

# STUDY

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## Questionnaire for the State of the Art

in educating sustainability and heritage

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#### O2 INTELLECTUAL OUTPUT

Output type: Studies / analysis – Questionnaire development and survey implementation

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**Enhancing of Heritage Awareness and  
Sustainability of Built Environment in  
Architectural and Urban Design Higher Education**

2021



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TITLE

STUDY: Questionnaire for the State of  
the Art in educating sustainability and  
heritage

PUBLISHER

University of Belgrade,  
Faculty of Architecture

DESIGN LAYOUT

Aleksandra Đorđević, Aleksandra  
Milovanović, Ana Zorić, Mladen Pešić

ISBN-978-86-7924-267-9

2021



Co-funded by the  
Erasmus+ Programme  
of the European Union

## STUDY: Questionnaire for the State of the Art in educating sustainability and heritage

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This result has been produced as a part of O1 INTELLECTUAL OUTPUT within HERSUS project within Erasmus + Strategic Partnerships for higher education. The creation of these resources has been co-funded under grant no. 2020-1-RS01-KA203-065407 (funding period 2020-2023; total grant 246.922,00 €). This publication [communication] 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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## INTRODUCTION / HERSUS CONSORTIUM / AUTH



*Intellectual Output 2: Questionnaire for the State of Art is the product of a survey design, dissemination and analysis strategy, managed by the AUTH HERSUS Team and undertaken by all HERSUS Participating institutions. The survey consisted of a two-pronged approach focusing on two target groups, experts and students in the HERSUS respective countries, aiming at creating an argumentative and critically analyzed report on the state of learning of sustainability and heritage in the field of the urban and architectural design of higher education. Part 1 of this report presents the overall scope, the various stages of the creation of the two concurrent Surveys: background review, consultation process, the Questionnaires dissemination/ monitoring strategy, analysis methodology. Moreover, this part also outlines the structure of the remaining sections of the report.*

# INTRODUCTION

## SURVEY SCOPE AND STAGES



### HERSUS IO2: Questionnaire for the State of Art - 2021-01-24 / 2021-05-03

IO2: Questionnaire for the State of Art forms the second deliverable of the first phase of the HERSUS project, whereby analytical, process and problem-based research is carried out in order to examine the state of the art in the field of urban and architectural design education, in line with the concepts of sustainability and heritage.

The stages of this first phase of the HERSUS project are: IO1 - a review of good practices in the subject area, IO2 - a critical questionnaire report in the subject area, and IO3 - statements for teaching through design for Sustainability of the Built Environment and Heritage Awareness. The process allows the results of IO1 and IO2 to serve as a basis for creation of Statements for teaching through design for Sustainability of the Built Environment and Heritage Awareness (IO3), all with the aim of creating a professional profile of a designer for the sustainability of built environment and heritage. Furthermore, all these intellectual outputs should result as a basis for future research in the subject area and as a value framework and an occasion for other European schools of architectural and urban design to engage in action for thematic innovation of study programs.

### IO2 Aims and purpose

Intellectual Output 2: Questionnaire for the State of Art is the product of a survey design, dissemination and analysis strategy, managed by the AUTH HERSUS team and undertaken by all HERSUS participating institutions. The survey consisted of a two-pronged approach focusing on two target groups, experts and students, residing in

the HERSUS respective countries, aiming at creating an argumentative and critically analyzed report on the state of learning of sustainability and heritage in the field of the urban and architectural design of higher education.

The purpose of IO2 is to support the participating Architectural Schools in establishing high-quality standards connected to teaching in the field of sustainability of the built heritage, through cross-cultural communication and problem solving at an international context.

The main research questions that the survey processes sought to approach are:

1. how much students and experts have developed an awareness of the importance of enhancing issues of the sustainability of the built environment and heritage in education and practice,
2. what is the level of understanding of what sustainability and heritage concepts are in the field of urban architectural design and where they are used, and
3. what would be the most effective way to include sustainability and heritage knowledge in the existing curricula

The elements of innovation of IO2 include two inquiry-based perspectives:

1. questioning students' perceptions of their competences, as these are developed through their studies, and of the expected competences from their prospective employers, in the practical design arena, and
2. questioning about learning habits and design strategies

### IO2 Methodology outline

Originally envisaged in the HERSUS project proposal, the two-pronged research, approaching experts and students, was divided in two parallel research actions: a mainly Qualitative Survey, engaging experts, and a Quantitative Survey, engaging students.

The Experts Survey sought to engage experts and/or decision-makers from



each country of the HERSUS consortium. The targeted profiles of experts and their projected relevant participation were chosen so as to comprehensively reflect the different tiers of engagement with issues of sustainability and heritage. Through the survey, they were interviewed about the necessary competencies in a practice arena and about any gaps that take place between education and practice, focusing on knowledge and design skills in the fields of sustainability and heritage.

The Students Survey sought to engage students at the HERSUS participating countries, enquiring on issues of sustainability and heritage knowledge / competences, targeting over 3500 students from partner organizations. The survey sought to engage postgraduate students in the field of urban and architectural design, identifying a variety of student profiles, existent in the educational structures of the participating countries, that would effectively reflect the current state of the art in learning and would ideally be in a position to reflect on gaps between education and practice.

## IO2 Development Stages

The remainder of this document presents an overview of the stages of research undertaken for the survey design, dissemination and analysis. The first phase of IO2 consisted of a background and literature review which informed the draft Survey questionnaires, produced by the AUTH HERSUS team. The consultation process that ensued, involved all HERSUS partners' views consolidating the common English Version of the Experts and Students Questionnaires. These were then translated in the four languages used in the HERSUS participating countries, concluding the Survey Questionnaire Design. Parallel to the consultation process, the AUTH and UBFA HERSUS Teams researched and designed the Survey Dissemination and Monitoring processes, elaborating on available routes for distribution and on available online survey tools that enable monitoring and

safekeeping of collected data. The analysis methodology and reporting guidelines concludes Part 1 of this deliverable.

Stages of the survey design, dissemination and analysis:

- Background and Literature review
- Survey design and consultation process
- Questionnaires' finalization
- Online survey tools
- Survey Dissemination & Monitoring
- Analysis and Reporting

## BACKGROUND AND LITERATURE REVIEW



Spearheading the research process for the design of the survey, parallel reviews sought to capitalize on former advances in the field. The original HERSUS project application entailed a "Survey on Education for Sustainability of the Built Environment and Heritage Awareness" among experts that the consortium members had engaged with, at the time. The execution of this common effort provided an initial glimpse into the character of the survey undertaken, shared by all partners of the HERSUS project. A review of the process revealed the possible pitfalls of under-representation of specific expert groups and/or the imbalance in responses gathered depending on country of origin. Issues of comprehension / relevance of terminology of key terms/issues were also made relevant, especially when dealing with an international target group. Moreover, the review provided a pathway for expanding the list of themes to be discussed in the design of the IO2 Survey and allowed an initial pooling of experts coming from all HERSUS members, which could be expanded upon.

A review of the relevant literature was also initiated, so as to involve all HERSUS partners and inform a common understanding of the process at hand. Early in the development process, the project leaders, UBFA, facilitated a common online folder/reader for exchanging relevant bibliography between the partners.

The review sought to include publications that focused on design disciplines and tackled survey design / dissemination and analysis, pertaining to:

- learning styles and learning habits,
- links-expectations between education and practice,
- issues of the sustainability of the built environment and heritage,
- measuring the effect of changes in educational curricula,
- measuring the level of understanding of key concepts and application scenarios,
- measuring the effectiveness of curricula and/or changes in influencing employability.

Stemming from the above, all teams also engaged in a process of internal research that sought to identify the ways in which their own institutions measure the effectiveness of their curricula, in practice- this meant also establishing links with local career offices. Furthermore, all HERSUS teams initiated research for the best routes for survey distribution to reach the widest possible target groups.

## SURVEY DESIGN



The first drafts of the questionnaires were disseminated to all partners on the 15.02.2021 and presented in detail on 18.02.2021 during the research project kick off meeting webinar. The concept and principles for the preparation of the first drafts of the questionnaires which were presented in the kick-off meeting, are described below along with the details and timeline of the consultation period and processes towards the development of the final form of the surveys and their translation in the languages of the consortium.

### Questionnaire Design

#### **Draft questionnaire preparation**

The preparation and consultation process for the questionnaires' development initiated

in November 2020 with literature review and proposals by all teams of the consortium.

The general research questions raised through the process are the following:

- to what extent have students and experts developed an awareness of the importance of enhancing issues of the sustainability of the built environment and heritage in education and practice,
- what is the level of understanding of what sustainability and heritage concepts are in the field of urban architectural design and where they are used,
- what would be the most effective way to include sustainability and heritage knowledge in the existing curricula.

#### **Questionnaire design principles and quality indicators**

The principles in the questionnaires design focused on

- Qualitative research, primarily through the results from the experts' survey
- Quantitative research, primarily through results from the students' survey
- Multilingualism with questionnaires in all consortium languages
- Equal representation among countries and participants' profiles

The quantitative indicators employed in the survey are:

- number of samples obtained in each partner institution,
- number of comments added to survey questions,
- number of online readers and commentators of results review

The qualitative indicators employed in the survey are

- checking the feedback,
- evaluation by the QAt and external evaluators,
- optional and free comments in the form of impressions

#### **Required samples and target groups**

The required number of responses for the surveys was agreed to at least 10 experts from each country i.e. a total of at least 50

experts from the entire consortium and 200 students from each country i.e. a total of 1000 students from the entire consortium.

