

Conference Proceedings

International Conference

Making Healthy Cities for People HURBE2021

Education, research, practice in planning, architecture and
engineering

4-5 October 2021

Faculty of Architecture, University of Sarajevo
Sarajevo, Bosnia and Herzegovina

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Making Healthy Cities for People

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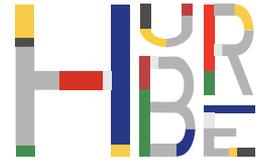
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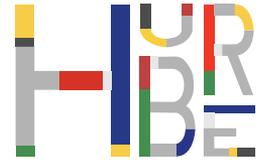
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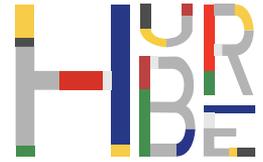
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Introduction

Making Healthy Cities for People

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HURBE project coordinator
Head of Conference*

The International Conference HURBE2021 “Making healthy cities for people. Education, research and practice in planning, architecture, and engineering” is the final and at the same time the first step of the project Capacity Building in the Field of Higher Education (CBHE- KA2) “Healthy URBan Environment Developing Higher Education in Architecture and Construction in Bosnia and Herzegovina - HURBE” co-financed by European Commission (2018-2021).

The Conference was launched by the HURBE consortium that consists of three Higher Education Institutions (HEIs) from programme countries - Sapienza University of Rome, Italy (coordinator); the University of Zagreb, Faculty of Architecture, Croatia; University of Architecture, Civil Engineering and Geodesy, Bulgaria - and three partner country HEIs in Bosnia and Herzegovina (BiH) - Džemal Bijedić University of Mostar; the University of Sarajevo, Faculty of Architecture, and University of Zenica - plus six associated partners from different parts of Europe - the Center for Information and Recognition, BiH; European Association for Architectural Education; Federal Ministry of Education and Science, BiH; Federal Ministry of Health, BiH; Mediterranean Universities Union and the Italian Ministry for Universities and Research of Italy, Office for Internationalization of Higher Education.

HURBE consortium worked for three years on the modernisation of curriculum in the partner country universities through the development of new and innovative courses and installing specialized laboratories dedicated to operating in the field of the Healthy Urban Environment. Despite the COVID-19 pandemic, the project was able to reach its objectives and achieve the following results in the Bosnian HEIs:

- Six new courses on ‘Healthy Urban Environment’ were designed, approved, and delivered.
- Three laboratories equipped with specific instruments, were installed, and used by students and researchers.
- Two Massive Open Online Courses (MOOCs) “Healthy urban environment. Spatial Planning and Architecture” and “Healthy urban environment. Engineering” were designed, recorded, and submitted. These courses are currently available online for all types of participants.

Although, this text is not the 'place' to describe in detail the HURBE project, and also because it is difficult to summarize all the efforts that the consortium members exerted to study, discuss and share their experiences, the brief description written above, allows the readers to have an idea of the context in which the consortium operated for the organisation of the conference HURBE2021

The HURBE2021 conference aimed to share interdisciplinary visions, studies, plans, projects, and experiences for making a 'Healthy City'. It connected scholars and practitioners in the HURBE project countries and the surrounding region, as follows: Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Italy, Kosovo, Montenegro, North Macedonia, Romania, Serbia, and Slovenia. The project consortium decided to open the conference call on 30.11.2020. The call focused on these countries to initiate a dialogue and enhance collaborations on a regional scale. This represents a step towards a long-term vision for the establishment of a regional association and/or network that addresses on the themes of healthy urban environment.

The design of a healthy city requires a holistic approach that overcomes sectorial visions and effectively enhances people's health. After the Covid-19 pandemic, the topic has become even more actual and urgent. It is a challenge for all disciplines in the architecture and engineering fields, moving through a process of interdisciplinary or transdisciplinary collaborations with other disciplines (such as sociology, anthropology, economics, environmental health, medicine and others).

In the last twenty years, the rise of inhabitants in urban areas is a growing trend: in 2018 55% of the world population live in urban areas, and according to the last projection is expected to reach 68% by 2050 (UN 2018; Ritchie and Roser 2018). The world's cities occupy just 3 % of the earth's land, but the most significant consumption processes take place in them. The cities consume between 60 and 80 percent of energy, they generate 70 percent of human-induced greenhouse gas emissions, they produce 70 percent of global waste and, indeed, they are the hubs of the world economy for 70 percent (UN). In this framework, Europe is a region with a high density of urban population, where more than 74% of the population live in urban area, and the density is 34 people per square kilometre on the total land area of 22,134,900 square kilometre (Eurostat 2016; Worldmeter 2021). Although it is characterized by low fertility rates, population decrease, and significant diversity in urbanization levels of each country, Europe is the third continent in the world, after Asia and Africa, in terms of population number.

The 2030 Agenda for Sustainable Development, which includes the Sustainable Development Goals, highlights the global importance to build "A world with equitable and universal access to quality education at all levels, to health care and social protection, where physical, mental and social well-being are assured" shortly a world where the people's 'health' is at the core.

In fact, "Health is a state of complete physical, mental, and social well-being, and not merely the absence of disease or infirmity (WHO 1948)" and it is "A resource for everyday life, not the objective of living. Health is a positive concept emphasizing social and personal resources, as well as physical capacities"... "Health is created and lived by people within the settings of their everyday life; where they learn, work, play, and love" (WHO, The Ottawa Charter, 1986). The definition of health is constantly evolving because health is a dynamic state of well-being depending on the interaction among different kinds of determinants like the individual, social, and environmental ones. The health is strictly interconnected to the environment where we get born, live, grow, love, work,

and age. The environment is made by natural resources like water, air, soil, forest, etc. and ‘places’ as housing, buildings, streets, routes, green area, and so on. For these reasons, building a healthy city is as a long-term process, not an outcome. A healthy city is a city “that is continually creates and improves its physical and social environments and expands the community resources that enable people to mutually support each other in performing all the functions of life and developing to their maximum potential” (Health Promotion Glossary, WHO 1998).

