

# Architectural Conservation Towards Sustainable Development: A Survey on Recent Challenges and Opportunities on Teaching and Research

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**Due to the current transformations of the world regarding climate change adaptation, conservation is an issue of key importance. As new European quality-based agendas are embodying enlarged 21st-century concepts of “heritage”, architects are being faced with the need to develop more efficient use of resources, including better methods to preserve, adapt, and reuse the available building stock. Are the Architecture Schools adapted to these challenges? This paper presents and discusses the results of the online-based survey called “Recent Challenges and Opportunities on Architectural Conservation – Teaching and Research”, addressed to professors participating in the VIII Workshop of the Conservation Network of the European Association of Architectural Education (EAAE) in September 2022. The survey was developed to analyze the current capacity to expand the European debate on sustainability as a tool for new proposals of Architectural Conservation education with a global perspective. The methodology was supported both in quantitative (single or multiple choices) and qualitative (open field) questions, presented online in a web-based form through informed consent in four topics: i) Personal Data; ii) Teaching; iii) Research and iv) Challenges and Opportunities. The results showed that Architectural Conservation professors feel that “sustainability” might have been progressively emptied of meaning while an “ethical design” is clearer and more operational in Architecture Education involving the recognition of architectural knowledge through analysis of context and development of low-impact actions. However, the survey also proved that “quality” has not yet been completely settled as a “design method” and institutions are still defining their approach towards 21st-century demands. Despite these limitations, this is expected to enrich the discussions about the future of the built environment and contribute to broader definitions of Architecture Conservation as a cultural practice and a profession.**

## 1 INTRODUCTION

In the 21st century, conservation has finally become mainstream. Once just an object of abstract speculation, now conservation

is an actual practice and an issue of key importance, due to the current transformations of the world regarding climate change adaptation<sup>1</sup>. The ever-growing scarcity of resources and the cultural demand for more sensitive and sensible means of recycling materials or reuse infrastructures has transformed how architects and urban designers think about creating and providing solutions for the built environment<sup>2</sup>.

So, the heightened importance of “maintain over demolish” is having momentous effects on the entire world of building practices. On one hand, design decisions have become much more complex, having to consider a vast array of problems that make the architect/designer constantly switch between the caps of an art historian, an economist, an anthropologist, and an engineer. On the other hand, this has somewhat warped a very traditional hierarchy, having the newly inflated Preservation topple what is classically known as Architecture by means of a “formless substitution”<sup>3</sup>.

Despite these current definitions that can make Conservation as a form of design part of the broader field of Sustainability, architectural conservation experts are bound to different meanings of this concept and how it still provides criteria for architectural design, with proximities or distances on how “preservation” was primarily identified as a social demand. Ordinarily, Italian perspectives of the definitions of “conservation” in the 20th century dominated the international standards for assuring the permanence of architectural heritage to future generations. As a result, a gamma of practical guidelines was developed by distinguished scholars and summarized by international organizations to qualify material-based approaches to maintain historical value<sup>4</sup>.

As conservation demands-responses are changing<sup>5</sup>, new architectural design protocols for quality and efficiency are also setting new parameters. Consequently, training is also changing<sup>6</sup>. Values-based approaches for design are more often in architecture schools, in many cases positively transforming architectural education and research: participation strategies are more and more common<sup>7</sup>, accompanied by reuse practices<sup>8</sup>, while digitization is modifying the representation of material substance and how to assess it<sup>9</sup>. Also, management techniques are becoming part of the daily tools of the architect: community engagement,

risk assessment, policy planning, and monitoring are proving that every aspect of a building's daily functioning may hold the potential to influence its permanence through time<sup>10</sup>.