The proposed profiles of participants for the experts' survey include an assortment of academics, practitioners, policy makers, decision makers in public administration posts and decision makers involved in NGOs and/or professional societies who are engaged in the fields of sustainability and heritage preservation in architectural and urban design. The consortium agreed to call for a variety of experts keeping a balanced combination among all the above-mentioned profiles:

Researchers / Academic Educators	20%
Practitioners	20%
Policy Makers	20%
Decision Makers in Public Administration	20%
Decision Makers in NGO / Professional Society	20%

The proposed participants for the students' survey include senior students from single cycle integrated Master Studies programs and Master's degree studies programs and PhD candidates. Recent Alumni were also included to allow for larger target group in partner institutions with smaller population.

Second cycle: 4th / 5th year of 5-year single cycle integrated Master Studies
Second cycle: Master's degree studies / professionalization courses
Third Cycle: Specialization School
Recent Alumni of the above Programs
Decision Makers in NGO / Professional Society

During the consultation process, students from third cycle specialization schools were added in the target group to cover specific study programs and requirements in partner institutions.

### Sections and Questions' style

The questionnaires were structured in separate sections to correspond to the initial general research questions. Both questionnaires included an initial section which aimed to identify the respondent's background and profile and to ensure adequate and balanced representation in the sample population. Two more sections were also included in both questionnaires referring to the awareness of issues of sustainability and heritage in practice or in study programs and to the competences related to sustainability and heritage in professional practice. The experts' questionnaire contained one additional section referring to the expectations from academic programs. Although some questions were changed or added in the questionnaires through the consultation process, the sections of both questionnaires were not altered and remained the same in the final versions.

More specifically the experts' questionnaire included four sections, namely

- "Respondent's background",
- "Presence/Awareness of issues of Sustainability and Heritage in practice",
- "Competences in relation to Sustainability and Heritage in practice", and
- "Requirements in the context of academic programs on Sustainability and Heritage".

The students' questionnaire included three sections, namely

- "Respondent's background",
- "Presence/Awareness of issues of Sustainability and Heritage in study programs" and
- "Competences in relation to Sustainability and Heritage in practice"

Regarding the questions' style, the experts' questionnaire focused on qualitative open-type questions allowing elaboration and opinion statements, also applicable for oral interviews but included quantitative questions as well in the form of tables to fill in ratios and ratings. The students' questionnaire included only quantitative questions in the form of tables to fill in with numerical values, checkboxes, and ratings, applicable for statistical analysis. In both questionnaires, the ratings were requested in a scale from 1 to 5, representing minimum and maximum evaluation of e.g., impact of academic activities, significance or applicability of key concepts, evaluation of skills etc.

### **Multilingual support**

The availability of multilingual questionnaires has been a priority from the beginning of the survey preparation. The questionnaire was first created in English, for the consultation process, in order to be translated later on in the four languages of the consortium, Serbian, Italian, Spanish and Greek. The preparation of the English version was made by the managing team of AUTH. After the finalization of the English version each team was responsible for the translation of the questionnaires in their respective language. UBFA team prepared the Serbian version, IAUV team prepared the Italian version, USE team prepared the Spanish version and the UCY prepared the Greek version. The multilingual questionnaires developed a comparable list of keywords and key concepts of sustainability and cultural heritage preservation in all consortium languages aiming at a homogenization of terminology across cultural backgrounds while including diversity.

### **Consultation process and amendments**

Through the consultation process amendments and additions were made to the questionnaires. The consultation took place with meetings and e-mail correspondence among partners for

the questionnaires' development and finalization. The students' questionnaire was also tested on second cycle level students of the integrated masters study program of Architecture in AUTH to examine the level of comprehension and applicability on one of the main target groups of the project.

Based on the project partners' comments and requirements and the preliminary survey testing, the surveys were adjusted to include further questions and options on the respondents' background and more questions and different options in the core of the questionnaires' main body.

More specifically, the changes in the background section of the experts' questionnaires included modification in the options of professional background and academic education. The changes in the background section of the students' questionnaire included

- Modification of the options in the programs of studies to include third cycle specialization schools,
- Simplification of questions regarding gender to avoid sensitive information requests,
- Addition of question on the existence of learning difficulties or disabilities,
- Reformation of the hierarchy of the questions, from more general questions to more specific.

In the main body of the questionnaires the modifications were made on questions regarding key concepts of sustainability and cultural heritage and the various scales of architectural and urban design. More specifically, in the final versions

- Key concepts included more terms (circular economy, environmental impact of materials, public advocacy for social participation / inclusion and cultural enhancement / contribution)
- The distinction in different scales of design was reduced from five to three categories: a. Construction Detailing / Interior Design / Architectural Design, b. Urban Design and Urban Planning and c. Landscape design
- The rating of the academic activities impact on students and of the skills and

knowledge acquired from education / required in practice was requested separately in three categories: a. Sustainability, b. Cultural Heritage and c. the Interface between Sustainability and Heritage

Moreover, in the experts' questionnaires

- some questions were joined and some other were split in distinct parts in order to clarify the expected information
- one more open-ended question was added on the significance of the pillars of sustainability (Society / Economy / Environment / Culture) which should be further emphasized in decision making and practice.

Further minor amendments and clarifications were also made through the process of translation and transfer of the questionnaires in the online survey tool. The finalized questionnaires' are presented in the following section 1.4 and in APENDICES I and II of the current report. The resulting timeline of the IO2 evolution is presented in Table 01.

**Table 01. Important dates: meetings and correspondence**

date	project evolution	meeting	correspondance
15.02.2021	draft questionnaires e-mail		all partners
18.02.2021	draft questionnaires presentation	kick off meeting	
28.02.2021	reminder request for comments		all partners
04.03.2021	revised questionnaires e-mail		all partners
05.03.2021	final comments returned		all partners
11.03.2021	lime survey tool activated		IT AUTH
12.03.2021	discussion on revised questionnaires	AUTH & UBFA	
18.03.2021	second revision of the questionnaires e-mail		all partners
18.03.2021	questionnaires uploaded on lime survey		
22.03.2021	discussion on revised questionnaires	all partners	
26.03.2021	partners access to lime survey tool available		IT AUTH
28.03.2021	final translations received		all partners
28.03.2021	final questionnaires uploaded on lime survey		all partners
28.03.2021	temporary survey activation for testing		all partners
30.03.2021	partners access to lime survey tool available		IT AUTH
31.03.2021	final corrections received		all partners
01.04.2021	language change completed		IT AUTH
02.04.2021	final approvals received		all partners
02.04.2021	survey activated		all partners
11.04.2021	instructions on survey monitoring		all partners
26.04.2021	Closing of Student Questionnaire distribution		all partners
29.04.2021	Closing of Expert Questionnaire distribution		all partners

## FINAL QUESTIONNAIRES CONCEPT AND STRUCTURE

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The surveys developed through the consultation process are examined in detail in this section, allowing for a discussion of the parameters that the two questionnaires target and the allowances that the survey tools make for further analysis, comparison and elaboration of the expected results.

The subsections that follow refer to the multilingual experts' and students' Questionnaires, respectively.

### Experts' Questionnaire

The experts' questionnaire includes mostly open-type questions, allowing answers in text form, in line with the qualitative approach originally envisaged. Some questions, requiring numerical inputs are included for efficient tracking of the experts' responses and for allowing comparisons between the experts and students target groups. The questionnaire was available to experts in five languages. Experts were initially greeted with a brief message introducing the scope of the research and were then asked to answer a total of 28 questions, organized in four sections.

#### Respondent's background

Questions 1.1 to 1.10 sought to engage the experts to reflect on their background. Being that their expert status was a prerequisite in their selection, the survey was not anonymous and required experts to declare their name and surname (Q1.1), and their main field of expertise (Q1.2). Question Q1.4 required experts to select their country of main activity; this was done for sample control, as a measure for easily filtering the questionnaires submitted in different countries of the HERSUS consortium. Questions Q1.3, Q1.5 and Q1.6 enquire on the variability of the studies/professional background, academic education and titles, and the years of experience of the experts in the relevant field. They are quantitative in nature as they require a selection of a relevant category but also allow

the addition of alternative answers "other", where applicable. Questions Q1.7 and Q1.8 are open-type, enquiring on the experts' work experience (last posts held) and on whether they have any involvement/participation with academic education programs. Concluding section 1, questions Q1.9 and Q1.10 were optional and allowed the addition of a CV and/or a photo to be used for further dissemination purposes and for better reflecting their background during the analysis.

