HERSUS Story: Changing Perceptions on Sustainable Built Heritage through Education

Vladan Djokić
University of Belgrade – Faculty of Architecture, MorphoLab, Belgrade, Serbia
vdjokic@arh.bg.ac.rs

Abstract: The keynote will share the story of Erasmus+ Strategic Partnership project HERSUS implemented from 2020-2023 in Serbia, Italy, Cyprus, Greece, and Spain. The HERSUS project, as its full title indicates, aims to enhance heritage awareness and sustainability of the built environment in urban and architectural design higher education. HERSUS is situated in a changing and challenging context of architectural discourse and grounded on co-creative research platform for up-skilling of architectural students through learning/training/teaching activities and spectrum of didactic tools. In the context of multiple influences affecting the development and transformation of cities – such as climate change, green challenges, and social transformation – the problematization of heritage issues in the setting of the city and landscape becomes a priority topic. Within this multilayered research scope, to have far-reaching implications in the practical sense, its integration into existing study programs as well as new study programs is of immense importance. As a result, a new profile of architects/urban designers is needed in the wider architectural field, and a new professional profile, with specific technical, technological, socio-humanistic, and artistic skills is needed to respond to these challenges.

Keywords: Architectural Education; Heritage; Sustainability; Professional Skills and Competences

1 Challenges in Architectural Education

Architectural education is going through an era of new disciplinary and scientific articulation of (a) architecture as a discipline and (b) design as its operational and procedural embodiment. It is already known that architecture is no longer based exclusively on traditional engineering postulates of technical and technological knowledge, nor is it exclusively interpreted in the domain of humanistic perspectives and art – today, architecture represents a kind of interdisciplinary, multidisciplinary and transdisciplinary science (IMT science) that develops in constant dialogue between technological development, artistic precedents and social innovations. Such a new disciplinary order also set a demand for the development of a new professional profile of architects that demonstrates multiple groups of knowledge and their related skills (UIA/UNESCO, 2017). On the other hand, looking at the sphere of thematic complexity, numerous challenges – such as climate change, green challenges, and social transformation – require the establishment of new methodological procedures for better understanding and study of the built environment and heritage. This applies not only to cultural heritage that has a formal protection status, but also to all those emerging patterns that have a value code that can generate the heritage of the future. This indispensable relationship in-between built heritage and architecture puts the foreground on the importance of high-quality adaptive re-use of built heritage, which is also recognized in one of the umbrella initiatives of the EU, the New European Bauhaus, which advocates a specific *line of respect* (NEB High-Level Round Table Group, 2021) – respect for the environment, our cultural heritage and nature – as an integral part of the value framework of architecture as a profession. Additionally, education is recognized 'as a key to creating new incentives for action, changing social conceptions and behaviours, fusing disparate practices into transdisciplinary approaches' thus as a key to both social and environmental sustainability (NEB High-Level Round Table Group, 2021: 4).

2 HERSUS Project Outline

This part of the paper will provide two-fold insight into the HERSUS Project background. First, conceptual framework will be described including Consortium set-up, motivation for project initiation, as well as problem framework to be addressed within project scope. Second, project design will be elaborated including general project structure, activities type and overall HERSUS approach.

2.1 Conceptual Framework

HERSUS brings together 5 Universities (particularly architectural schools) from Serbia, Italy, Cyprus, Greece, and Spain working together to develop courses and pilot them through international workshops, and a jointly built digital sharing platform – University of Belgrade (UB) (lead institution), IUAV University of Venice (IUAV), University of Cyprus (UCY), Aristotle University of Thessaloniki (AUTH), and University of Seville (USE). Beyond core Consortium set-up, HERSUS includes activities of cooperation between research, private and public sectors, targeting both local and regional support towards higher education-practical arena cooperation. By its nature, the HERSUS project is educational-based and research-oriented, with a multilevel approach to engage different stakeholders.

