

XXVIII International Seminar on Urban Form
ISUF2021: URBAN FORM AND THE SUSTAINABLE AND PROSPEROUS CITIES
29th June – 3rd July 2021, Glasgow

Heritage Awareness and Sustainability of Built Environment in Architectural and Urban Design Education: Between best practices and real conditions

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Abstract

This paper presents the initial findings of the project on the Enhancing of Heritage Awareness and Sustainability of Built Environment in Architectural and Urban Design Higher Education (HERSUS), coordinated by University of Belgrade - Faculty of Architecture as a leading higher education institution, with partner institutions of Università Iuav di Venezia, University of Cyprus – Department of Architecture, Aristotle University of Thessaloniki – School of Architecture and University of Sevilla – UNESCO Chair on Built Urban Heritage CREhAR in the digital era. The paper will present the review of the best practices on educating sustainability and heritage, specifically regarding mapping representation of (1) various scales in education, building practice and policy context in each country, and (2) scales across the consortium countries, aiming at identifying strengths connected to methods, materials and teaching experiences.

The purpose of this initial phase is to support the participating Architectural Schools in establishing high-quality standards in the terms of sustainability of the built heritage, through cross-cultural communication and solving problems in an international environment. The paper will present the best practices on educating sustainability of heritage in different schools within European context, hence map (1) the relation of selected teaching courses, built projects and policies in regards to different scales – Landscape planning, Urban planning and design, and Architecture, Construction and Interior design, and (2) provide valuable insight for the context of Serbia regarding teaching and policy recommendations. Having in mind that majority of Serbian Network of Urban Morphology members are participating in this project, as well as the project leader, the special emphasis will be on the morphological perspective. The paper will highlight parallels of conditions and educational practices from different countries with the morphological tradition, observable through the existence of UM regional networks.

Keyword: heritage, sustainability, urban morphology, education, UM regional networks

Introduction

With the intention to preserve historical parts and enable continuity of urban form, and at the same time to enable urban form to cope with everyday challenges, dealing with Heritage and Sustainability from the perspective of urban morphology is more important now than ever. Additionally, in recent years, J.W.R. Whitehand and Kai Gu (2010) reflected on the scale of cultural heritage, elaborating on the shift from individual structures to historical landscapes due to the recognized cultural, educational, intellectual, and economic values. This shift had a twofold impact: (1) it opened a broad field of questions, challenges, and possibilities in protecting various urban tissues, and (2) it challenged traditional higher education of architecture, and urbanism to seek interdisciplinary, multidisciplinary and transdisciplinary approaches.

The paper aims to contribute to the debate of the importance of urban morphology when teaching and learning about Heritage and Sustainability and to present its worth and operative role in architecture and urban design of built heritage while having in mind morphological traditions and relation to the contextual policies of urban development. In the first segment, the paper briefly presents the background and goals of the HERSUS as an overarching research project, and Methodology describing paper conceptual framework and the relation to the results developed within the project. The research segment presents the selected case studies, proposed and analysed by consortium partners, while offering a specific mapping of the cases in relation to the country, scale, and relation between built case studies, educational projects, and policies, hence testifying about contextual conditions, problems and challenges to the treatment of heritage in relation to the sustainability of the built environment, and its understanding within an academic setting.

About HERSUS project

The research is produced as a part of Erasmus+ project titled Enhancing of Heritage Awareness and Sustainability of Built Environment in Architectural and Urban Design Higher Education (HERSUS), realized within the Strategic Partnerships for higher education action type. Through establishing high-level expert groups project aims to analyse critical topics for the modernisation and development of higher education in the field of architectural and urban design across Europe, specifically with the focus on the social and educational value of European cultural heritage.

HERSUS project brings together 41 researchers from 5 countries (Serbia, Italy, Cyprus, Greece, and Spain) which gathered around the mutual goal to design and develop the courses and disseminate them through international training courses, workshops, and a jointly built Sharing Platform. The collaborating organizations are Università Iuav di Venezia (UNESCO Chair: Heritage and Urban Regeneration) - IUAV, University of Cyprus (Department of Architecture) - UCY, Aristotelio Panepistimio Thessalonikis (School of Architecture AUTH) - AUTH, Universidad de Sevilla (UNESCO Chair on Built Urban Heritage in the digital era) - USE and University of Belgrade (Faculty of Architecture) - UB-FA as the lead organization in this project.