Following the abovementioned scenario of high complexity and vulnerability, new European quality-based agendas are being proposed as a response to the *UN 2030 Agenda for Sustainable Development*<sup>11</sup>, such as the *European Green Deal*<sup>12</sup>, the *New European Bauhaus*<sup>13</sup>, the *ICOMOS European Quality Principles*<sup>14</sup> and the *Davos Baukultur Quality System*<sup>15</sup>. Published very recently, they are based on holistic approaches, affecting all processes of architectural design. On them, "heritage" embodies enlarged 21st-century concepts, integrating cultural landscapes, social values, and immaterial significance, provoking transformations in design quality by transferring solely economic principles into the capacity to engage and develop efficient use of resources, including better methods to preserve, adapt and reuse the available building stock.

So, which "quality" to design the built environment (as "heritage") should be part of future architects' education? Are the Architecture Schools adapted to these new challenges? As the most powerful stakeholders in managing these pedagogical demands, what do Architectural Conservation professors think about it?

This paper presents and discusses the results of the survey called "Recent Challenges and Opportunities on Architectural Conservation – Teaching and Research", addressed to the participants of the VIII Workshop of the Conservation Network of the European Association of Architectural Education (EAAE) entitled "Conservation/Sustainable Design", and hosted by the Faculty of Architecture of the University of Porto (FAUP) in September 2022. The event was an opportunity to debate the present and future challenges within the EAAE Conservation Network, fifteen years after the first workshop in Genoa<sup>16</sup>, as well as provide a platform for the discussion on the management and conservation of the Porto Historic Centre in the World Heritage List since 1996.

The aim of this survey was thus to assess the group's capacity to expand the European debate on sustainability and be able to provide new proposals for Architectural Conservation education with a global perspective.

## 2 METHODOLOGY

### 2.1 INSTITUTIONAL FRAMEWORK

The institutional framework was provided by the UNESCO Chair "Heritage Cities and Landscapes. Sustainable Management, Conservation, Planning and Design". The Chair, hosted at the Faculty of Architecture of the University of Porto, aims to integrate research and training on sustainable management of heritage sites while also facilitating collaboration between researchers from different international institutions. The circulation of good practices of conservation is among several specific

objectives to empower students, heritage managers, and communities, enabling a platform of knowledge transfer through a bottom-up approach<sup>17</sup>.

In spite of being a new Chair, established in 2019, the support provided by the tradition of the "School of Porto" has already produced outstanding achievements, such as the development of several editions of the interdisciplinary course "Heritage and Landscape: Management, Analysis and Design" – awarded with University of Porto's INOVPEP initiative for expand innovative curricular units –, consultancy activities on the World Heritage "Management and Sustainability Plan for the Historic Centre of Porto", a UNESCO Contract on Urban Governance, and two projects associated with the preservation of Álvaro Siza's architecture: the "Ocean Swimming Pool Conservation Management Plan" – a successful "Keeping It Modern" Grant funded by the Getty Foundation – and the ongoing preparation of the serial nomination "Álvaro Siza's Architecture Works in Portugal" for the World Heritage List. These projects improved the capacity of Chair researchers on deepening studies about modern architecture and historical urban landscape management while focusing on the application of different strategies of community engagement and participatory methods for assessment of significance and policymaking.

Thus, the opportunity provided by the EAAE Conservation Network by electing the Chair and the Faculty to organize a Porto-based workshop was extremely convenient to peer these issues, as relevant scholars could be easily consulted and interviewed.

In fact, according to Stefano Musso<sup>18</sup>, the Conservation Network workshops are an experiment designed "to put conservation's

Ed.	Theme	Host	Date
I	Teaching Conservation/ Restoration of the Architectural Heritage: Goals, Contents and Methods	University of Genoa, Genoa, Italy	18-21.10.2007
II	CONSERVATION/ TRANSFORMATION	University College Dublin, Dublin, Ireland	17-19.09.2009
III	CONSERVATION/ REGENERATION	"Ion Mincu" University, Bucareste, Romania	06-09.10.2011
IV	CONSERVATION/ RECONSTRUCTION	University of Rome "La Sapienza", Rome, Italy	03-05-10.2013
V	CONSERVATION/ ADAPTATION	University of Hasselt; University of Liège, Hasselt; Liège, Belgium	10-13.09.2015
VI	CONSERVATION/ CONSUMPTION	Centre of High Degree Studies, La Coruña, Spain	27-29.09.2017
VII	CONSERVATION/ DEMOLITION	Czech Technical University, Prague, Czech Republic	25-28.09.2019