The general motivation for HERSUS conceptualization is based on the dichotomy of creating a new professional profile (focused on students) and creating a new pedagogical profile (focused on university teaching staff). The conceptual framework and idea for the establishment of the consortium arose as a result of a robust need analysis conducted in the form of an informative survey on the developmental level of the teaching process in the field of sustainability and heritage at five architectural schools from HERSUS network. This survey is expert-oriented in nature and was implemented at the beginning of 2020 as support for the development of the project application. The results of the survey indicated four groups of relational problems: (1) *connection between theory and practice* in terms of the lack of know-how methodologies and methods, (2) *acknowledgement of specific relations in urban policies* in terms of the outdated urban design policies, (3) *design practice* in terms of the dominance of economic factors in architecture and urban design, and (4) *education* in terms of the limited amount of courses and inadequate attention to this relation in studio design projects. Urban reconstruction, adaptive re-use and resilience of heritage have been highlighted as the lead approaches for generating sustainable values for historic buildings, cities and landscapes. Following recognized approaches, a key innovated value of the HERSUS is a multi-conceptual and multi-scale framework that includes three main pillars to achieve a sustainable architectural and urban heritage. These 3 ''RE" pillars are strategically defined in order to create educational strategies in the form of courses through which knowledge and design skills are acquired for: (1) REconstruction (linking urban and architectural scale) – urban heritage redevelopment used to address urban decay in cities, (2) REuse (linking architectural and detail scale) - the process of reusing an existing architectural heritage for a purpose other than which it was originally built or designed for, (3) REsilience (linking urban, architectural and detail scale) - designing flexible structures that can learn from their environments and creating transformable and sustainable space framework.

The identified problem framework stimulated consortium to develop project strategy which is grounded within five specific scopes of action perceived as a long-term impact benefit for participating universities and beyond:

- *Research and action* – implementation of the analytical, process and problem-based research which is expected to result in a review of good practices in the subject area, a critical questionnaire in the subject area, and a statement for teaching through design for sustainability of the built environment and heritage awareness,
- *Information and enhancing of awareness* – broaden and raise awareness of the importance of sustainability and heritage thematic frameworks while disseminating results at national and European level,
- *Networking* – transnational strategic partnership establishment between urban and architectural design schools in European border areas the network has the potential for rollout to a large number of participating members and address common challenges through cooperation activities,
- *Education and training* – implementation of innovative methods developed through HERSUS workshops and training in order to allow increasing and updating the educational offer in sustainability and heritage thematic framework within urban and architectural study programmes, and
- *Design and development* – the development of new and innovative curricula and teaching methods for urban and architectural design schools in Europe.

The notion of sustainability represents the core feature of HERSUS conceptualization, considered both as a thematic framework and as a challenge within the scope of architectural and urban design higher education. Regarding sustainability, the key objectives of HERSUS are to: (1) identify, study and explain the state-of-the-art in learning and teaching on sustainability in line with the built heritage as a research/design subject, (2) create statements on teaching through design for the sustainability of the built environment and heritage awareness and define main design tools, strategies and approaches for reaching sustainability of the built environment, and (3) design and develop innovative courses and study program within the HERSUS scope.

2.2 Project Design

The project is structured around five types of activities: (1) *Design and development of Intellectual Outputs* (IO) – activities that result in tangible and meaningful outcomes, specifically publications, book of courses, interactive platform, and handbook, (2) *Learning, Training, and Teaching activities* (LTT) – one seminar for teachers, three student workshops, and one training for teachers, (3) *Multiplier events* (ME) – activities for dissemination of intellectual outputs and overall results in a form of public presentations, and Open Houses at participating HEIs, (4) *Transnational Project Meetings* (TPM) – design and development meetings of consortium members, and (5) *Project Management and Implementation activities* (PMI) – communication, dissemination and creating a sustainable framework for implementing results.