Urban morphology, Heritage, and Sustainability

In 2015, J.W.R. Whitehand provided the viewpoint on Conservation, heritage, and urban morphology, highlighting the seminal works of Conzen regarding historical urban landscape (1966) and Larkham on Conservation and the city (1996), but at the same time highlighting the evident gap and underrepresentation of urban morphologists within Heritage organizations, lack of international communication and lack of heritage representation within higher education curricula (Whitehand, 2015). Whitehand also recognized the great variation between countries in conservation and planning practice. Regarding western countries, Rodwell (2009) expressed the opinion that urban morphology is little understood and applied in the UK in contrast to Italy and France regardless of the fact if urban morphology is used as such or not. He also

recognized the acceleration and dynamics of development in historic cities in the Eastern Bloc of Europe, and recognized the possible role of urban morphology, seen in sustainable evolution and development of historic cities in various contexts. Although the focus of the HERSUS project is not solely on urban morphology, having in mind that the project leader is president of the Serbian Network of Urban Morphology (SNUM) and that the core of the UBFA team is made of SNUM members, there is room for deepening the relevance and importance of urban morphology, and for designing and developing curricula which will provide answers for recognized gaps regarding education.

Heritage, Sustainability and Education

The need for the integration of Sustainability and Heritage permeates through the statements of the leading organizations in the field of Architecture. Accordingly, European Association of Architectural Education- EAAE defines that „architecture and architectural education is at the service of the societies it is embedded within and it recognizes the value of heritage, tradition and the contemporary culture“ (EAAE, 2018). Additionally, the Charter UNESCO/UIA for Architectural Education highlights that „architecture, the quality of buildings and the way they relate to their surroundings, respect for the natural and built environment as well as the collective and individual cultural heritage are matters of public concern“ (UNESCO-UIA, 2017). The Charter highlights the need in Architectural education for Awareness of responsibilities toward human, social, cultural, urban, architectural, and environmental values, as well as architectural heritage (ibid). Following this line of reasoning, there is an evident interrelation between heritage and sustainability, but despite clear statements and expressed values, little has been done to shed light on techniques and tools for achieving these ideals within higher education.

Methodology

The paper starts from the assumption that there is a link between successful case studies of built urban and architectural projects, pedagogical and educational models and relevant policies adopted on the local context with the morphological traditions of the country. The conceptual framework is developed on two axes – the vertical that follows the abovementioned case studies and policies and the horizontal that enables mapping of scales (Figure 1). The research is based on the results of the first intellectual output presented in the form of Publication titled Review: Best practices in educating sustainability and heritage (Djokić et al, 2021) edited with the goal to present the local case studies and hence support the Consortium partners in determining high-quality standards regarding sustainability of the built heritage, through cross-cultural and international cooperation. The selection of case studies, data collection, analysis and systematization for the Publication were realized by each of the five HERSUS partners, and was supported by relevant associated partners, institutional representatives and individuals (architectural offices, local bodies, municipalities, etc). The Publication consists of three parts: (1) Pedagogical and Educational Models (4 courses from each of the 5 HERSUS partners – 20 courses in total) – Table 1; (2) Built Architectural and Urban projects (4 projects from

each of the 5 HERSUS partners – 20 projects in total) – Table 2; and (3) Influence of National Policies on the Sustainability of Heritage (one report per each partner organization – 5 reports). This material was the starting ground for the analysis employed in this paper, since it offered valuable overview of different contexts, various methods, materials and teaching experiences that can be further discussed and approached from various perspectives, such as urban morphological one.

Table 1. Selected Case studies of pedagogical and educational models.