Table 1. The EAAE Conservation Network Workshops.

teachers in confrontation” when emerging topics of Architecture as a cultural practice provide new sources of tension in the Conservation field. Every two years, these topics are examined through “3 (really 5) questions” – i) what is it/what is it for; ii) how does it work/what has it done; iii) what is its future – to guide discussions and propose solutions<sup>19</sup>. Thus, by producing a publication gathering all contributions after the meeting, the EAAE Conservation Network can avoid “disjunctions” in architectural education<sup>20</sup>, while presenting Architectural Conservation professors’ perspectives in facing challenges and recognizing opportunities for the future.

Table 1 presents a list of workshops that were organized in the past 15 years.

### 2.2 A WORKSHOP IN PORTO: NEW OPPORTUNITIES

After the global health emergency in 2020/21, the VIII EAAE Conservation Network “Conservation/Sustainable Design” was held in Porto between 21 and 24 September 2022 (Figure 1). The workshop aimed to “foster discussion on the different levels of conflict existing nowadays in historic cities, using the Historic Centre of Porto as starting point for a broader discussion”<sup>21</sup>.



Figure 1. Poster of VIII EAAE Conservation Network Workshop. Design: FAUP, Communication and Image Department, 2022.

As a World Heritage Site that “bear remarkable testimony to the development over the past thousand years of a European city that looks outward to the sea for its cultural and commercial links”<sup>22</sup>, Porto is currently withstanding several pressures that are menacing its outstanding value.

Actions through time were able to mitigate drastic social changes and stimulate the safeguarding of the historical urban landscape through public interventions. Examples of different contextual design contributions by renowned architects such as Fernando Távora are historically part of the city’s response to maintaining the traditional population while recovering the urban settlement<sup>23</sup>. However, the contemporary touristic afflux and real-estate development are changing ways of living in a very complex way. It is currently understood that the ousting of the traditional population cannot be oversimplified as “gentrification”. Instead, a new contemporary process, acting over architectural conservation design principles and building methods, is accentuating heritage site risks and vulnerabilities that are not being followed by existing policies and institutions<sup>24</sup>.

Thus, to prepare discussions of these issues and embrace the emergency of new agendas, the “3 (really 5) questions” were formulated (Table 2):

?	The “3 (really 5) questions”	Adapted survey questions
i	What is it/what is it for	What is conservation of architectural heritage? What does it stand for today?
ii	How does it work/ what has it done	How new quality-based agendas are affecting architectural conservation pedagogies? Which are the good practices so far?
iii	What is its future	What is the perception of Workshop participants?

Table 2. The “3 (really 5) questions” adapted as research questions for the survey.

As a preamble for workshop participants, these overarching questions would provide an important conceptual revision on Architectural Conservation Education and improve critical reflection and onsite discussions (Figure 2) about topics intertwined with the new agendas problems, such as:

- Heritage Conservation *versus* Urban Development;
- Contemporary Design *versus* Pre-existing Features;
- Traditional *versus* Innovative Technologies.

### 2.3 SURVEY METHODS

The methods of the survey were supported both in quantitative (single or multiple choices) and qualitative (open field) questions, presented online in a web-based form through informed consent. To avoid (or at least decrease) sampling bias – especially





Figure 2. Workshop activities: visits to Porto, visits to Guimarães, group discussions and plenary sessions. Photos: Pedro Freitas, 2022..

“self-selecting” and “survivorship” ones<sup>25</sup>, as professors could manifest skewed opinions if such research questions were presented directly –, contents were organized in four sections to facilitate retrieving data and enable quantitative interpretations.