From the perspective of the general implementation, HERSUS project engages two parallel approaches which lead towards achieving the project objectives. The first approach is the bottom-up approach, where every partner

is responsible for looking toward the local educational higher education systems' needs. In essence, it starts from universities towards modernizing existing and developing new joint master programs. The overall focus is on improving the quality of the higher education system and enhancing graduates' employability. The second is the multilevel approach (from the European education system towards national education systems), which includes all participants working in collaboration towards achieving common goals at the European level. The consortium seeks to establish a new integrated approach based on activities that rely on a program for teaching. The HERSUS project is designed so it has the LTTs with IOs at the core of implementation while all other activities support and supplement their design and development (Figure 1 and Figure 2). LTTs as a platform for testing principles and methodologies derived from all IOs, Multiplier Events as a platform for dissemination and public presentation of IOs, and Transnational Project Meetings are used for discussion, creative development, and critical reflection of IOs. From the perspective of the particular activities, the following approaches were engaged: (1) Student workshops engaged a place-based approach in order to address the local urban challenges and needs of local communities within the design process, and (2) Intellectual outputs development engaged transdisciplinary approach generated based on the professional and scientific fields of HERSUS Consortium members.

The project scope refers to both multidisciplinary and interdisciplinary approach regarding different specialized areas including (in line with the professional and scientific fields of HERSUS Consortium): Architecture, Urbanism, Architectural Technology, Integral Urbanism, Regional and Urban Planning, Interior Architecture, Energy-efficient and Green Architecture, Urban Renewal, Conservation, Sustainable Development, Vernacular Architecture, Energy and Environmental Design, Urban Sociology. In this sense, HERSUS project is aimed to benefit a large number of students, professionals, representatives of other educational institutions, public bodies, private/public enterprises, representatives of labor market agencies, agencies for sustainability and heritage protection, National government representatives, public and wide society. Through the direct involvement of students in project activities, HERSUS aims to render future young professionals equipped to contribute to the socio-environmental challenges and heritage preservation.

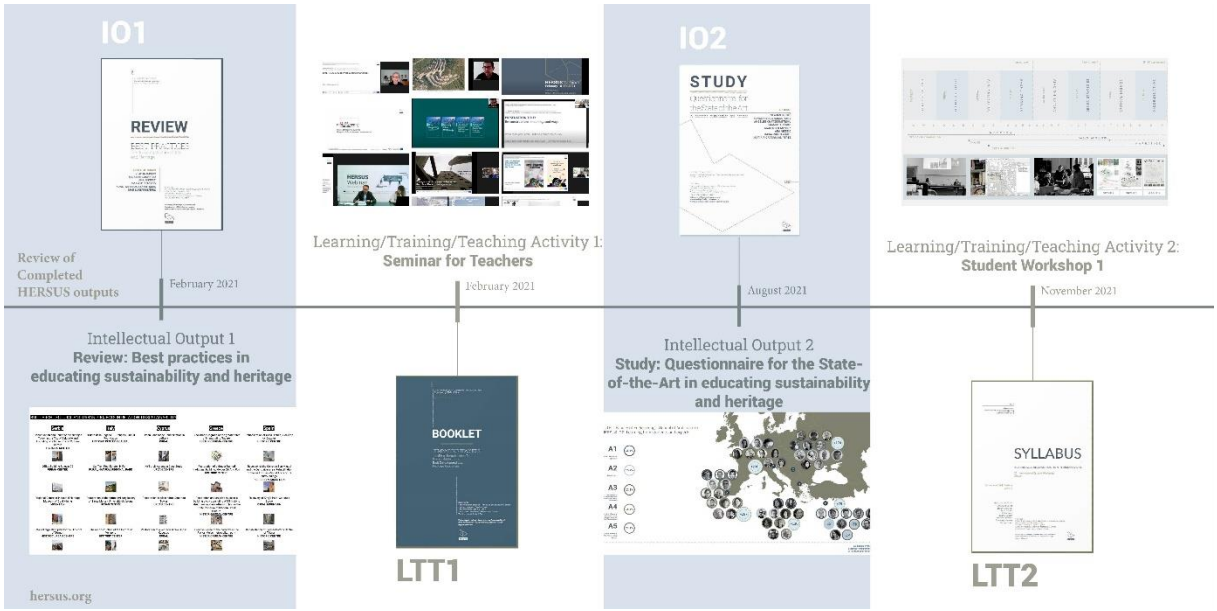

Figure 1 HERSUS Timeline – Part 1.