Italy - Iuav	Serbia - UBFA	Cyprus - UCY	Greece - AUTH	Spain - USE
1. Integrated Design Lab – Focus 3 Regeneration and Conservation of Historic Buildings and Environments	1. Design Studio 06U	1. Architecture and the Critical History of Ecology	1. Architectural Design Studio II	1. Landscape, City and Architecture in Andalusia
2. Studio 2 Sustainable City Project	2. Green Construction – Lessons of the Past	2. History and Critical Theory of Conservation	2. Extended Design Studio 7: Architectural Design in Historical Context	2. Architectural History, Theory and Composition 3
3. Restoration Theories and Techniques	3. Among Scales: Programming the New Modernity of Belgrade	3. Special Topics on Recording and Documenting Buildings and Sites	3. Interdisciplinary Studio	3. Architectural History, Theory and Composition 4: City
4. Applied Petrography: Deterioration of Stone and Lithoid Building Materials	4. Energy rehabilitation and certification of existing buildings – case study	4. Capstone Design Project (Advanced Team Project)	4. Urban Design Studio (I, II)	4. Architecture and Heritage

Table 2. Selected Case studies of built Architectural and Urban projects.

Italy - Iuav	Serbia - UBFA	Cyprus - UCY	Greece - AUTH	Spain - USE
1. Punta della Dogana	1. Nebojša Tower, Kalemegdan Fortress	1. Urban landscape rehabilitation in Lefkara	1. Area of Hrimatistiriou Square	1. Casa Diáñez
2. H-FARM and H-CAMPUS	2. Senjski Rudinik	2. HYBUILD Multifunctional center	2. Kleious 24	2. Cerro de San Miquel
3. Ex-Panificio Santa Marta Area	3. Office building BULEVAR 79	3. Alexandrou Demetriou Tower	3. Building block defined by Adrianou, Vrissakiou, Kladou and Areos streets	3. El Caminito del Rey
4. Venzone (UD)	4. DR Plan for The Old Core of Zemun	4. Vernacular dwelling in Kapedes	4. Historic barracks in the Pavlos Melas metropolitan park	4. Antigua fábrica de Cerámica

Results and Discussions

Great disparities in countries regarding the tradition of urban morphology, its relevance and importance within academic institutions (study programmes), practice and regulations could be notable. It could be argued that different contexts produced different roles of researches regarding urban history and urban form. Italy that has most evident tradition regarding this question that was institutionalised as UM Regional network (ISUFItaly) established in 2007 - a decade before other ISUF local organizations in Serbia (SNUM, 2016), Cyprus (CyNUM, 2016), Spain (ISUF-H, 2015) and with no official organized UM Regional network in Greece at the moment. Each of the local organizations has its specific focuses and goals: (1) ISUFItaly with the main interest in “the relationship between the study of built landscapes and architectural design, particularly focusing on historical foundations” by involving members that are mostly architects that seeks to develop the Italian tradition of morphological-processual studies in contemporary terms; (2) SNUM with the focus on the evolution of Serbian town’s urban form from the more general viewpoint while developing research and practice relations and teaching of urban morphology in academia by involving researchers and practitioners from fields of architecture, urban planning, transport engineering and conservation; (3) ISUF-H with research topics focusing on “medium-size cities, university campuses, urban heritage, informal cities, public space, the landscape of housing, indicators of sustainability and energy efficiency, green space, social space, and mobility and transportation”, (4) CyNUM with aims to promote and develop “research on the urban form of Cypriot cities and to support its dissemination both throughout the island of Cyprus and abroad” engaging researchers who transcend the boundaries of the island itself.

Urban morphology, along with specific approaches is embodied in the building tradition, while the influence and strength of the ISUF regional network reflects on the influential and representation of the ISUF itself at the specific country, and the extent to which local researchers recognize the importance of forming a network for peer to peer knowledge exchange.

The examples of built cases provide insights of the (1) Luav, Italy. Reconstruction plan for the Centre of Venzo, based on the in-depth knowledge derived from the analysis by arch. Francesca Sartogo, prof. Gianfranco Caniggia and the photogrammetric surveys by Ing. Hans Forammitti (Sorbo, Tonello, in Djokić et al, 2021), (2). UBFA, Serbia: Plan for the revitalization of the Old Core of Zemun which main goals were reconstruction and restoration of the Zemun fortress and Millennium tower, Reconstruction and re-connection of public squares, and Reconstruction of historical streets and network reorganization (Živković, Popović, in Djokić et al, 2021); (3) UCY, Cyprus: Urban landscape rehabilitation in Lefkara based on restoration and recovery of the previously lost traditional elements of the buildings (such as the colour palette and traditional pavement) and restoration of openings in their original form (dimensions and type), (Hadjipetrou, Nodaraki, in Djokić et al, 2021); (4) AUTH, Greece: Upgrade of the greater area of Hrimatistiriou Square through open space revitalization, modification of car circulation network, development of cultural pedestrian paths and promotion of historical buildings, following principles of bioclimatic development (Chatzidimitriou in Djokić