Table 3 expresses this mechanism:

Survey sections	Contents	Objectives	Questions		
			i	ii	iii
Personal Data	Questions about affiliation, current academic status and personal details	Assess group representativeness and power to promote changes	•		
Teaching	Questions about course subjects and considerations on syllabi, teaching materials, bibliography and training manuals	Verify contents' affiliations, theoretical sources and pedagogical methods	•	•	
Research	Questions about the range of current research topics and research subjects	Analyse engagement and current topics of concern and interest		•	•
Challenges and opportunities	Questions about the perception of professors on current global challenges and how to build resilience today	Qualify impact of new agendas for the education and the dissemination of good practices			•

Table 3. Survey sections and objectives related to research questions.

Results were presented at the end of the event, detailing quantitative answers as well as combining selected qualitative ones.

### 3 RESULTS

#### 3.1 PERSONAL DATA: SOCIO DEMOGRAPHICS

Forty-seven professors, researchers, and students responded to the survey as participants in the Workshop. It was important to notice that most respondents were women (63,8%) and aged from 55 to 64 years (36,2%) and from 45 to 54 years (21,3%). Due to an extensive and well-known tradition in the Architectural Conservation field, most participants came from Italy (59,6%), but also Portugal (12,8%), Romania (8,5%), among 7 other countries (19,1%). Additionally, 70,2% of respondents hold a PhD and more than 50% are Associate (29,8%) or Full Professors (23,4%); this means contributions are effectively based on research and teaching experiences, confirming the group's capacity to propose changes (or dangerously maintain *status quo*).

#### 3.2 TEACHING: THE PEDAGOGICAL SOURCES

The Workshop participants represented 76 Courses from 23 Universities. A word cloud was applied to a subject description question revealing that these courses combine topics on conservation, architectural conservation, restoration, built heritage, theory, conservation project, and design studio (Figure 3).





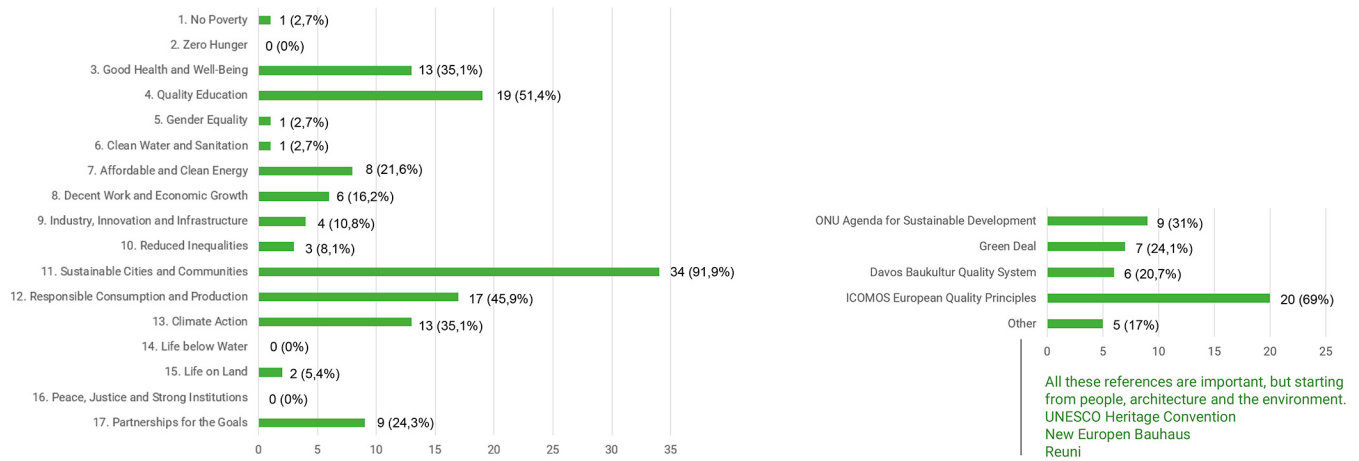


Figure 6. At left, results showing survey respondents’ declared impact of SDGs in formulating new Architectural Conservation courses; at right, the declared impact of new agendas on building new courses.