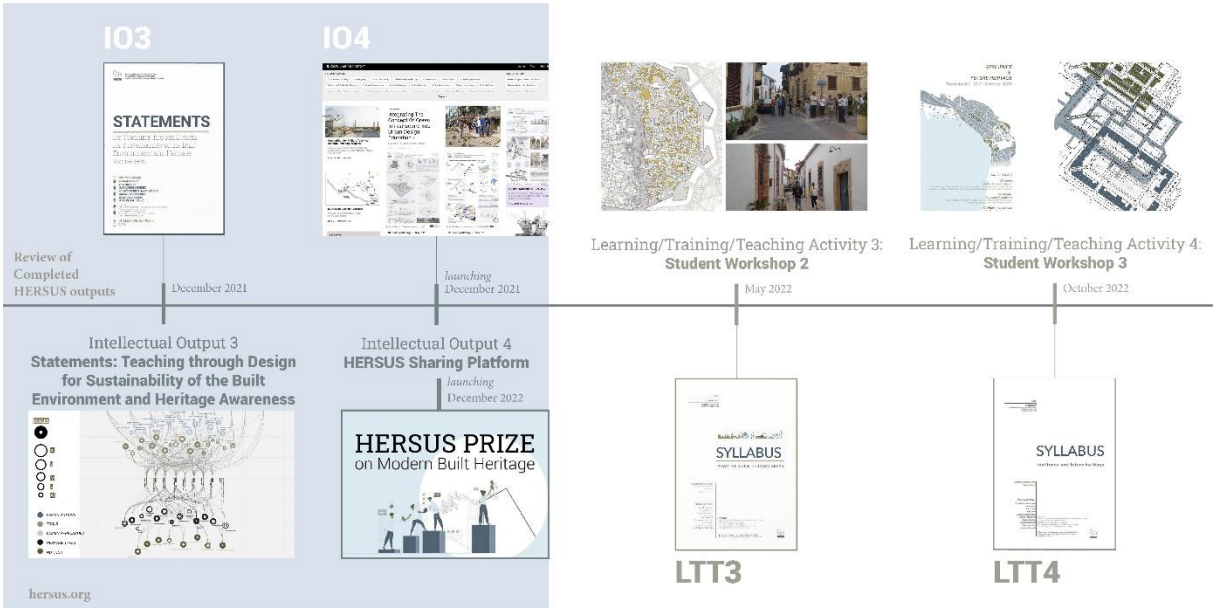

Figure 2 HERSUS Timeline – Part 2.

3 HERSUS Results Summary

This part of the paper will provide two-fold insight into the HERSUS Project results. First, intellectual outputs are listed in order to provide insight into the scope for knowledge advancement. Second, learning/training/teaching activities for students will be elaborated in order to provide insight into the framework for advancement of existing pedagogies and the development of new ones.