et al, 2021) that introduced various space morphology studies; and (5) USE, Spain: Rehabilitation of the wall of San Miguel Alto and its surroundings by reinterpreting the materiality of the existing wall and establish the physical and constructive difference between the old and the new wall (García-Casasola, Pinzón-Ayala in Djokić et al, 2021).

The examples of educational practices that provide valuable insights for the education in the field of morphology refer to (1) Iuav, Italy: Studio 2 Sustainable City Project devoted to the analyses of the "place attachment" concepts based on the identification of the values and problems of the site as cultural expressions (Sorbo, Tonello, in Djokić et al, 2021), (2) UBFA, Serbia: Design Studio 06U that uses urban morphology, both as a theoretical framework and a practical tool, is used for site-specific design and context-sensitive research (Djokić, Milojević, Pešić, in Djokić et al, 2021), (3) UCY, Cyprus: Capstone Design Project combining Departments of Architecture, Engineering, Archeology and has providing students with the tools and methods for conducting historical and archaeological research and excavations, on-site design recording and systematic data analysis (Philokyprou, Hadjipetrou, Nodaraki, in Djokić et al, 2021), (4) AUTH, Greece: Architectural Design Studio II that focuses on the retrofit and reuse of the city's existing building fabric using the parameters of sustainable design and energy efficiency (Chatzidimitriou in Djokić et al, 2021), (5) USE, Spain: Landscape, City and Architecture in Andalusia where special attention is given to the use and appropriation of the past and the relationship between continuity and transformation (Peral, in Djokić et al, 2021).