#### Presence/Awareness of issues of Sustainability and Heritage in practice

The structure of section 2 is typical of the remaining three sections of the experts' questionnaire, in that it consists of pairs of a/b questions that introduce an issue and then expand on it with a follow-up question. In this vein, questions Q2.1a, Q2.1b, Q2.2a, and Q2.2b focus on the Importance/awareness of sustainability and heritage in the experts' everyday practice/research. Specifically, question Q2.1a focuses on sustainability and heritage and enquires on the importance that these have in everyday practice, while also asking experts to reflect on the number of projects that they have undertaken in the last 10 years that specifically focused on these concepts. Expanding on the same theme, Q2.1b enquires on the driving force behind the focus on sustainability and heritage in contemporary practice, asking experts to possibly attribute it to strict requirements and legislation restrictions, their own initiative, or to client and public sensitivity. Q2.2a, and Q2.2b shift focus from the project/research to the project team, enquiring on the awareness of key concepts and principles of sustainability and/or heritage, among the experts' colleagues, collaborators, and other associates, and on whether such key concepts are adequately integrated in the main corpus of architectural academic studies. Q2.3 completes an image of the experts' involvement in research/practice focusing on sustainability and/or heritage by asking them to declare which scales of architectural and urban design are more relevant in their work field; this is a closed-type question allowing a mapping of the involved scales/disciplines



of experts and their supporting teams. Questions Q2.4a and Q2.4b engage experts on the relevance of key concepts in practice/academia/decision making/policy making. Q2.4a, an open-type question, focuses on the HERSUS' key concepts of Reuse, Restoration and Resilience and asks experts to comment on their relevance, in their work environment. Expanding on the same theme, Q2.4b asks experts to rate, in a scale from 1 to 5, the relevance of 20 key concepts in the context of the different scales of design/research practice in their work field – this question is expected to yield results that will be comparable to those obtained from Q2.4 of the student questionnaire. Completing section 2, Q2.5 asks experts to comment on the importance of the pillars of sustainability (Society / Economy / Environment/ Culture) and on whether further emphasis on them is required in the decision-making processes of their everyday practice (research and professional projects).

### **Competences in relation to Sustainability and Heritage in practice**

The third section of the experts' questionnaire shifts attention to the competencies in the practical arena. Q3.1 asks experts to elaborate on the number and frequency of cooperation that they have had with graduates from academic study programs dealing with sustainability and/or cultural heritage, during the last 10 years, asking them to comment on the adequacy of their training. Q3.2a further delves into on the theme, differentiating between skills obtained from academic education and skills expanded in the work environment, asking experts to rate (in a scale from 1 to 5) the quality and level of skills and knowledge of recent graduates (according to 15 categories that were identified through the consultation process). Q3.2b expands the quantitative nature of the previous question, with an open-type follow-up on "other skills/knowledge" that recent graduates should obtain through their studies for sufficiently addressing challenges related to sustainability and heritage in the academic, research, institutional, and/or professional context. Questions 3.2a/b are intended to yield results that will be

comparable to those obtained from Q3. 1 and Q3.2 of the student questionnaire.

### **Requirements in the context of academic programs on Sustainability and Heritage**

The fourth section of the experts' questionnaire asks for their proposals for new academic programs focusing on the interface between sustainability and cultural heritage. Q4.1 is an open-type question that enquires on any identifiable knowledge gaps in the existing academic programs in the context of sustainability of the built environment and/or heritage awareness, while Q4.2 asks for the experts' proposals for overcoming the identified gaps. Questions 4.3a and 4.3b enquire further on the experts' proposals for achieving a balanced combination of academic educational activities in the context of academic programs focusing on sustainability and heritage; a combination of open-type and closed-type questions allows for the experts to declare their views and also for numerical outputs that can be compared to the relevant views of the student target group. Shifting from structural concerns to the content of such academic programs, Q4.4 focuses on ranking 20 Key concepts of sustainability and heritage, as identified through the consultation process, according to the prevalence they should have in the context of academic education. Finally, Q4.5 completes the questionnaire by allowing experts to suggest a key factor for the improvement of architectural education in terms of sustainability and cultural heritage awareness and training.

### **Students' Questionnaire**

The students' Questionnaire includes questions in the form of tables to fill in with numerical values, checkboxes, and ratings, applicable for statistical analysis, in line with the quantitative approach originally envisaged. The questionnaire was available to students in five languages. Students were initially greeted with a brief message introducing the scope of the research and were then asked to answer a total of 14 questions, organized in three sections.

## **Respondent's background**

A total of seven questions, Q1.1 to Q1.7, were devoted to mapping the various backgrounds of the respondents to the students' questionnaire, while ensuring the anonymity of responses. Question Q1.1 required students to select the country of the higher education institution that they attend; this was done for sample control, as a measure for easily filtering the questionnaires submitted in different countries of the HERSUS consortium. Questions Q1.2, Q1.3, and Q1.7 focus on gender, age, and the disability profile of the student respondents. Questions Q1.4, Q1.5 and Q1.6 focus on the studies / professional background of the respondents, the type of program that they currently attend (according to the targeted 2nd and 3rd cycle programs identified through the consultation), and the Main Focus of their current studies. These are quantitative in nature as they require a selection of a relevant category but also allow the addition of alternative answers "other", where applicable (Q1.4 and Q1.6).

## **Presence/Awareness of issues of Sustainability and Heritage in study programs**

Q2.1 requires students to assign approximate numbers of courses pertaining to the Program of Studies that they currently attend. More specifically, each student is required to indicate the approximate number of courses necessary for the Completion of their Degree, and out of those, the number of courses focusing mainly on Documentation / Conservation / Restoration of Cultural Heritage, the number of those focusing mainly on Sustainability /Environmental Design, the number of courses focusing or raising issues on both Sustainability & Cultural Heritage. The purpose of this question is to enable the analysis of existing curricula that different categories of students attend (2nd of 3rd cycle) and to diagnose the ratio of courses that focus on sustainability and heritage in relation to the total number of courses in the degree. Question Q2.2 expands on the theme

asking students to indicate the type(s) of available courses in their current program of studies, which focus or raise issues on sustainability or heritage or both; selecting all options that apply, students can thus provide a further comprehensive mapping of the typology of courses currently available while the inclusion of "other" also enables further expansion during the analysis of results. While the previous questions serve as a mapping of what is available, Question Q2.3 focuses on the impact of specific 16 educational activities, as identified through the consultation process, in strengthening students' comprehension of principles related to Sustainability or Cultural Heritage or both. The educational activities can be rated on a scale from 1: minimal impact, to 5: dominant activity. Concluding section 2 of the students' questionnaire, Q2.4 invites students to rate, in a scale from 1 to 5, the relevance of 20 key concepts of sustainability and heritage, in the context of the different scales of design practice– this question is expected to yield results that will be comparable to those obtained from Q2.4b of the experts' questionnaire.

## **Competences in relation to Sustainability and Heritage in practice**

The final section of the students' questionnaire consists of two questions, Q 3.1 and Q3.2 which seek to engage students in a self-rating exercise. Q 3.1 asks them to rate themselves (in a scale from 1-5) in terms of the Skills and Knowledge that they have gained through their current program of studies, in relation to sustainability or heritage or both. Q3.2 then asks them to rate their perceived importance of the same skills and knowledge in improving their employability in posts dealing with sustainability or cultural heritage or both in a professional context. The two questions can thus be comparable to each other and at the same time be compared to the experts' views as obtained through Q3.2a and Q3.2b of the experts' questionnaire.



## Provision for certificate of participation

The end page of the Students' questionnaire thanked students for their time and allowed them to redirect to a specific webpage of the HERSUS website, whereby they could provide their details, in case they would like to receive a certificate of participation in the survey.

The example of the certificate is provided below:



## ONLINE SURVEY TOOL



The surveys for experts and students were conducted online through inclusive forms which support the five project languages. Before selecting the final online tool three different options were tested for conducting the survey.

- Google forms questionnaires
- Interactive document for experts' questionnaire
- Lime Survey online tool

Initially the students' questionnaire was prepared in Google Forms platform. The preparation was supported by Nikoleta Kefalidou and Maria Tsoulfidou, senior students at the School of Architecture of AUTH, who also provided responses for a short scale testing of the questionnaire in terms of efficiency and comprehension by students within the main target group. The initial student questionnaire in google forms is available in the following link:

[https://docs.google.com/forms/d/1Vmbscf2DDpqa3Tclrih\\_6A005AtMzQuqZX-euemxJJ8/edit?usp=sharing](https://docs.google.com/forms/d/1Vmbscf2DDpqa3Tclrih_6A005AtMzQuqZX-euemxJJ8/edit?usp=sharing)

Additionally, an interactive document was prepared for the dissemination of the experts' questionnaire. The interactive document included appropriate fill in options for each question and could be used as an alternative method to privately disseminate the questionnaire to selected experts and receive responses separately.

The third tool examined and selected was the lime survey software, which was available through the support of the AUTH IT center. The IT center initiated two surveys to be developed by the AUTH HERSUS team and set the five different language options for the questionnaires.

The survey processing was available for administrators through dedicated link provided by the AUTH IT center.

The AUTH team inserted the questionnaire sections, the separate questions and the respective response options initially in the English language and after finalization

of the translations, in the four additional languages.

The surveys were disseminated to all partners through the following links, available for each different language.