According to international official documents, the topic of the healthy city is a vast one and it ranges from the promotion of ‘caring and supportive environments’ to ‘healthy living’ and ‘healthy urban environment design’. The actions for developing the ‘Healthy urban environment and design’ interest a wide range of aspects as urban planning, urban design, creativity and liveability, climate change and public emergencies, safety and security, transport, exposure to noise and pollution, and housing and regeneration (WHO-EHCN 2009).

These brief considerations clearly show the role of the architecture and engineering disciplines in the processes of planning, building, maintenance, and regeneration of the urban environment, while promoting and enhancing people’s health. Making a healthy city involves different scales of intervention: the level of the city, neighbourhood, local environment, and building. Whatever the scale of intervention of this process is, it must be developed in a constant dialogue with the cities’ users, and through an exchange with other disciplines.

The political strategies and decisions play a crucial role in the activation of those processes. Health is a human right and so it is the right to the city, for that reason with a syllogism, it is possible to argue that the city is a driving force for the right to health.

In this framework, the steering, scientific, and organizing committee of the HURBE consortium identified three thematic areas for the international conference. These areas cover various strategies, projects, and actions that directly influence the health of citizens. They are identified as described below.

- Healthy spatial planning: integrating health considerations into urban planning processes, programmes, and projects, especially emphasizing master planning, transport accessibility, and neighbourhood planning.
- Healthy urban and architectural design: integrating health considerations in creating socially supportive environments, enhancing cities’ distinctive and multifaceted cultural assets in urban design, and promoting designs that meet all citizens’ expectations for safety, accessibility, comfort, and active living. This thematic area also includes the topics of housing, creativity, and all relevant subtopics related to healthy urban and architectural design.
- Healthy engineering: integrating health considerations into technical design, construction, operation, and processes, with specific attention to the building and mechanical engineering-related branches such as the noise reduction in all its forms, air pollution, toxic and health-damaging substances, and the potentialities of modern technologies like the Internet of Things (IoT).

The conference organizers invited researchers, professionals, and experts to exchange and share their experiences, in relevance to the thematic areas, in the fields of teaching, research and practice, concentrating on the region of the interest of the consortium.

The members of the steering, scientific and organizing committee of the HURBE consortium, with the members of the international scientific committee, represent the full scientific board that guarantees the quality of the blind peer-reviewing of all contributions. The scientific board members accepted 36 papers, that were presented by professors, researchers, PhD students, and practitioners from Albania (2), Bosnia and Herzegovina (7), Bulgaria (6), Croatia (4), Italy (9), Kosovo (2), North Macedonia (2), Romania (1), Serbia (2) and Slovenia (1). Most of the authors positioned their papers in the thematic area “Healthy urban and architectural design”, and in the field of ‘Science/Research’ (23), the remaining papers addressed experiences in ‘Teaching’ and in the ‘Field of practice’. In the feedbacks of the first reviewing process, the scientific board members invited most authors to highlight the direct links between their work and the topic of health, which in some cases were not clear, taking into consideration, that every anthropic planning and transformation process within the city generates an impact, directly or indirectly, on the human health. After the second reviewing process, 31 papers were presented in their final version.

The HURBE proceedings book is divided into three sections, according to the thematic areas identified by the steering, scientific, and organizing committee, respecting the choice made by each author, or group of authors, to allocate in one of the areas the paper: healthy spatial planning, healthy urban and architectural design, and healthy engineering. For each section, an overview written by HURBE consortium members highlights the most important aspects that emerged from the papers.

Matching and elaborating the keywords indicated by the authors to identify the arguments of their papers, it is interesting to focalize the attention on two specific words: health, and its adjective healthy, and urban, to understand the link with the other ‘keywords’ or ‘key adjectives’, written by the authors, to limit and describe their papers. The result of this ‘matching’ is represented in the figure below. It shows the main fields of interest of the selected papers and the connections between ‘health’ and ‘urban’, and the words or adjectives associated with each of them.

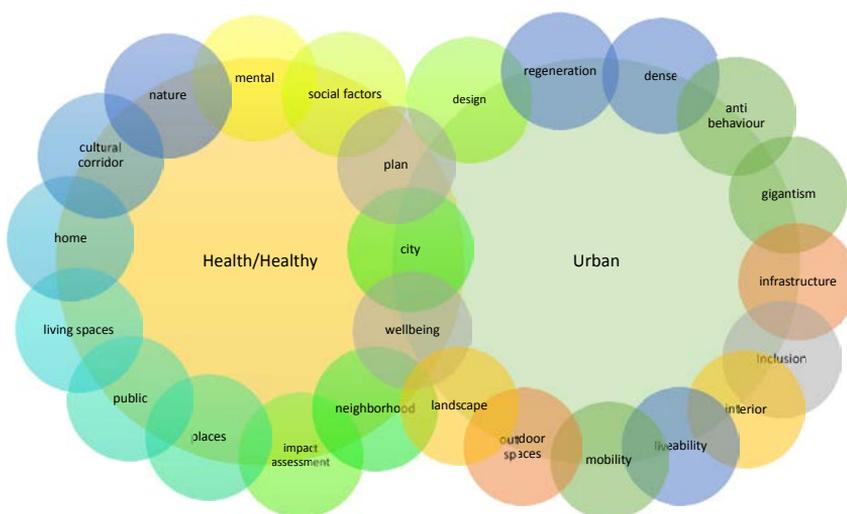


Figure 1: ‘Health’ (or Healthy) and ‘Urban’: keywords elaborated from papers and their connections (by Author).