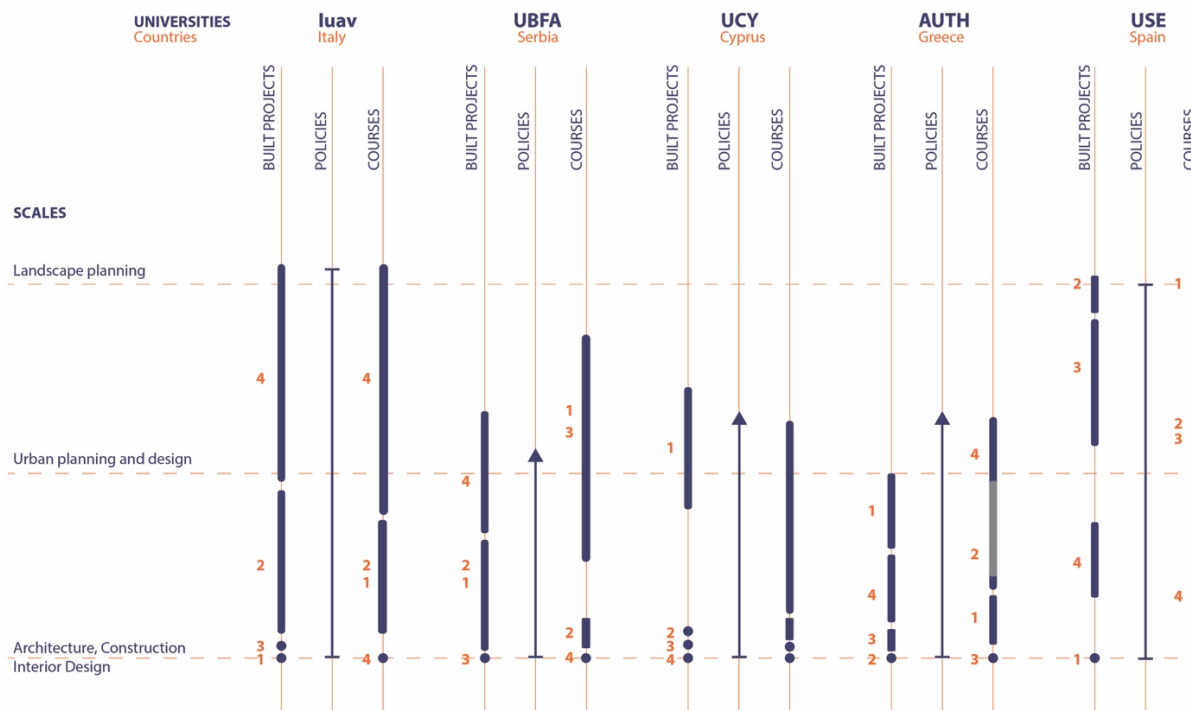


Figure 1. Mapping cases of good practice in relation to policies

The analysis of various contexts enables for key factors of the relation between urban morphology, heritage and sustainability to be drawn up. In regards to heritage and sustainability it is possible to recognize: (1) the tradition and both formal protection of the cityscape and landscape and existence of strong adopted norms (Italy), (2) endeavour to strengthen the connection between sustainability and heritage through laws, policies and strategic documents (Serbia), (3) high standards for reaching sustainability goals in regeneration and redevelopment in scales of urban design and architecture (Greece, Cyprus), (4) landscape sensitive approach in redeveloping projects (Spain). When it comes to observing morphological aspects in the presented case studies it can be noted that each school records specific approaches regardless of the fact are they are called morphology or not: (1) process typology tradition in practice and education (Italy), (2) typo-morphological perspective in education (Serbia), (3) greatly developed documentation and surveying tools and techniques (Cyprus), (4) Space morphology analysis (Greece), and (5) recognition of historical sequences (Spain).

Conclusions

Having in mind previous analysis it could be stated that morphological tradition and professional organizations that are devoted to these issues in each country could confirm the existing connections with academic and practical interest in urban morphology and continuity of urban form that is recognized in legal framework.

The first phase of the HERSUS project enabled the drawing of parallels between policy conditions, educational and building practice, and provided opportunity for each of the local teams to reflect on the existing state and the selected case studies. Different scales which are recognized in various contexts of built heritage, from landscape scale, over urban planning and design to the scale of the single architectural building and the construction detailing, there is an evident need for the multiscale approach in heritage treatment both in practice and education. Looking from the perspective of Serbia, the largest gap was recognized in the process of integrating urban heritage in the regulative framework, and consequently providing guidelines and formal rulebooks both for the understanding and the sustainable use of heritage on all scales. This note comes to the even greater importance if known that the valid Law on Cultural goods ("Official Gazette of RS", No.48/95), dates from 1995, by which tangible cultural goods are classified as cultural monuments, spatial cultural-historical units, archaeological sites and famous places, and as such does not recognize nor it is in line with strategic documents that deal with topics such as landscape, townscape, urban heritage, etc.

The second recognized crucial point refers to the experience of UM Regional networks and UM tradition that is not always visible nor formalized or disseminated on the international level, for which the cause can certainly be in lack of international cooperation and knowledge exchange, but it can be sought in language barriers as well. Having this in mind, it is of immense importance to determine urban heritage and other notions terminologically and discursively, and to identify heritage types, approaches, actions, tools and technics, which was set as a goal for the next HERSUS intellectual output titled *Statements for Teaching*

through Design for Sustainability of the Built Environment and Heritage Awareness. In this process, UBFA will give a special role to the insights and perspectives of urban morphology in terminological clarification of heritage in a multiscale manner and in relation to all three fields- education, regulation and practice.

Having in mind the aim of the HERSUS project is concerned with the production of new courses that will intertwine sustainability with heritage, it is crucial to cherish and exchange experiences of different schools and traditions of urban morphologies.

Acknowledgements

This paper was prepared as a result of work on the scholarly project 451-03-68/2020-14/200090 which is financed within the program of Technological development by the Ministry of Education, Science and Technological Development of the Republic of Serbia, and as a part of HERSUS project, developed in cooperation of University of Belgrade, Faculty of Architecture as Lead organization, luav Università di Venezia, The University of Cyprus, The Aristotle University of Thessaloniki, and University of Seville, UNESCO Chair on Built Urban Heritage CREhAR in the digital era, co-funded by the Erasmus+ Programme of the European Union (hersus.org). The creation of these resources has been co-funded under grant no. 2020-1-RS01-KA203-065407 (funding period 2020-2023). This paper reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

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