The links for the experts' questionnaire with Survey ID 847557 were the following:

- [English \(Base language\)](#)
- [Greek](#)
- [Italian](#)
- [Serbian \(Latin\)](#)
- [Spanish](#)

The links for the students' questionnaire with Survey ID 639347, were the following:

- [English \(Base language\)](#)
- [Greek](#)
- [Italian](#)
- [Serbian \(Latin\)](#)
- [Spanish](#)

The first page of the questionnaires included information on the project survey and the target groups of respondents, and the option for language selection. The student questionnaire included information on security of the anonymity of the respondents.

At the end of the students' questionnaire, an automated link was added leading to a separate webpage created by UBFA, to allow respondents to request, optionally, a participation certificate:

- [End URL](#)

In the experts' questionnaire every section included an option to save the responses and temporarily leave the survey, after providing an email address and a passcode. The email address was used to receive a link to the specific incomplete questionnaire and the passcode to allow access to the respective respondent. At the end page of the experts' questionnaire the link to the project website [hersus.org](http://hersus.org) was added along with a note of appreciation for the participation.

The online surveys were prepared by the AUTH HERSUS team and an initial testing period was set for all partners to examine the uploaded questionnaires from 28.03.2021 to 31.03.2021.

Final amendments on the online questionnaires included corrections on the help comments in different languages, question numbering, text formatting and corrections on spelling and typos. Moreover, with the aid of the AUTH IT center one of the questionnaire languages, Serbian Cyrillic, was removed and Serbian Latin was added as a new language and all respective questions and response options were transferred by the AUTH team.

## SURVEY DISSEMINATION AND MONITORING



The suggested survey dissemination methods were:

- Private communication with selected experts
- Massive dissemination to students through undergraduate and post graduate courses groups, alumni mailing lists, internship mailing lists, academic websites, social media, etc.
- [HERSUS Website dissemination](#)

Each HERSUS team engaged at least one senior and one intermediate teacher or researcher from each country to choose the 10 or more expert respondents. A Junior researcher or assistant in teaching from each team had the responsibility to assist experts conducting the questionnaire and also be available to students for any potential questions and assistance when completing the questionnaire.

The monitoring process during the online survey period aimed at ensuring the smooth conduct of the survey, the successive acquirement of the required responses and the settlement of any potential problems. In order to achieve appropriate monitoring and to resolve upcoming issues in each country

- Partner representatives were assigned as moderators in lime survey online tool
- Instructions for monitoring responses during the online survey were disseminated to all partners

- Responses of experts and students were regularly examined by the AUTH team in terms of target number achievement and reported to all partners

The issues which occurred and were resolved during the online survey period included

- Feedback from experts was received regarding the expiration of the survey page when inactive and instructions were given to advise experts to save their responses regularly.
- An issue of missing responses in the students' survey regarding question 2.2 on the typology of academic courses in the current study programs which allowed multiple selection of answers was noted and examined in collaboration with AUTH IT centre. Partners agreed to continue the survey and resolve the issue after the survey expiration. The IT centre confirmed proper function of the specific question.
- A large number of incomplete responses was noted in the students' survey and further dissemination measures for students advised
- The number of complete responses in the student survey remained below the initial target in the second and final week of the survey therefore an extension of the survey closing deadline the was agreed in order to achieve target responses.
- Several experts' responses were received privately from partner institutions therefore an extension of the experts' survey closing was agreed until 29.04.2021 in order to have all responses uploaded in the online survey platform.

Instructions for analysis and reporting of the survey results were prepared along with templates in the form of word documents (experts' responses in template 1 and students' responses in template 2) and excel sheets to assist in graphs development in identical forms by each partner. The template for graphs' structure preparation was developed in collaboration with the project leaders, UBFA HERSUS team. The survey results containing the total responses by all partner institutions were included in a separate document in excel form and distributed to all partners after the online survey expiration.

A final report template was prepared to include the complete survey results from

- experts' survey separately by each partner institution (in part 2),
- students' survey separately by each partner institution (in part 3) and
- the conclusions from the comparative analysis among all partner institutions (in part 4).

Each HERSUS team was responsible for the processing of the results in relation to matters within their country. Also, they wrote the second and third part of the report, including the obtained results, processing of the results, and recommendations and guidelines derived from the obtained material.

## ANALYSIS AND REPORTING TEMPLATES



AUTH HERSUS team undertook the preparation of a common analysis methodology and reporting templates for the survey results and the dissemination of instructions to all partners.

## SURVEY PROCESS OUTCOMES / EXPERTS



The resulting number of responses in the experts' questionnaire:

COUNTRY	RESPONSES	%
Greece (A1)	10	18.52%
Italy (A2)	9	16.67%
Serbia (A3)	12	22.22%
Cyprus (A4)	10	18.52%
Spain (A5)	13	24.07%

A further review of the respondents' fields of primary expertise reveals the following:

MAIN FIELD OF EXPERTISE	RESPONSES	%
Researcher Academic Educator (A1)	21	18.52%
Practitioner (A2)	11	16.67%
Policy Maker (Government or local authorities members or consultants) (A3)	8	22.22%
Decision Maker in Public Administration (Ephorates, Ministries, Devolved Administration) (A4)	7	18.52%
Decision Maker in NGO / Professional Society (A5)	7	24.07%

YEARS OF EXPERIENCE IN THE FIELD	RESPONSES	%
0-5	4	7.41%
5-10	4	7.41%
10-15	7	12.96%
15-20	8	14.81%
>20	31	57.41%

The imbalance observed in the profiles can be attributed to the "role" that the experts themselves chose for this question, which may be different from the "role" HERSUS teams envisaged for them when addressing them. Furthermore, above 50% of the experts have more than 20 years of experience in the field, ensuring high quality feedback. Each HERSUS team will expand on these issues in the analysis of the local context.

## SURVEY PROCESS OUTCOMES / STUDENTS

The resulting number of responses in the students' questionnaire:

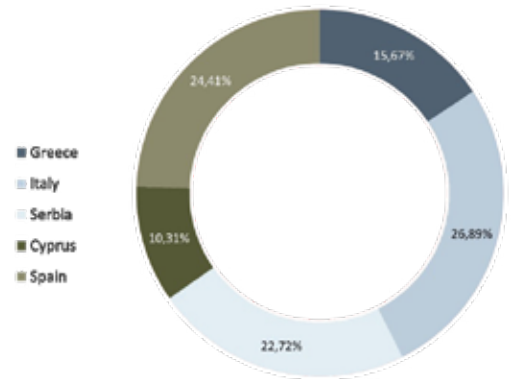
COUNTRY	RESPONSES	%
Greece (A111)	120	15.67%
Italy (A112)	206	26.89%
Serbia (A113)	174	22.72%
Cyprus (A114)	79	10.31%
Spain (A115)	187	24.41%

GENDER	RESPONSES	%
Male	272	35.51%
Female	481	62.79%
Prefer not to answer	12	1.57%
Other	1	0.13%

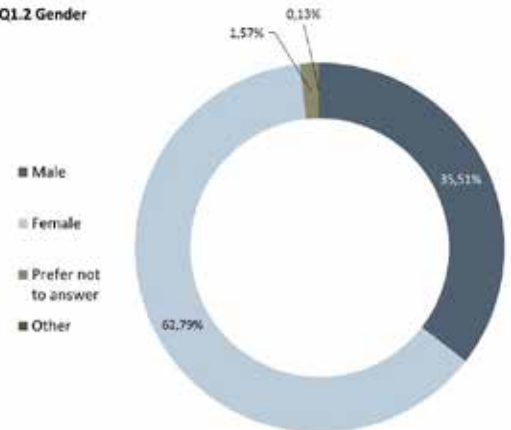
AGE	RESPONSES	%
below 21 years	5	0.65%
21-23 years	275	35.90%
24-26 years	243	31.72%
27-29 years	116	15.14%
above 29 years	127	16.58%

The distribution of results reveals higher contributions from female participants, a balanced contribution in terms of age groups, and higher participation of 2nd Cycle Students (immediate target group). The high contribution of Alumni justifies the HERSUS teams' decision to include them as one of the target groups and allows variation of the results. Overall, these will be commented on, in the local context of each country, but nevertheless represent a balanced and diverse sample.

