the Adapt Cube extends the current "regime of materiality"[11] that is based on recycling, down-cycling, and up-cycling.

The openness of the Adapt Cube's concept and narrative principles, combined with its pedagogical and didactic potential, as well as its phenomenological capacity to accommodate reception and imaginary narratives, creates pathways for additional narratives and multilevel interpretations across various contexts.

Notes

1 The ADAPT research group (architecture + design/drawing + art + project + theory/technology) group is a heterogeneous research group of the CIAUD research centre at the Lisbon School of Architecture. https://adaptlab.fa.ulisboa.pt/
2 CIAUD – Centro de Investigação em Arquitetura Urbanismo e Design – An interdisciplinary research centre in the fields of Architecture, Urbanism, Design and Ergonomics with a focus on project, culture, environment, society and innovation, https://ciaud.fa.ulisboa.pt/index.php/en/
3 We express our gratitude for the participation in the ADAPT workshop of our colleagues: Ana Vasconcelos, Maria Rita Pais, Nuno Montenegro, Pedro Cabrito, and Stefanos Antoniadis; as well as the technicians Ricardo Isidro (from the School workshop), Miguel Miranda, and Daniela Barreto (from the communication office); and the group of students.
4 About architectural operations of *transfiguration* and *transformation* cf. CRUZ PINTO, Jorge, "O Espaço-Limite, produção e recepção em arquitectura", ed. ABC+FAUTL, Lisboa, 2007, chap. 2.
5 Cf. Zevi, Bruno, "Saber Ver a Arquitectura", ed. Arcadia, Lisboa, 1977.
6 Marchán, Simón, " La História del Cubo, Minimal Art y Fenomenologia", Ediciones Rekalde, SL, Bilbao, 1994. p. 21.
7 Cf. Cruz Pinto, Jorge, "A Caixa – metáfora e arquitectura", ed. ACD+FAUTL, Lisboa, 2007.
8 The concept of Para-architecture refers to the ambiguous habitable, almost habitable, or imaginatively habitable spatiality between architecture, painting, sculpture, and installation ... under the praise of emptiness. Cf. Cruz Pinto, Jorge, "A Caixa – metáfora e arquitectura", ed. ACD+FAUTL, Lisboa, 2007, chap. V.
9 More on Outer and Inner space in Cavic, L. (2021) 'Outer, Inner and absent space: Towards an epistemological grid for urban-architectural observations'.
10 Spolia (Latin: "spoils"; sg.:spolium).

11 "Regimes of materiality encapsulate the characteristic features of the prevailing approaches to materiality at certain moments in history, the consensus on which those features are built, and the controversies and contradictions that mark the limits of that consensus" From, the materiality of architecture, Antoine Picon (2020, p. 12).

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Note: – *Italicized* page references refer to figures, **bold** references refer to tables, and page references with "n" refer to endnotes.