At the beginning of this introduction, I wrote that HURBE 2021 is the last step of the HURBE project, but at the same time, it is only the first step for achieving other results. In fact, this first edition of the conference will be followed by future biennial appointments to share experiences and expand the vision of designing healthy cities. The second edition of HURBE international conference is planned in 2023 in Croatia.

The steering, scientific, and organizing committee of the HURBE consortium is currently working on the creation of a network between universities and institutions from the conference countries. This network is dedicated to the topic of 'healthy urban environment'. It will provide a space for exchanging and discussing experiences in the fields of research, teaching, and practice. It will boost cooperation between academics and external stakeholders. It will provide various benefits through the activities promoted within it (exchange of researchers, application for European funds, project design support, conference organization, etc.).

Before concluding, a sincere thank you is due to our dear colleague and project member, Dženana Bijedić, who passed away on 16.06.2021. Professor Bijedić's holistic approach to architecture, urbanism and environmental protection was an inspiration through the whole project. On the behalf of the local coordinators - Professors Senaida Halilović-Terzić, Samir Lemeš, Vesna Mikić, Maja Roso Popovac, and Milena Tasheva-Petrova - and on behalf of all the academic team, I thank her for all her valuable contributions. Her memory and ideas will continue to live and inspire through every project member.

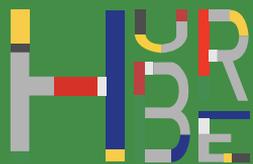
Finally, I express my gratitude to all the members of the international scientific committee. Their contribution was the key to enhancing the scientific quality, internationalisation level, and promotion of the first edition of HURBE 2021 conference. I, also, thank all the esteemed authors for their contributions and trust.

“Making a healthy city is a long process of co-creating and co-dreaming the future of the city in which we live. Let's starts to dream!” (Author).

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Healthy Urban and Architectural Design



Overview

Healthy Urban and Architectural Design

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The second thematic area of the conference “Healthy Urban and Architectural Design” follows the principles presented in the conference’s main introduction. The emphasis is on integrating health values into a socially stimulating environment, improving the distinctive and multiple cultural assets of cities in urban design, and on working to promote designs that meet the expectations of all citizens in terms of safety, accessibility, comfort, and active living.

Within this thematic area, we would like to emphasize the role of universal design and highlight the fragility of the ecosphere amid the ecological crisis and global health situation. References are made to the HURBE project, in which it is emphasized that the WHO is working actively to create initiatives and networks that tackle urgent common and interlinked challenges affecting our countries, cities and communities today. The WHO European Healthy Cities Network’s actions encourage public administrations and institutions to develop commitment, partnership-based planning and capacity-building initiatives for inspiration and learning for European cities that contribute to equitable health and well-being. The EU Commission in “ERA-NET on Smart Urban Futures” underlines the importance of stimulating projects that can provide applicable tools and methods for sustainable, open, innovative and inclusive urban areas.

It is worth asking what a truly sustainable future looks like. Can we use our creative talents to rebuild our cities and make them more sustainable? What role can or should technology play in this? And what impact does art have on sustainability and vice versa?

There is no healthy urban environment without universal design, which we define as generally applicable design. In other words, it must be as accessible as possible for all people without any additional adaptations or need to use specialized design. In the process of working on the design, it is necessary to include other factors, such as cultural and gender differences, safeguarding the environment, technical and technological solutions, as well as all taking into consideration the economic aspects.

The second thematic area of the conference “Healthy Urban and Architectural Design” follows the principles presented in the conference’s main introduction. The emphasis is on integrating health values into a socially stimulating environment, improving the distinctive and multiple cultural assets of cities in urban design, and on working to promote designs that meet the expectations of all citizens in terms of safety, accessibility, comfort, and active living.

Within this thematic area, we would like to emphasize the role of universal design and highlight the fragility of the ecosphere amid the ecological crisis and global health situation. References are made to the HURBE project, in which it is emphasized that the WHO is working actively to create initiatives and networks that tackle urgent common and interlinked challenges affecting our countries, cities and communities today. The WHO European Healthy Cities Network’s actions encourage public administrations and institutions to develop commitment, partnership-based planning and capacity-building initiatives for inspiration and learning for European cities that contribute to equitable health and well-being. The EU Commission in “ERA-NET on Smart Urban Futures” underlines the importance of stimulating projects that can provide applicable tools and methods for sustainable, open, innovative and inclusive urban areas.

It is worth asking what a truly sustainable future looks like. Can we use our creative talents to rebuild our cities and make them more sustainable? What role can or should technology play in this? And what impact does art have on sustainability and vice versa?

There is no healthy urban environment without universal design, which we define as generally applicable design. In other words, it must be as accessible as possible for all people without any additional adaptations or need to use specialized design. In the process of working on the design, it is necessary to include other factors, such as cultural and gender differences, safeguarding the environment, technical and technological solutions, as well as all taking into consideration the economic aspects.

The second framework of this thematic area is the WHO’s determinants of health, which are strongly affected by the urban and architectural choices – in both the design to technological dimension: healthy lifestyle, social support networks, employment, accessibility, local food production, buildings and traffic safety, equality in belonging to the local community, air quality and aesthetics, sanitary water and drainage quality, soil and mineral quality, stable climate.