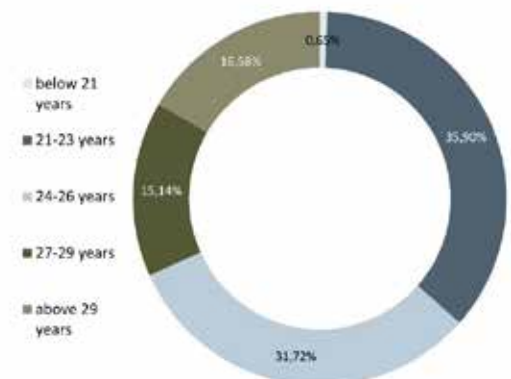
Q1.1 Country



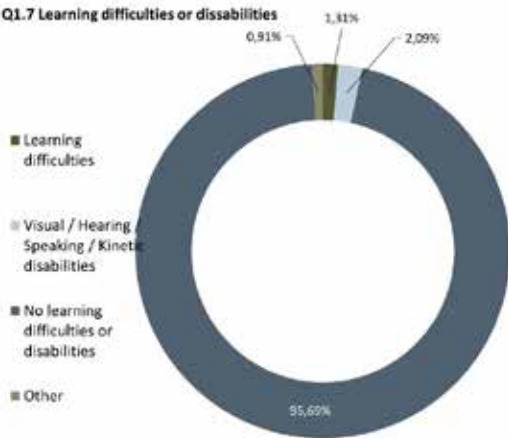
Q1.2 Gender



Q1.3 Age

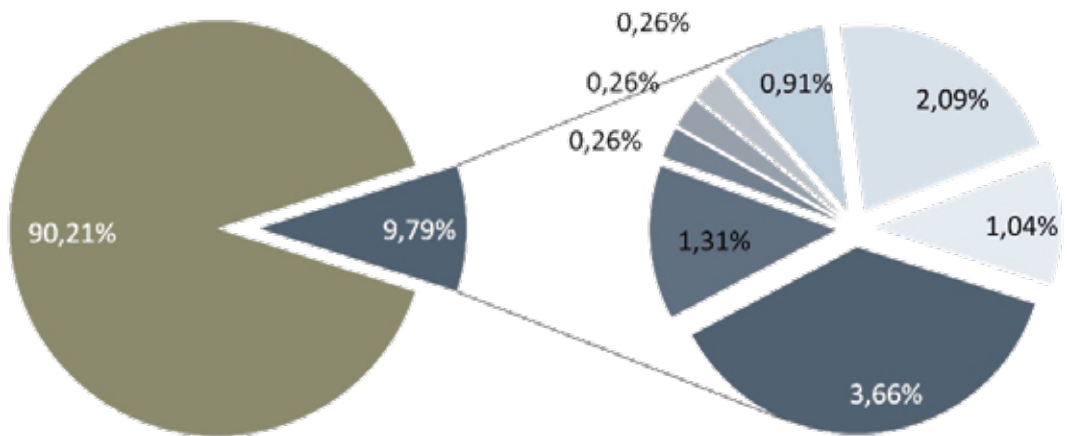


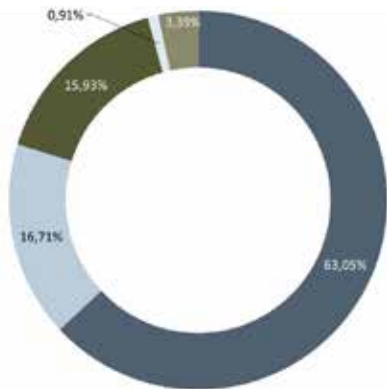
**Q1.7 Learning difficulties or disabilities**



**Q1.4 studies | professional background**

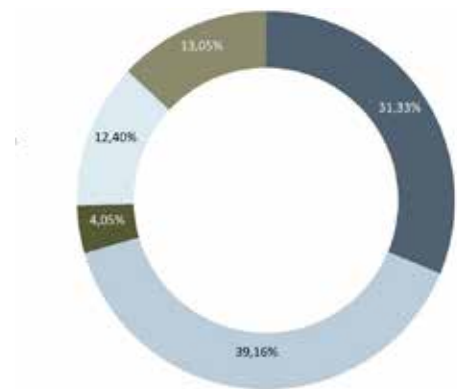
- Architecture
- Engineering
- Spatial Planning / Land Surveying / Topography / Geography
- Social Sciences
- Environmental Science / Engineering
- Management / Economics
- Agriculture / Landscape Design & Planning
- Interior / Industrial Design
- Archaeology / Heritage Conservation
- Urban and Regional Planning
- Other





Q1.6 Main Focus of Studies

- Architecture/ Built Environment
- Sustainability/ Environmental Design
- Heritage/ Conservation/ Restoration/ Cultural Management
- Sustainable Heritage
- Other

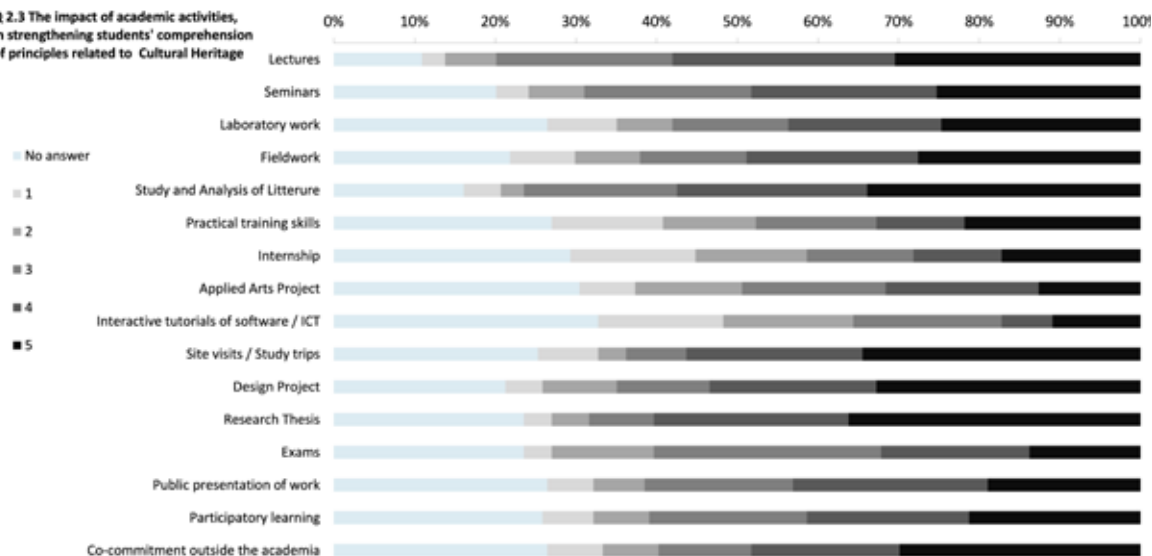


Q1.5 Program of Studies

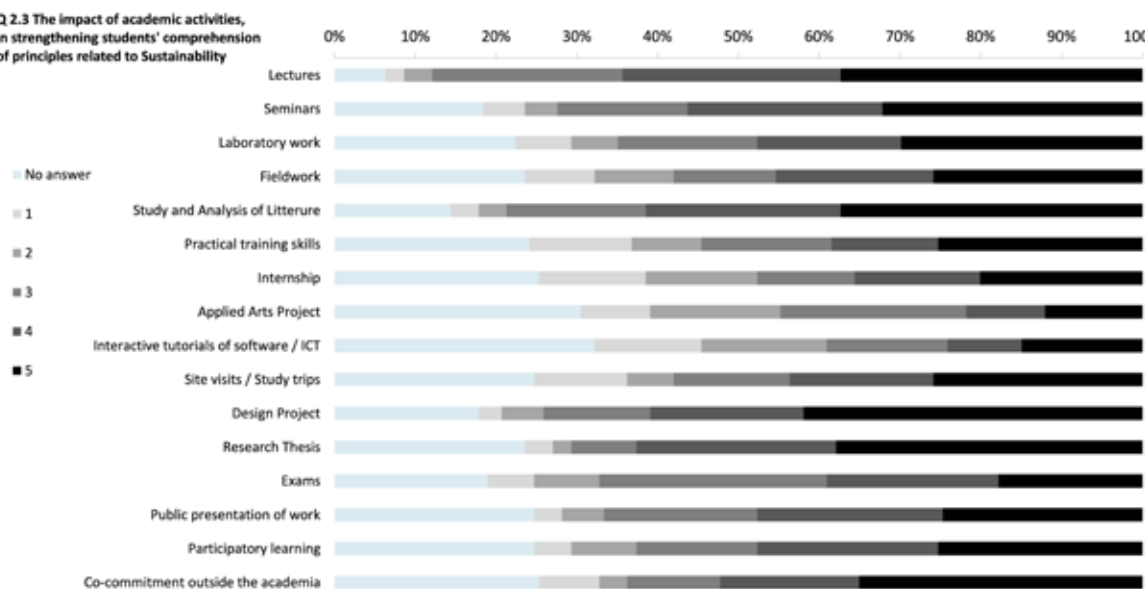
- Second cycle: 4th / 5th year of 5-year single cycle integrated Master Studies
- Second cycle: Master's degree studies / professionalization courses
- Third Cycle: Specialisation School
- Third Cycle: PhD studies
- Recent Alumni of the above Programs

	Responses		Focus of Studies			Taught Courses of the Curriculum	Courses focusing mainly on documentation Conservation Restoration of Cultural Heritage	Courses focusing mainly on Sustainability / Environmental Design	Courses focusing both on Sustainability & Cultural Heritage	Courses raising issues of Sustainability / Environmental Design / Planning	Courses raising issues of the value / appreciation or dialogue with the National / International Historic Context					
	number	% of total samples	Architecture	Heritage	Sustainability	Median	Median	% of total courses	Median	% of total courses	Median	% of total courses	Median	% of total courses		
4th / 5th year of 5-year single cycle integrated Master Studies	240	31,3%	85,0%	9,2%	3,8%	50	3	6,0%	2	4,0%	1	2,0%	3	6,0%	2	4,0%
Master's degree studies / professionalization courses	85	11,1%	0,0%	0,0%	100,0%	11	2	18,2%	4	38,4%	2	18,2%	3	27,3%	2	18,2%
	49	6,4%	0,0%	100%	0,0%	10	4	40,0%	1	10,0%	1	10,0%	1	10,0%	2	20,0%
	156	20,4%	100,0%	0,0%	0,0%	20	3	15,0%	3	15,0%	2	10,0%	2	10,0%	2	10,0%
Specialization School	8	1,0%	0,0%	0,0%	100,0%	10	0	0,0%	8	80,0%	1	10,0%	3	30,0%	1	10,0%
	14	1,8%	100,0%	100%	0,0%	28	16	57,1%	2	7,1%	4	14,3%	2	7,1%	4	14,3%
	7	0,9%	0,0%	0,0%	0,0%	13	1	7,7%	5	38,5%	1	7,7%	1	7,7%	0	0,0%