are related to Architecture Conservation Education – which, *per se*, takes advantage of the social impact of teaching as a profession – poses the need for a broader investigation about how courses are converging (or not) different goals of UN 2030 Agenda. However, as a positive angle, 69% of professors informed the current importance of ICOMOS European Quality Principles when describing if they follow any national or international agenda for building up-to-date courses (Figure 6).

So, following this tendency, for 72,7% of respondents (34 out of 44 answers), Quality Principles have been considered the most important challenge of Architectural Conservation today, followed by Sustainability (62,2% or 28 out of 45 answers). Also expressed by the rating scale question proposed in the survey (Figure 7), Heritage Governance (23) Public Participation (22), Risk Mitigation (22), Climate Change (21), and Funding (20) are very important challenges, as they were topics that also achieved mostly 5 points on the proposed scale (from 1 to 5), but without evident discrepancy (Figure 7).

An important issue is institutional engagement. Respondents informed that there is space for the development of discussions and workshops in their institutions: 64% of respondents declared that they hold capacity-building activities and programs on new agendas implementation. However, instead of providing information about how this is enabling curricula adaptation, very few examples were presented. Further investigation must be conducted to evaluate if this indicates disinterest by the respondents or if the question has not been completely understood.

General comments at the end of the survey were mostly linked to allow participants’ final considerations. They were not possible to quantify, but, as they were stated by eminent professors, they were considered important remarks to inform future individual interviews. Overall, professors stated the need to consider conservation ethics in Architectural Education and the need to develop disciplines more reality-based or associated with field cases in undergraduate courses. Moreover, it is urgent a framework for efficiently enhancing energetic balance in buildings. To

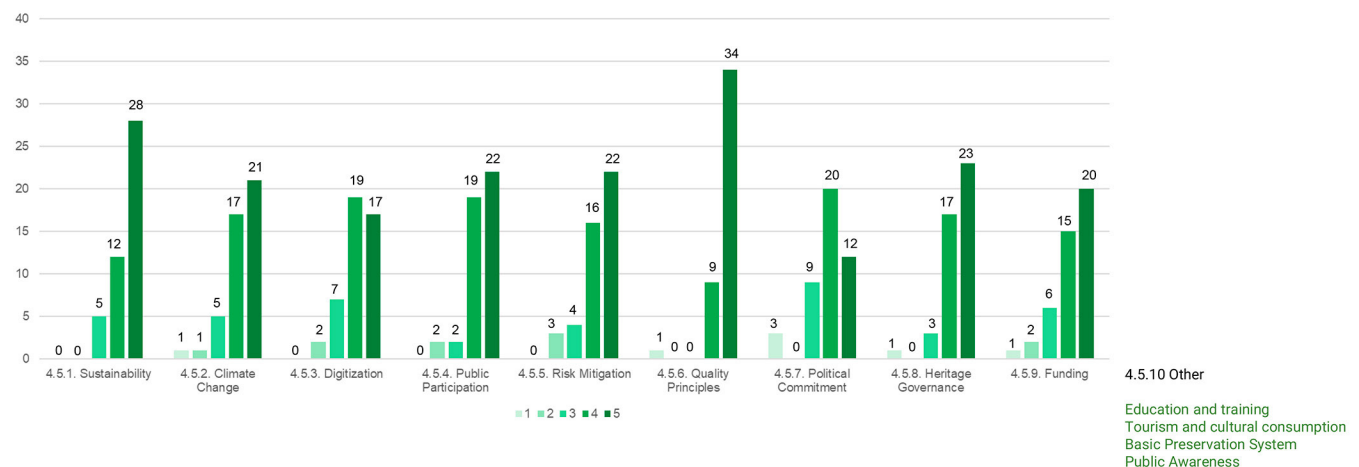


Figure 7. Workshop participants’ impression about the current challenges and opportunities on Architectural Conservation.

achieve these objectives, several types of collaboration were recommended: globally, but fundamentally between universities and even between departments of the same university as ways of applying innovative and utmost teaching strategies and interdisciplinarity.