The scientific papers included in this section of the conference deal with the urban and architectural design of various scales and typologies. The urban and architectural design opens up topics from city scales to buildings, from urban design to neighbourhoods and interiors. In any case, an interdisciplinary approach is necessary, to reach a space of appropriate identity and aesthetics. Our space should not only be safe but also provide a sense of belonging and the possibility of social interactions. Being healthy does not only mean the absence of disease but a complete state of physical, mental and social well-being.¹

It is no surprise that most of the papers at the conference consider housing when we know that we have been in a pandemic environment for the second year. Our living spaces have also become spaces of work, education, recreation, various social interactions in the virtual space, all done from one physical place - the apartment. We became even more aware of the necessity and need for direct social interactions, the importance of social connection. After the initial concern about

1 <https://www.who.int/about/governance/constitution#:~:text=Health%20is%20a%20state%20of,belief%2C%20economic%20or%20social%20condition>

physical health, we began to realize the values of mental health, our autonomy, but also the need to establish ties with fellow citizens. The concept of living space is in a constant process of change, in line with technological advances, but the pandemic shock highlighted the need for adaptability as well as further compounding and condensation of functions and multifunctional living space organizations.

A sudden change in the social environment leads to changes in thinking processes, where educational processes are a reflection of the current moment. Future professionals learn how to react to current social changes, how to be a part of those changes. Education is emerging as an essential component of our healthy future. The group of authors in their works emphasizes the need to include the concepts of health, sustainability, and improving the quality of life in a methodologically and technically correct way. The issue of adapting to the existing, built-up urban environment is something what we have been debating for a long time, especially today in the light of sustainable development. In addition to the learning process, we also discuss learning spaces at the conference. The modernist legacy continues to teach us important lessons about health.

Topics of inclusion and general well-being were highlighted through this section of the conference. Therefore, some papers emphasize the need to achieve better social cohesion through smaller-scale interventions in public space. It emphasizes and calls for the design to be universal, for all age groups, especially those of the third age, to realize their needs and develop as a person and as a collective.

Open public spaces are places focused on the visitor experience as well as places of different interactions. The interrelation of space at the level of the human scale with the need to connect with infrastructural paths is one of the challenges of today. We are aware that urban spaces have a negative impact on personal and public health. It is necessary to introduce sustainable modes of transport in traditional/existing city patterns and to place certain 'occupied' zones at the service of citizens.

A higher quality of life in urban areas cannot be separated from proper urban and architectural design. Areas under urban areas as well as the number of their inhabitants are constantly growing, and the city is becoming a central place to address issues of general health and well-being of the human population. Architectural (and civil engineering) discipline occupies a significant place in building a physical and social environment for the benefit of the community, considering issues of safety, accessibility to all public services with special reference to disadvantaged users.

Architects and urban designers - from both academia and practice - play a significant role in enhancing the physical built environments' ability to adapt and seize opportunities; changing current approaches and systems of processes that lead to a ripple effect for an equitable, inclusive, and sustainable development on various scales. Active collaboration between scholars, actors of the built environment, local community members and decision-makers is key for the active transformation towards a city for all its citizens: inclusive, supportive, sensitive, and responsive to their diverse needs and expectations. In this section, authors transmit and disseminate innovative work by sharing both research, and accomplished projects to boost interdisciplinarity, creativity and dialogue for the development of urban and architectural approaches for healthy, resilient and inclusive cities.

Healthy and Inclusive Cities. Overcoming Architectural Barriers, in the Social, Safety, and Health Spheres of the URBAN-HUMAN Interaction Systems

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ABSTRACT

The essay assumes the concept of “health” not as an urban reality that has already reached a particular health status, but rather an active and participatory city that is committed to guaranteeing greater conditions of comfort and well-being to the citizens. In this context are introduced some theoretical and applied experiments on the territory of Friuli-Venezia Giulia - a region of the north-east of Italy - to prepare the PEBA, Plan for the Elimination of Architectural Barriers, to increase the accessibility and the use of public spaces in the cities. The focus is shifted from the quality of the public space towards the quality of the whole process that precedes the planning and programming phases. The experiments are at the basis of the international guidelines of universal design and planning, sanctioned by the United Nations Convention on the rights of persons with disabilities and in line with the objectives of the 2030 Agenda for Sustainable Development, following also the local provisions referred to the Friuli - Venezia Giulia Regional Law 10 / 2019, “Principi generali e disposizioni attuative in materia di accessibilità”.

Keywords: *Healthiness, Urban Inclusion, Citizen wellness, Accessibility strategies, User's-oriented design.*

INTRODUCTION

Placed in the current and advanced cultural and social context and adopting the international guidelines of universal planning enshrined in the United Nations Convention on the rights of persons with *disabilities*¹, and in line with the objectives of the 2030 Agenda for Sustainable Development, the methodology and the research presented aim to guarantee and promote active participation in the social life of all users. Interacting and communicating are some of the criteria that, according to the United Nations Organization (WHO European Healthy Cities Network)², contribute to defining a “healthy” city. This is not an urban reality that has already reached a particular health status, but rather an active and participatory city that is committed to guaranteeing greater conditions of comfort and well-being to the citizens who live and enjoy it in everyday life/activities.

Therefore, it is not just a matter of the number of public spaces, but it's about quality, to guarantee widespread accessibility in all urban areas. The urban “room” is therefore not a neutral scenario, but an operating system, within which the built environments and social spaces become key focal points (Angelucci, Cellucci; 2019). The interaction that is established between them and the community represents the element on which to act in order to guarantee to all people a full expression of their abilities and the achievement of the maximum possible autonomy.

On these bases, the in-depth analysis conducted by the research group of the *Laboratorio dalt of the University of Udine*³, aims at translating people's needs into concrete actions improving health (physical, mental, and/or social).