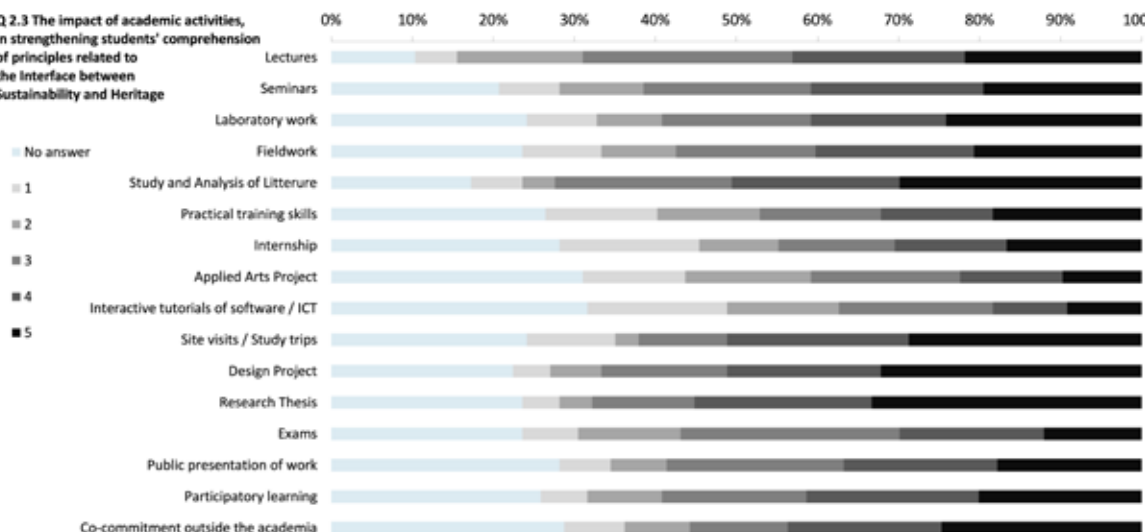
Q 2.3 The impact of academic activities, in strengthening students' comprehension of principles related to Cultural Heritage



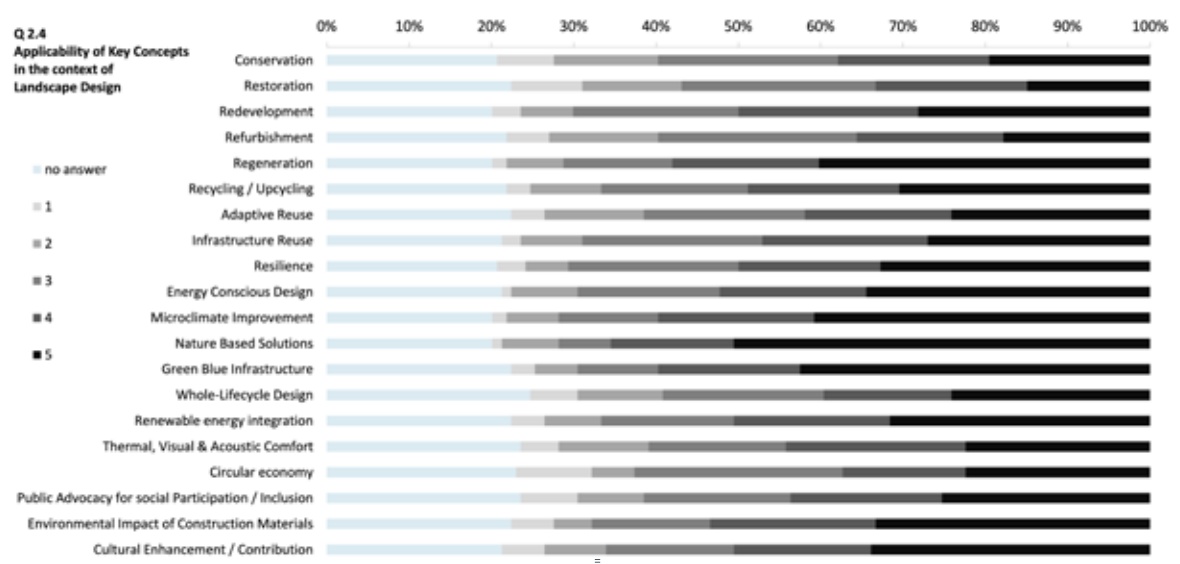
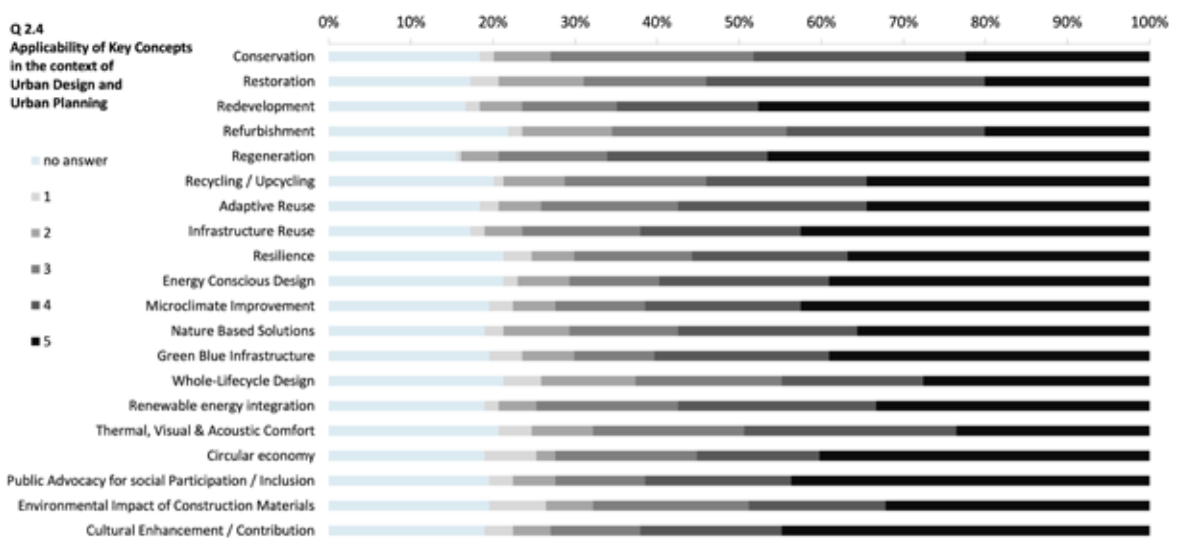
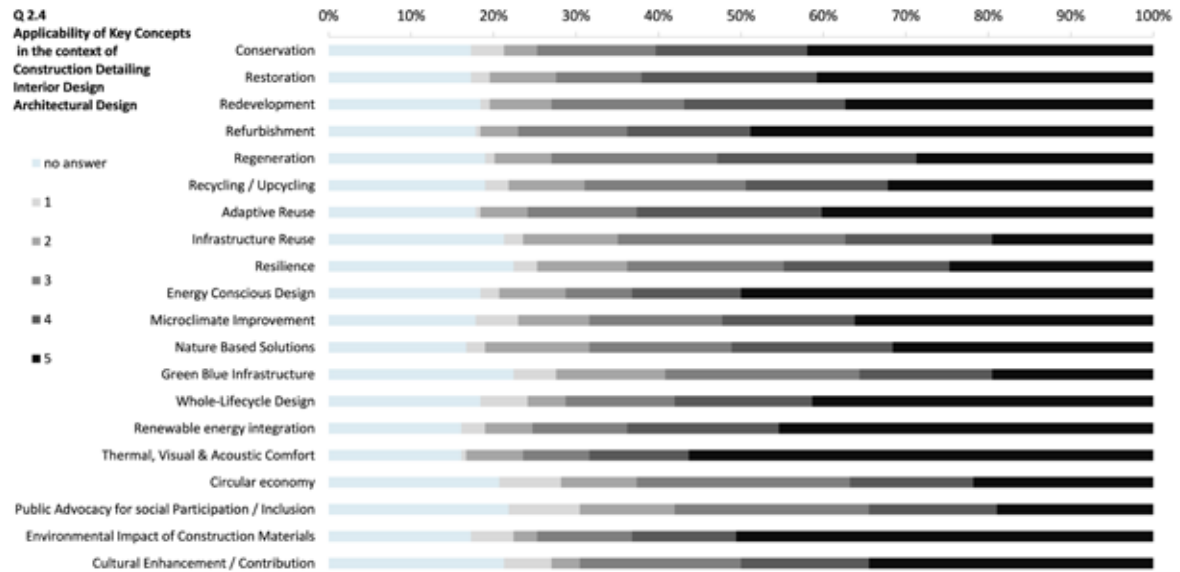
Q 2.3 The impact of academic activities, in strengthening students' comprehension of principles related to Sustainability