3.1 Intellectual Outputs: Knowledge Advancement

HERSUS Intellectual Outputs (IOs) are transnational, structured, and result-driven outcomes which are perceived as an integral part of the Plan for Sustainability and long-term cooperation of HERSUS Consortium with a two-fold perspective: engagement of IOs as didactic materials, and transferring insights from IOs to process of design and accreditation of new study programs. IO1 Review of the Best Practices - provides comparative insights into educational practices, built projects, and urban policies (Djokić et al, 2021a); IO2 Questionnaire for the State of the Art – provides valuable and in-depth data on the current level of development of study programs and individual curricula within the HERSUS scope which could be useful for the management of heritage-related higher education institutions and teachers in the process of creation and accreditation of study programs (Djokić et al, 2021b); IO3 Statements for Teaching through Design for Sustainability of the Built Environment and Heritage Awareness - presents a strategy containing necessary qualifications that an architect has to obtain in order to be competent for architectural and urban design, as well as an up-to-date qualification that architectural educator needs to obtain in order to advance teaching about the sustainability of the built environment and heritage awareness (Djokić et al, 2021c). The IO3 is prepared in the form of Teaching Vademecum: Statements on Notions, Ideas, Design Strategies, Design Tactics, Tools and Techniques, and Heritage Types relevant to the HERSUS scope; IO4 HERSUS Sharing Platform – developed openaccess repository with identified examples and role models form education, practices, and research (https://hersus-sharingplatform.org/) ; IO5 Book of Courses – conceptualized imaginary master study program which would educate new generations of professionals (Nikezić, 2023); IO6 Handbook for Students in the field of sustainable built heritage - could be engaged as a didactic material at heritage-related higher education institutions (Loren-Méndez, 2023).

3.2 Learning/Training/Teaching Activities for Students: Advancement of Pedagogies

The Learning/Training/Teaching Activities (LTTs) for students within HERSUS considered from a research-by-design perspective in the field of architecture and urbanism. The key objectives of HERSUS student LTTs are to (1) initiate small-scale initiatives in a form of student workshops directed towards generating conceptual designs for heritage areas and buildings, (2) reach out to local areas through place-based approach and stimulate students to critical thinking and problem-based research about the urban challenges related to heritage preservation, and (3) stimulate the implementation of the multiscale approach for research and (re)design of built heritage. In this context, HERSUS Consortium implemented three student workshops: (1) Workshop 1: Sustainable Reconstruction in Urban Areas (Venice, Italy - 22nd–26th November 2021 (onsite)) - The engaged study field was the Valmarana

Salvi Gardens in Vicenza. The primary purpose was to understand how historical gardens could influence contemporary communities and designers and to re-think them through contemporary standpoints; (2) Workshop 2: Adaptive Reuse (Nicosia, Cyprus - 2nd–6th May 2022 (onsite)) - The engaged study field was the walled city of Nicosia. The intention was to provide a holistic view of the area and to develop a different attitude toward cultural heritage and sustainability focusing on the adaptive reuse of vernacular dwellings, semi-open and open spaces; and (3) Workshop 3: Resilience and Future Heritage (Thessaloniki, Greece - 17th–21st October 2022 (onsite)) - The engaged study field was the Market Area of Thessaloniki (Kapani Market). The international team's proposals focused on occupancy and land use, the environmental performance of the urban fabric surrounding the markets, and the future restoration and upgrade of the market building stock.

4 Instead of the Concluding Remarks: Emerging Pedagogies for Sustainability of the Built Environment and Heritage Awareness

The results of the HERSUS project largely reflect the global trends in the development of architectural education, which imply the initiation of a new professional profile of architects that demonstrates multiple groups of knowledge and their associated skills. According to the *UNESCO-UIA Charter on Architectural Education* six groups of knowledge were identified that should represent an integral part of architectural education (UIA/UNESCO, 2017). Having in mind multilayered methodological procedure implemented within the HERSUS lifetime (Djordjević et al, 2022), as well as insights derived both from the intellectual outputs (knowledge advancements) and Learning/Training/Teaching Activities (advancement of pedagogies), its possible to draw out reflections for each group of architectural knowledge from the perspective of heritage and sustainability:

- *Cultural and Artistic Studies* – the need for the integration of Equity and Creativity skills which boost creativity in terms of interculturality and interchange,
- *Social Studies* – enhancement of the participatory skills that raise ability to stimulate heritage awareness and communicate with the society (disseminating its values and preservation mechanisms including communication and presentation skills),
- *Environmental Studies* – the environmental and energetic knowledge regarding sustainability have not a sufficient presence in existing academic programs, and there is a lack of competences to be able to obtain zero-energy buildings, implementing a combination of active and passive measures, as well as the need for skills related to the design approaches of environmentally responsive design, bioclimatic design, design with climate (climate-sensitive design), carbon neutral design, energy conscious design, and passive/active sustainable design,
- *Technical Studies* – the need for learning heritage through digitalization, specific IT skills in terms of practicing different 3D modelling software (Revit, Rhino, AutoCAD 3D, etc.) and simulation software and tools, BIM-based (H-BIM) software, GIS and ICT tools, as well as need for adapting of digital skills to new formats of documentary heritage,
- *Design Studies* – the importance of knowing the transversal skills for sustainability and indicating that a design project is structured on an urban territorial heritage system, as well as need for going beyond preservationist approach and to follow-up the evolution of the concept of built heritage (from emerging to protected built environment), and
- *Professional Studies* – the lack of knowledge on methodological and operative processes for the management and intervention of cultural heritage, acting at its different scales and conditions.

Acknowledgments: This research was funded as a part of the HERSUS project, developed in cooperation with the University of Belgrade, Faculty of Architecture as a Lead organisation, Iuav Universita di Venezia, the University of Cyprus, the Aristotle University of Thessaloniki, and the 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 was co-funded under grant no. 2020-1-RS01-KA203-065407 (funding period 2020–2023).

References

NEB High-Level Round Table Group. (2021). *New European Bauhaus Concept Paper*, NEB High-Level Round Table, Presented to the President of the European Commission Ursula von der Leyen.
UNESCO-UIA Validation Council for Architectural Education (2017). *Charter UNESCO/UIA for Architectural Education*; International Union of Architects: Paris, France.
Djokić, V.; Philokyprou, M.; Nikezić, A.; Sorbo, E.; Sakantamis, K.; Loren-Méndez, M. (2021a). *REVIEW: Best Practices in Educating Sustainability and Heritage*; University of Belgrade—Faculty of Architecture: Belgrade, Serbia
Djokić, V.; Sakantamis, K.; Chatzidimitriou, A.; Sorbo, E.; Loren-Méndez, M.; Nikezić, A.; Philokyprou, M.; Carrascal-Pérez, M. (2021b). *STUDY: Questionnaire for the State of the Art in Educating Sustainability and Heritage*; University of Belgrade—Faculty of Architecture: Belgrade, Serbia
Djokić, V.; Nikezić, A.; Loren-Méndez, M.; Sakantamis, K.; Philokyprou, M.; Sorbo, E.; Péral-López, J. (2021c). *STATEMENTS: Teaching through Design for Sustainability of the Bult Environment and Heritage Awareness*; University of Belgrade—Faculty of Architecture: Belgrade, Serbia
Nikezić, A.; Radivojević, A.; Živković, J.; Djokić, V.; Loren-Méndez, M.; Sakantamis, K.; Philokyprou, M.; Sorbo, E. (2023). *Book of Courses*; University of Belgrade—Faculty of Architecture: Belgrade, Serbia
Loren-Méndez, M.; Garcia-Casasola, M.; Djokić, V.; Nikezić, A.; Sakantamis, K.; Philokyprou, M.; Sorbo, E. (2023). *International Handbook for Students on Research and Design for the Sustainability of Heritage*; University of Belgrade—Faculty of Architecture: Belgrade, Serbia
Đorđević, A.; Milovanović, A.; Milojević, M.P.; Zorić, A.; Pešić, M.; Ristić Trajković, J.; Nikezić, A.; Djokić, V. (2022). Developing Methodological Framework for Addressing Sustainability and Heritage in Architectural Higher Education—Insights from HERSUS Project. *Sustainability*, 14, 4597.