A holistic and transdisciplinary approach has been adopted at the different scales of the project (from urban planning to the design of equipment and furnishings) inside of a synergic dialogue with local administrations and governance bodies. The contribution takes the opportunity to present some applied experiments carried out in the field of environmental accessibility on the territory of the Friuli-Venezia Giulia region (FVG) - a territory of north-eastern Italy with cross-border importance - with a specific focus on urban itineraries; this is an opportunity to study the social, collective, and urban well-being, through the use of tools and methodologies capable of shifting the focus from the quality of the space to the quality of the whole process, that presides over design and management.

EXPERIMENTS AND METHODOLOGIES

The subject of inclusive living (considered in its broadest sense of “dwelling”) has been the subject of various studies, researches, and experiments conducted over the years within the UniUD Dalt and Space Lab⁴ research units⁵, assuming the

1 The Convention on the Rights of Persons with Disabilities was adopted on 13 December 2006 at the United Nations Headquarters in New York; it was authorized by Law March 3, 2009.

2 <https://www.euro.who.int/en/health-topics/environment-and-health/urban-health/who-european-healthy-cities-network>, WHO's website, World Health Organization, viewed on June, 2021.

3 The Laboratorio dalt (design for all, accessibility, thesis and research laboratory) is a structure afferent to the Polytechnic Department of Engineering and Architecture of the University of Udine, with Prof. Christina Conti as scientific supervisor.

4 Space Lab is a laboratory of the Polytechnic Department of Engineering and Architecture of the University of Udine. It deals with the architecture of new spaces, the reuse and enhancement of existing buildings, technological process and product innovation. Principal Investigators: prof. Christina Conti, prof. Giovanni La Varra.

5 Among the researches conducted (in addition to those covered by this essay), we note for further information “The inclusive city. Borgo Grazzano, Udine (2018-2020); “Casa Zero Barriere” (2017); “Experimental City. Beyond the Borders of Living (2016, with the participation of the Municipality of Udine); “L.E.B.A., Laboratory for the Elimination of Architectural Barriers, developed by the Municipality of Udine and, specifically, the focus” Survey and analysis of accessibility to commercial establishments in Via Mercatovechio, Udine (2016); “Il Nastro verde”, teaching and research initiatives of the University of Udine and of the University of Trieste in the field

concept of accessibility as defined by the United Nations Convention on the Rights of Persons with Disabilities⁶. These experiences have in common the objective of improving people's lives by implementing environmental accessibility as a macro requirement in response to the functional needs of use and space interaction. This is made possible through the elimination of physical and sensory-perceptual barriers within a structured and coordinated whole project, considering the single barrier as part of a larger urban environment.

In the textures and fabrics (streets, squares, buildings) of the city, people meet and socialize. The more they can choose independently how and where to move (Baratta, Conti, Tatano; 2019), the more the urban environment is fair. The design of urban spaces, therefore, must be defined following the holistic principles of Universal Design (UD), with particular reference to usability, considered as identical or equivalent accessibility for all. In addition, the simple and intuitive use of urban itineraries and the containment of physical effort, enhance the facilitation of the use of spaces.

There are numerous experiments applied, which implement these principles that can be looked at to understand the real elements that are an integral part of inclusive planning. Among them, we may mention an urban design experience based on the UD vision, located within the reference territorial context of Friuli-Venezia Giulia: the "Inclusive Urban Park of San Valentino", in Pordenone⁷. The overall project is composed of a sum of individual works and assumes a single key objective: to allow the user the maximum possible interaction with the environment regardless of individual characteristics. This guarantees widespread usability to all (children, adults, elderly). The common thread that permeates all the units of the project is the concept of safety, which can be found:

- in the number of accessible parking spaces for users with disabilities;
- in the reduction of the slopes naturally dictated by the natural orography; in the differentiation of cycle and pedestrian routes;
- in the design details (for example, the seats have a variable height that is also suitable for children);
- in the flooring materials used (for example, a terracotta-colored curb surrounds the entire path, acting as a natural guide for people with visual disabilities and as a safety element for children;
- in the interruption of the curb signals the presence of elements places of interest along the route).

Another example of the application of the UD principles in similar contexts can be identified in the planning experiences of the historic centers of Arezzo and Pisa. Both plans are grafted onto a building and infrastructural heritage similar in terms of typological-functional characteristics. The focus is The implementation of specific interventions that have made the pedestrian connectors (paths and crossings) accessible between the historic center area and the neighboring areas. In Arezzo, the main urban axes have undergone an increase in areas and cycle-pedestrian paths, solving at the same time most of the accessibility problems of the related commercial functions, while the municipal services have been transferred from a series of decentralized offices (substantially inaccessible) to a new multipurpose center obtained from the

of inclusive planning and Design for all (C. Conti, I. Garofolo; 2011/2012).

6 - that is, that set of measures adequate to guarantee access to the physical environment, transport, information, communication and, in general, to all equipment and services open or provided to the public

7 See Global Project Studio – Inclusive architecture <https://www.architetturainclusiva.it/>

recovery of the former barracks in a lot in the historic center. In Pisa, similarly, Piazza Dei Miracoli has been the subject of specific interventions, both in the external paths and in the monumental buildings.

In both cases, the priority of intervention was given to areas with functions open to the public (school, municipal, tourist buildings, etc.) and structures with socio-recreational functions⁸.

As a result of these considerations, from an applicative point of view, there are two research experiences conducted by the dalt Lab that are functional to the definition and validation of the methodology adopted. Both experiences have been conducted on the real case study of the city of Udine⁹. The first one is Cantiere Città¹⁰, a preparatory study to the development of participation activities and definition of the method with the stakeholders. The second one is Abitare Udine¹¹, an experiment conducted jointly with the Municipality of Udine, and CRIBA FVG¹² for the definition of the Peba - *Plan for the Elimination of Architectural Barriers*¹³- for the city of Udine, within the guidelines of the FVG Region¹⁴ implementing the regional law 10/2018 “Principi generali e disposizioni attuative in materia di accessibilità”.