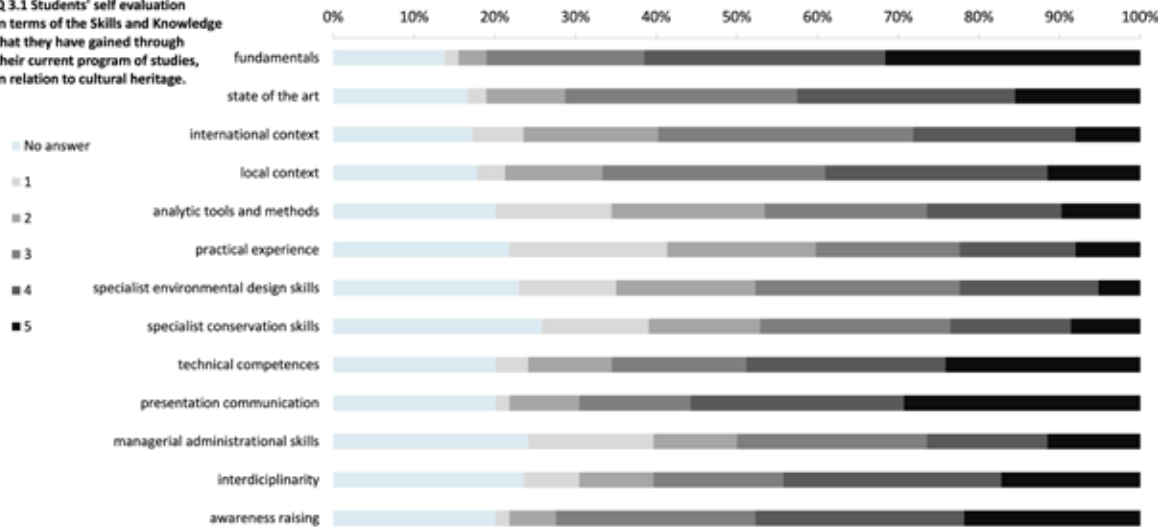
Q 2.3 The impact of academic activities, in strengthening students' comprehension of principles related to the Interface between Sustainability and Heritage



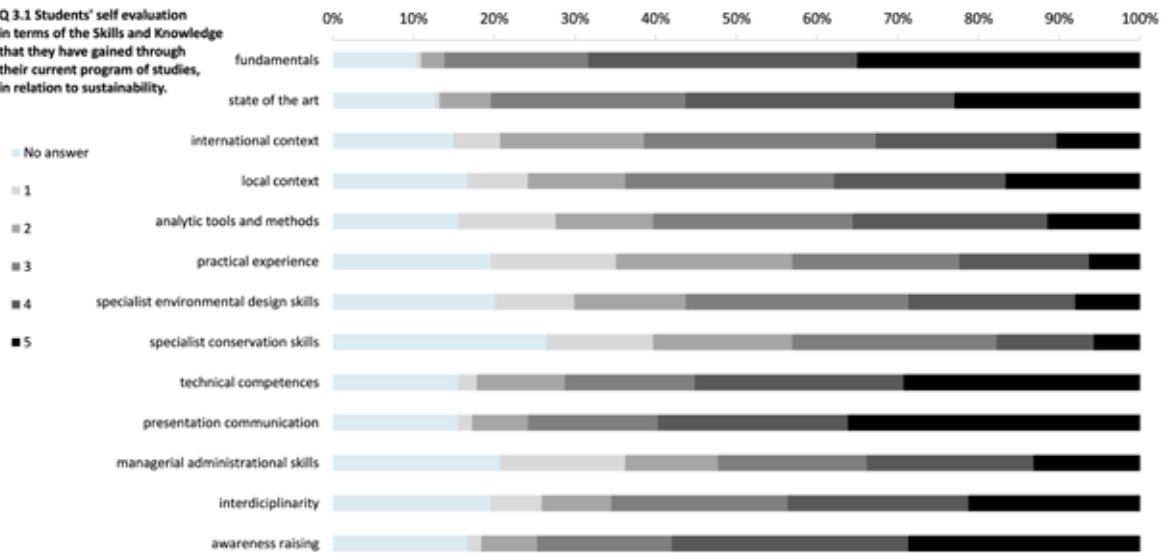




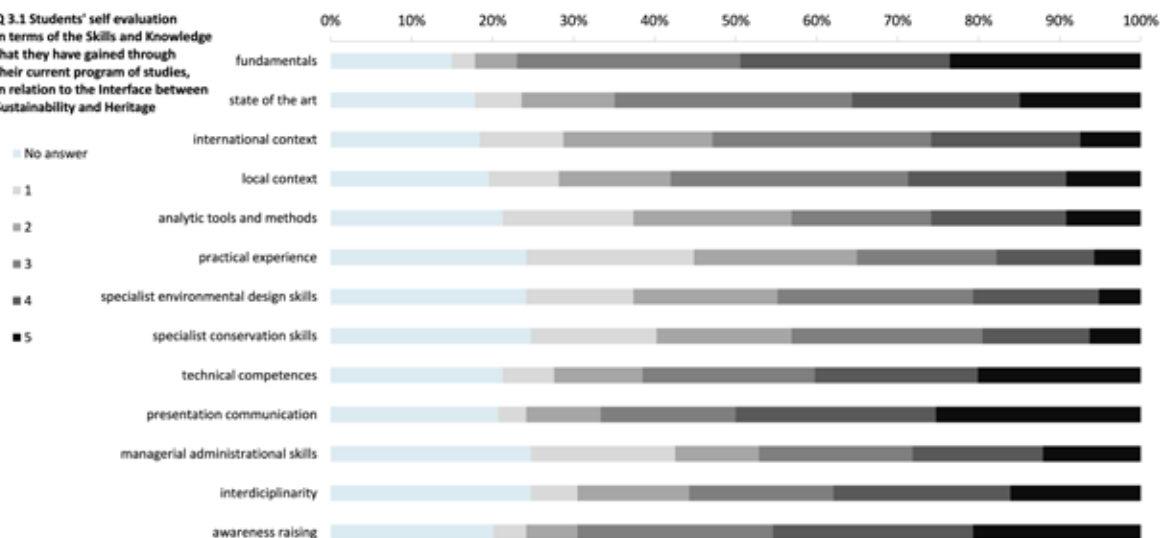
Q 3.1 Students' self evaluation in terms of the Skills and Knowledge that they have gained through their current program of studies, in relation to cultural heritage.