#### 4 DISCUSSION

The survey underpinned excellent data to formulate updated answers as potential contributions to the Workshop. To respond to the question i) *“What is conservation? What does it stand for today?”*, it was possible to affirm that professors agree that Conservation is a remarkable interdisciplinary field that is, at its core, fully committed to Sustainable Development. However, the variety of courses and research topics might undermine the capacity of coherent communication of its methods of design towards current global demands.

This is evident just by looking at the terms used in teaching subjects. European courses of Architectural Conservation, especially at undergraduate levels, are extremely diverse, which is apparently good, but ultimately tends to turn visible the lack of coherence in teaching methodologies or integration of different disciplines. Italian approaches to Architectural Conservation remain dominant, formulating and expressing concepts and methods that are based on traditional experiences of the field (survey, diagnosis, structural analysis, and conservation of materials), especially related to historically significant architecture. On the other hand, practical approaches sustained by overarching “adaptive reuse” definitions, sometimes facilitating the interpretation of preexisting buildings in design, are mostly driven solely by technical subjects. To comprehend these polarities, or even discover gradients to balance a holistic intersection, individual interviews might be needed to provide in-depth interpretation.

In fact, this debate showed that, from an institutional point of view, the EAAE Conservation Network needs to create efforts to promote better integration between representatives of a wider range of architectural schools in different European countries. So, regarding the new agendas, to respond to the question ii) *“How new quality-based agendas are affecting architectural conservation pedagogies? Which are the good practices so far?”*, the survey alone was not able to respond to it. Instead, it became clear that a new common ground of how to train architects to deal with the built environment is urgent.

So, to point out question iii) *“What is the perception of Workshop participants?”*, the survey was able to express that professors in this area of studies feel that “sustainability” might have been progressively emptied of meaning. The desire for an “ethical design” is clearer and more operative in Architecture Education. The Workshop provided sources to acknowledge that this could be achievable if architects are trained to define quality principles for interventions, for instance, recognizing architectural knowledge through analysis of context, place sensibility, and low-impact actions.

Thus, contemporary Architectural Conservation Education and Research, as expressed in the survey, might have sublimated conceptual agendas and the current pedagogical approaches to empower students within the field are more interested in offering tools for ensuring the quality of architectural design. Moreover, innovative design activities in collaboration with partnered schools remain a topic of research, since the need for deepening quality and innovative design approaches of architectural conservation aligned with the Sustainable Development Goals has been identified.

#### 5 CONCLUSION

The survey proved to be an excellent tool to engage professors in the Workshop, also offering a “state of the art” of participants and their opinions. Also, the treatment as a group survey promoted social integration and the perception of future activities in the field. A book with participants’ contributions to the workshop is in press. However, despite new agendas, “quality” might not yet be completely settled, and institutions are still defining their approach toward sustainability demands.

In this sense, the survey showed some limitations. In-depth analysis of teaching courses and materials was mostly compromised by the availability of syllabi. Possible experimental teaching methods could not be visualized as the survey only determined overarching tendencies. With this regard, structured questionnaires may collect experienced statements to better organize comparative data from renowned professors. Thus, future developments of this research need to include face-to-face interviews to further discuss current theories, methods, and practices of Architectural Conservation and Design. This is to qualify new didactic materials embodying new agendas for a sustainable and inclusive future and engage experts, communities, and students.

So, despite the vulnerabilities that managing the built environment is facing, as regards Architectural Conservation, this condition actually must be seen as a great opportunity to influence the future of Architecture as a cultural practice and a profession.

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