The fundamental methodological aspect for the research presented is exemplified by the differentiation between “path” and “itinerary”. The first is defined by the urban elements that decree its historical and volumetric development (void between the buildings). The second, leads back to a higher level, through the recognition of human interactions with the built environment. The itinerary is identified with the “actions” of the user in the space, as to reach, communicate, and meet, and it is, therefore, the set of possible interactions (needs, requirements, desires) that the user can activate inside of a self-determined space, not a priori, that is chosen in a subjective and personal way. This reflection aims to scientifically synthesize the user’s possibilities (according to the technological design with a systemic approach of needs/performances) to use the space, interpolating the historical-cultural aspects of the routes and the subjective-demanding ones of the itineraries.

8 Marzi, L. (2021). Esperienze nell’ambito della pianificazione dell’accessibilità in ambito urbano. I casi dei centri storici delle città di Arezzo e Pisa, in L’accessibilità nel patrimonio architettonico. Approcci ed esperienze tra tecnologia e restauro, atti del convegno a cura di Germanà, M. L., Prescia, R. Anteferma Edizioni. pp. 194-201

9 Udine is a medium-sized city in Friuli-Venezia Giulia, which today has about 99,736 inhabitants (data source: ISTAT, 2021).

10 The research Cantiere Città (University of Udine, Polytechnic Department of Engineering and Architecture, 2019-2020) analyses a part of the urban fabric of the city of Udine by involving users with multi-sensory subjective needs (A.A. 2019/2020; scientific supervisor: prof. Giovanni Tubaro with research fellow Dr. Mickeal Milocco Borlini).

11 The research project Abitare Udine involved the collaboration of the group of the Lab. dalt of the University of Udine (Laboratory of the Polytechnic Department of Engineering and Architecture, members of the research group: Christina Conti -scientific supervisor-, Silvia Cioci, Elena Frattolin, Mickeal Milocco Borlini, Ambra Pecile, Linda Roveredo, Teresa Sambrotta), of the Municipality of Udine with the coordination of arch. Eddi Dalla Betta and Raffaele Shaurli and of CRIBA (Regional Information Center on Architectural Barriers and Accessibility, technical service of the Regional Council of Associations of Disabled People and their Families CRAD, regional reference center by LR 10/2018). The project is part of the program regulated with agreement implementing the Collaboration Protocol between the University of Udine and Municipality of Udine, 2019.

12 The Regional Information Center on Architectural Barriers and Accessibility -CRIBA FVG- technical service of the Regional Council of the Association of Disabled Persons and their Families of the Friuli Venezia Giulia region -CRAD FVG and single regional reference center pursuant to law 10 of 2018, “ General principles and implementing provisions on accessibility “.

13 The Peba - Plan for the Elimination of Architectural Barriers -introduced in Italy with the Financial Law n.41/1986, is a mandatory planning and monitoring tool that public bodies can use for the management of interventions aimed at the removal of architectural barriers and, consequently, the achievement of greater usability of urban routes, buildings and public spaces for all citizens (Fantini et al; 2019).

14 continuing collaboration with TRIAL_TRieste (DIA, Univeristy of Trieste) Accessibility Lab: Ilaria Garofolo, Elena Marchigiani, Barbara Chiarelli, Andrea Peraz.

Urban space, especially in Mediterranean culture, represents a real “extension” of the private domestic space and actively contributes to the definition of the quality of life of the people who inhabit and live it (Dorato, 2020).

Specifically, the study *Cantiere Città*, conducted between 2019 and 2020, focused on the choice of calibrating the Human-Centered strategies, normally applied to the Web and product design, at the urban scale, thus defining the possible interactions, needs, and performances between the person and the set of artifacts (objects) that define our cities. Through the analysis and study of the relevant scientific literature, the urban experiment combines direct participation with stakeholders, and urban mapping, towards the validation of the arguments, theoretically developed.

Briefly, during the participatory tests, users were asked to report the critical issues encountered (for example, vertical elements positioned on the path, excessive ramp slopes, etc.) assigning each of them a value on a scale from 1 to 5 (where 1 corresponds to high accessibility and 5 to total inaccessibility). All critical issues highlighted by users were then reported on ad hoc questionnaires and subsequently transferred to computer format (database).

The outcome is defined by an archive of forms that collect the criticalities encountered by each user, then interpolated by groups and returned as a set of graphic data that determine - depending on the color - the more or less accessible areas according to the experience of the users involved (fig. 1). Two maps were produced: the first shows the elements of the selected urban routes such as the built lots divided by type (commercial, public, residential/private), locating the pedestrian crossings (distinct for crossings with or without tactile-plantar elements, pedestrian crossings, ramps, and gradients) and parking spaces for disabled people; the second, on the other hand, highlights all the critical points acquired from the subjective experiences of users. Specifically, in this phase, two synthetic schemas have been provided for each set of users; one represents the sum of the criticalities and the other defines the most accessible continuous paths.

On the other hand, in *Abitare Udine*, thanks to the subjective experiences (personal requirements) with stakeholders, highlighted by *Cantiere Città*, the research focused on the analysis of the services, the topographical and historical stratigraphies of the urban agglomeration, to define their importance. This experiment aimed at satisfying - as much as possible - the agile reachability of primary services.

The methodological intervention process has decided to focus its attention on urban itineraries, identifying the priority ones based on the presence of “services to the citizen” and for their historical and cultural value.¹⁵

15 The development of the urban agglomeration is distinguished in two types of fabric: the central one, which develops close to the slopes of the Castle, with a dense character; and the one constituted by a discrete number of residential, productive and military apparatuses (now decommissioned) that are disposed in a non-homogeneous way outside the traces of the old walls, on streets and paths that branch off from the inhabited center. These appendices, which historically have been identified as villages, with a commercial vocation, widen their areas of relevance through secondary streets (alleys) with the intention of recreating a more homogeneous network of communication routes for residential use. The creation of rail and road networks, in the nineteenth century, led to the redefinition of the “new” productive, manufacturing and industrial areas (textiles, transport, communications, clothing, mechanics and metals), in more external and peripheral areas, bringing Udine to become an important regional economic center. In the peri-urban and urban areas prevails a high presence of commercial activities (local micro-economies), banking and administrative activities, with an exponential development - in the last decades - of activities related to culture, primary and secondary education and university.

ACCESSIBLE PUBLIC SPACE

Proper planning and management of public spaces contribute to the quality standards of public life and, in this direction, the PEBA is a tool capable of shifting the focus from the quality of the space to the quality of the entire process that presides over it (design and management). Thus, the new proxemics dictated by the pandemic condition requires more and more attention to the spaces of the body. Urban spaces are no longer to be understood as places to be crossed, but rather as spaces to be re-inhabited (Dorato; 2020). For this to be possible, specific technical-scientific skills are required that know how to read and combine the needs of those who live in the city every day. Good planning is capable of systematizing processes and experiential knowledge that are the result of theoretical and applied research and analysis.

Within the complex structure of the “city system”, the experimentations focused on the systemic analysis of public space as a fundamental component of the urban fabric. This can be defined as a place of public property or public use accessible and usable to all. Public spaces are key elements of social and individual well-being as places of the collective life of communities.¹⁶ They are places of experimentation within which architectural intervention becomes the medium to favor a positive evolution of the physical and social state of the urban environment.

It is within the public space that interpersonal ties, social relations, collective rituals, and innovative ways of participating in community life are manifested. Therefore, the public space is an arena of flows and relationships that combine to define the city, and only through its controlled design is it possible to trigger and promote inclusion and social cohesion processes (Cervesato, Pecile, Roveredo; 2019).

Within the abundant network of public spaces, which cannot be defined as homogeneous¹⁷, the experimentations focused on the connecting elements of the essential services that the city offers to citizens, guaranteeing an autonomous and independent life for as many users as possible. The path (or itinerary), is the first gesture with which man describes the organization of the territory on the ground¹⁸. In addition, the space dedicated to pedestrians is not to be understood only as an infrastructural node, but also as a relational space, which has played and still plays a fundamental role in defining people’s quality of life.

Today, designing and planning urban mobility requires an integrated mixité of criteria concerning safety, well-being, health, accessibility, and inclusion for all those who use public space (Savarese; 2017). It is clear that planning plays a fundamental role in the life of the community, and that all the operations of urban transformation can only start from the identity of the places, expressed by the “space of relationship” generated by the people who live in it¹⁹. Hence the importance of activating moments of participatory mapping; these opportunities do not replace the technical surveys but are completed by them, allowing the administration to raise awareness of the elements that hinder the full usability of the urban fabric, broadening the “urban needs” point of view, and consequently ensuring greater planning results.

16 See Public Space Charter (2013), INU, Biennial of Public Space.

17 Public space cannot be defined homogeneous. It includes open spaces such as streets, sidewalks, squares, gardens, parks, and covered spaces (such as, for example, libraries and museums). Source: Public Space Charter (2013), INU, Biennial of Public Space.

18 Bruggellis P., Pezzulli F. (2006). Spazi comuni. Reiventare la città. Bevivino editore

19 Savarese N. (2017). Il ruolo dello spazio pubblico nel futuro delle città. AR Magazine 120, online edition.



Figure 2: Project section taken from the experimentation “The Inclusive City. Borgo Grazzano, Udine”. Research fellow: The porous city. Urban redevelopment and regeneration in the existing city. Borgo Grazzano in Udine – Cantiere Friuli, 2018-2020. Principal Investigator: prof. Giovanni La Varra | Researcher: Linda Roveredo.

FOCUS: EXPERIENCES OF ANALYSIS AND APPLIED RESEARCH

The healthiness and well-being generated by a space are expressed through the satisfaction of the needs and requirements of the user. For these reasons every project that places human beings and their health at the center of its objectives must necessarily start from the definition of the required framework, considering the active participation of users, bodies, and associations. Consequently, defining the performance aspects and technological requirements allows translating user needs into specific architectural and technological indications (addresses).

Following the seven principles of Universal Design and declining Human-Centered Design (HCD) and User Experience theories,²⁰ experiential profiles (actions in space) are outlined, to be validated with simulation tests thanks to the active participation of a broad spectrum of users.

The small-scale application experiences of Cantiere Città and large-scale of Abitare Udine were accompanied by moments of theoretical study of National Good Practices. In detail, some PEBA²¹ were considered from a wide range of case studies and were selected by their process and method aspects. In this phase, the organized knowledge of national PEBA and the specialized technical skills of their development strategies, have allowed the extrapolation of relevant elements useful to the improvement of the methodology for the PEBA of the Municipality of Udine. The key points of each plan and their contextualization within (if present) the broader regional and/or international guidelines (UN standard 2006) was fundamental.

Best Practices

Through a transversal reading of national case studies, it was possible to identify a series of recurring and specific elements which, within the specific territorial application contexts, were extrapolated and readapted within the methodology developed for the specific case of the city of Udine.

²⁰ For further information on this subject, please refer to the specific bibliography.

²¹ PEBA of Schio, PEBA of Vincenza, PEBA of Valeggio sul Mincio, PEBA città di Paese.

It emerged that in the initial phase of the PEBAs analyzed there was the need to precede all planning choices with a territorial analysis that necessarily takes into account the historical and cultural vocation of the context and that defines a specific direction of planning and design choices. It is useful to systematize the urban and building environment of the city by bringing out a detailed analysis of the “connections”, focusing one’s choices on urban routes and public transport. In other cases, there was the desire to make touristic, cultural, and environmental interests as accessible as possible.

This initial phase must be followed by a careful urban analysis at different scales, that is functional to the definition of specific areas of interest. Thanks to the presence of exclusive polarities, it contributes to defining urban areas of intervention. These are divided into excerpts, to give order and implement the interventions, while being inserted within a network of actions that underline specific decision-making criteria.

The analysis of the urban areas is then followed by a detailed technical survey, (referring to the local legislation in force) that can provide an objective assessment of the critical issues that hinder the full usability of the selected urban areas. Each of these is associated with a “weight” (score), based on the specific strategies adopted upstream by each administration. Through questionnaires (citizen’s forms) and population awareness activities, it is possible to define a strategy for the relief of critical issues. This provides a balance between the elements of the process that interact with financial resources, and with the intervention priorities on a time basis. An emblematic aspect of the plans is the condition of “minimum accessibility” attributed to the buildings and public spaces, which influences the temporal development and the priority of the interventions. In some cases the criticality survey has given priority to schools and municipal buildings, integrating their neighboring areas and reconnecting them to the urban cycle-pedestrian network. This operation makes it possible to create a multi-level system that takes into account any type of “slow” mobility, guaranteeing the use of particular city attractions and highlighting the tourist and commercial vocation of the cities.

From a technical and methodological point of view, the plans envisaged the development of criticality forms interpolated through specific scores to obtain numerical sums that can determine the areas of greatest interest and define temporal planning of the interventions. The participatory activities with the stakeholders have the ultimate aim of placing the user and his needs at the center of planning choices.

Another strong point is the use of georeferencing software (GIS) of various kinds. This choice is functional and strategic to the creation of an interactive and continuously updated database. Thanks to the algorithms that define it, the data entered is allowed to be interpolated based on specific needs defined by the designer and the competent administration.

The intersection of existing software - dynamic and updatable - allows querying the IT system through various discriminators (economic ones, for example) to highlight the intervention priorities while relating the needs and the financial resources of the administration itself.

This methodology is optimal to define planning choices to intervene with accessibility practices in a synergistic and improving manner, considering the entire urban context as a whole.

Abitare Udine, the PEBA to live the city

The research Abitare Udine has taken the entire urban area of the city of Udine as an arena of investigation, intending to prepare a PEBA that is configured as a moment of applied experimentation resulting from cooperation between public institutions and Universities, within a synergistic and virtuous dialogue between administrations and their territory.

In line with the provisions of the Law FVG March 19, 2018 n.10²² and following the “Guidelines for the preparation of the Plan for the Elimination of Architectural Barriers of Friuli Venezia Giulia”²³, the UN Convention of 2006, the survey recognized in the access routes to services the key to identification of intervention priorities. The greater accessibility of personal services determines greater accessibility “between” the points of the urban system, increasing well-being and consequently improving urban health.²⁴

Itineraries have been selected in the routes that cross longitudinally (one ridge) and transversely (several ribs) the urban fabric of the Friulian city (fig. 3).

The result is a geo-referenced and cataloged mapping of the criticalities of urban routes (identified also thanks to a participatory process with stakeholders) and guidelines to be made available to the municipal administration.

These operations are functional to the achievement of a higher quality of the public space and the implementation decision-making processes. The strong participation of government bodies and stakeholder associations has generated a virtuous circuit of validation of applied research, essential for designing guidelines for appointed professionals. The choice to produce georeferenced maps on computer systems wants to marry the qualitative focus from the result in itself (punctual work) to the entire process that presides over it. This evaluates the opportunity to systematize the services and programs offered by the Municipality with the ultimate goal of giving meaning and cohesion to the project of removal of architectural barriers punctually distributed throughout the municipal area.

An urban route to be defined as an itinerary must adopt a systemic methodology that considers each urban element with a vision of unity-totality, not attributable to the mere sum of its constituent parts.

CONCLUSIONS

The results achieved aim at their repeatability and application to other urban realities and therefore for the progressive improvement of the person / built environment interactions, generating flows, itineraries, and increasingly inclusive paths and within everyone’s reach.²⁵

The research experiences discussed above clarify that a higher quality of life for users who live in the city cannot be separated from correct management, planning, and design of urban spaces, especially considering that by 2050 almost 70% of the world population will reside in urban areas.

22 L.R. 10/2018, Principi generali e disposizioni attuative in materia di accessibilità.

23 Linee Guida PEBA FVG, Regione Friuli-Venezia Giulia, June 2020.

24 UNI EN 17161:2019, “Progettazione per tutti - Requisiti di accessibilità per prodotti, beni e servizi progettati secondo l’approccio “Design for all” - Ampliamento della gamma di utenti”

25 United Nations (2018). World Urbanization Prospects.

Therefore, the city becomes the central place of prevention: guaranteeing comfort, safety, accessibility, and usability of spaces. The city requires the redefinition of planning processes, methods, and project criteria, in close collaboration with the administrations, the associations, and all the community.

The common goal must be the design of healthy cities that continually create and improve physical and social environments and expand community resources, meeting the requirements of accessibility, usability, safety, well-being, and comfort, with particular reference to disadvantaged users, unable to access public and private services for economic and cultural reasons (Maspoli; 2018).

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