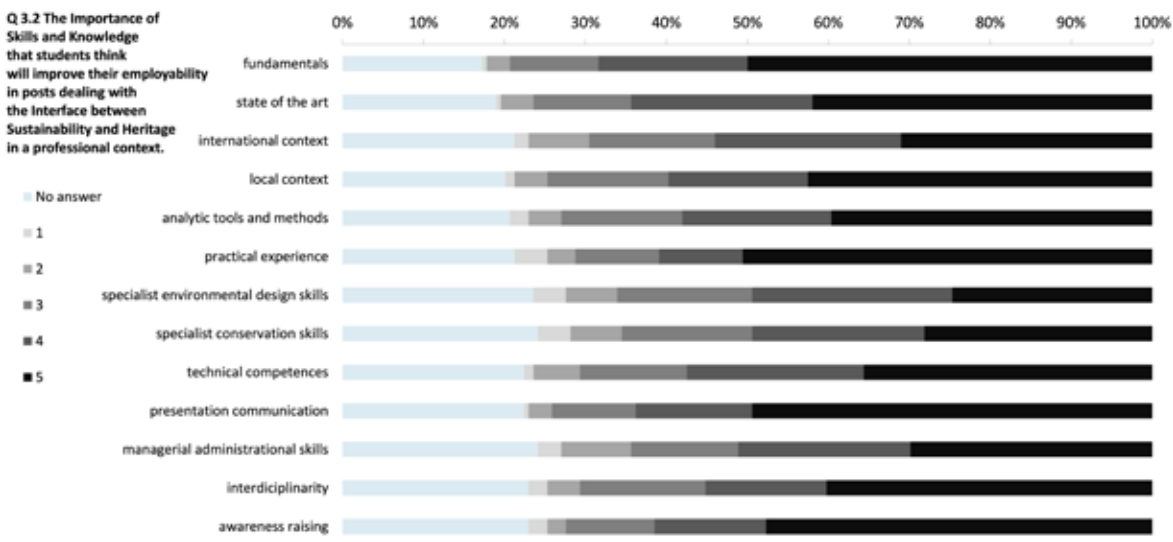
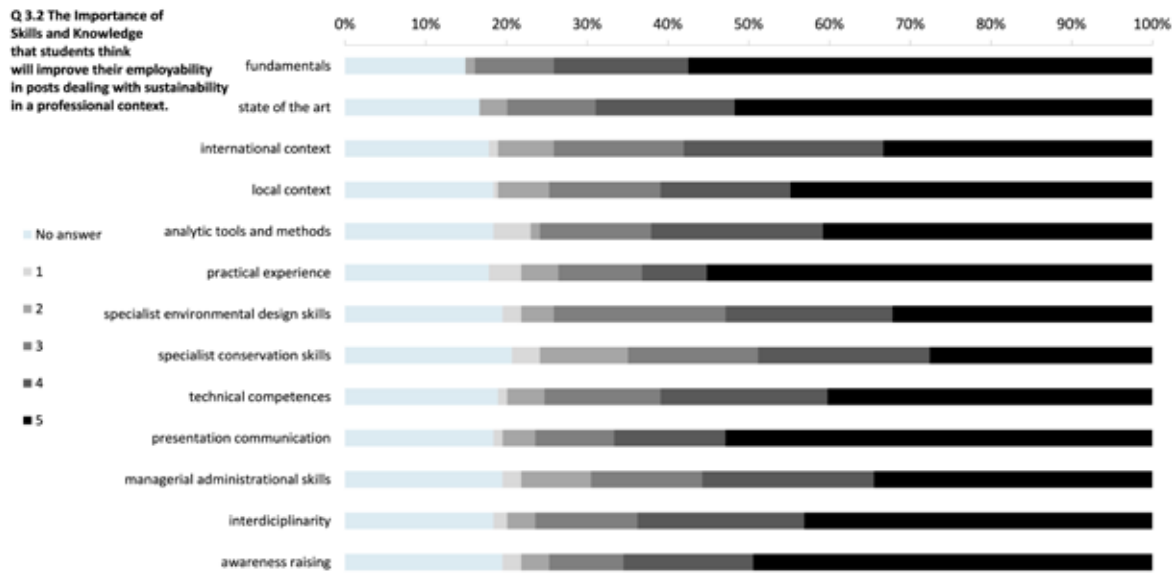
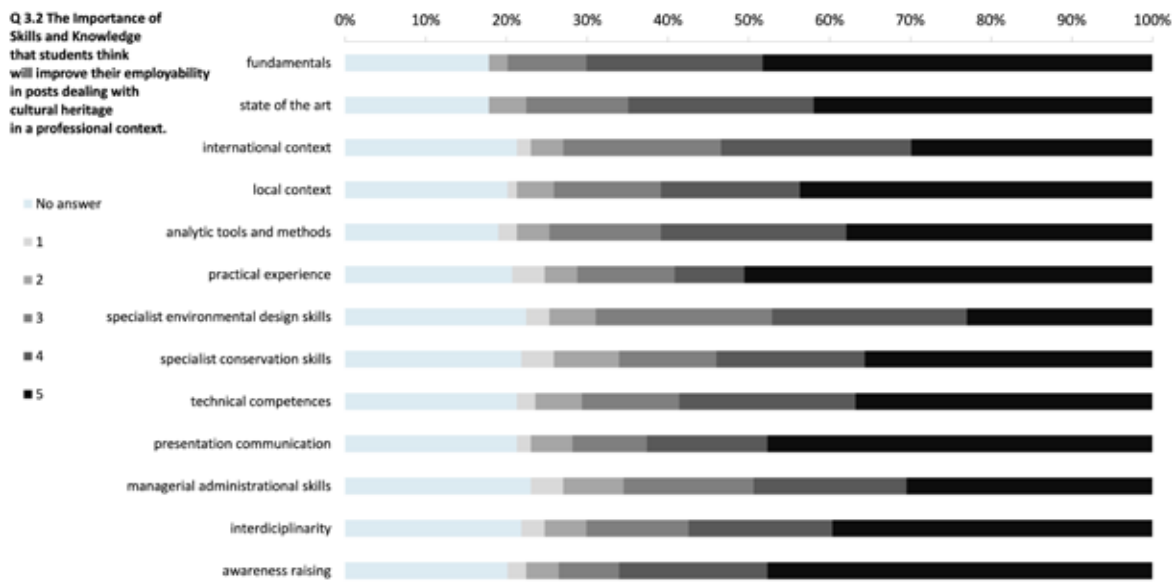


Q 3.1 Students' self evaluation in terms of the Skills and Knowledge that they have gained through their current program of studies, in relation to sustainability.



Q 3.1 Students' self evaluation in terms of the Skills and Knowledge that they have gained through their current program of studies, in relation to the Interface between Sustainability and Heritage





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# STUDENT QUESTIONNAIRE STUDY RESULTS



Serbia (Belgrade)



Italy (Venice)



Cyprus (Nicosia)



Greece (Thessaloniki)



Spain (Seville)

## DISSEMINATION PROCESS

The initial strategy for the dissemination was conceived in following consecutive steps: (1) targeting and distributing questionnaires to the students directly involved in courses taught by UBFA HERSUS team members with particular focus to specific programs and levels, (2) targeting and distributing questionnaires to the recent alumni members, (3) distributing of questionnaires through student representatives to all students of 4th and 5th year of Integrated studies, and 1st and 2nd year of Master studies, (4) connecting and distributing questionnaires among other schools of Architecture in the country (University of Novi Sad, University of Niš, University of Novi Pazar), (5) posting a link on the official HERSUS website and UBFA social networks, and (6) inviting other related higher education institutions relevant to the HERSUS scope to take participation.

The dissemination strategy was successful, specifically having in mind the number of students that expressed initial interest to take participation (506 students). Having in mind the questionnaire complexity, 174 students have completed the questionnaire, on whose answers conclusion will be carried out. In relation to total responses on the consortium level, this sample represents a 22,72%.



Aleksandra Đorđević  
Ana Zorić  
Aleksandra Milovanović  
Mladen Pešić

SERBIA

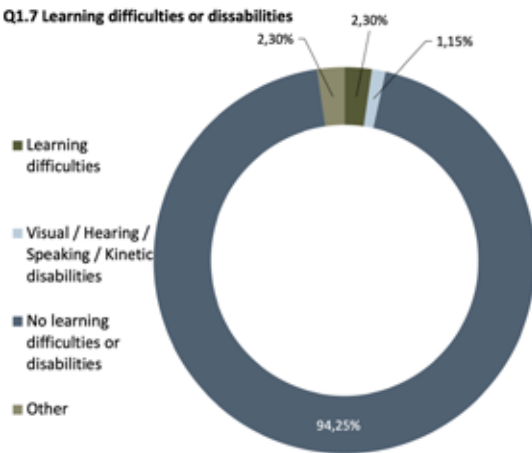
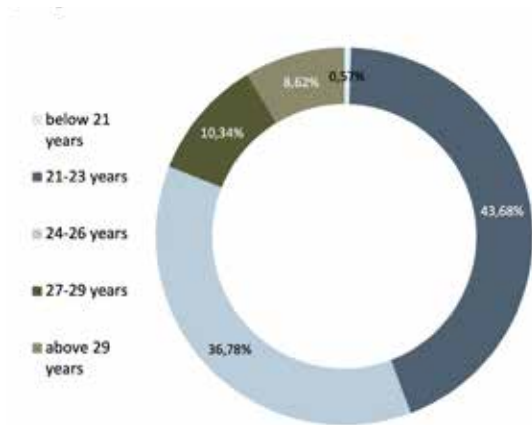
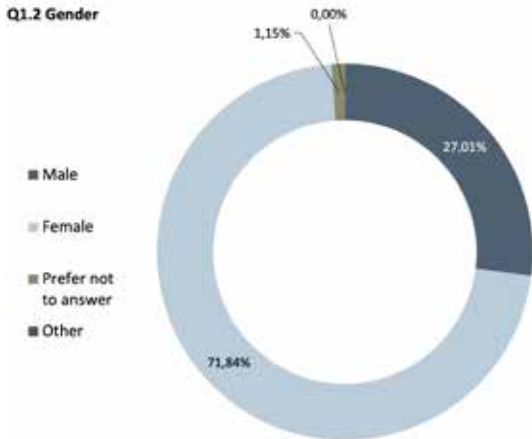
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## ABSTRACT / SERBIA / UBFA



*The students' questionnaires involved 506 students (176 completed and 330 uncompleted questionnaires) from UB-FA and other Architectural Schools in Serbia. The questionnaire was attended by students of all targeted levels of study, as well as alumni, with the largest share of respondents from the master level of study. UB-FA analysis of the survey data identifies following key points about the State-of-the-Art in the field of heritage and sustainability education: (1) an almost invisible number of courses which involve sustainability and heritage as umbrella concepts in curriculum design have been identified within existing master's and specialist-level study programs, (2) students are not sufficiently aware of the impact of practice-based and ICT approaches in strengthening their comprehension of principles related to the nexus of sustainability and heritage, (3) the mismatch in understanding the key concepts of sustainability and heritage in line within different scales of design practice is recognized, as well as the need for developing integral, multiscale approach, and finally (4) a gap is recognized between what students have identified in evaluating their skills and knowledge, and identifying what they consider relevant for employability and practice arena.*

# RESPONDENTS SAMPLE



## Gender

In relation to gender representation in UBFA sample, the dominant pattern consists of female gender (71,84%, which is even higher than percentage of female respondents on the consortium level - 62,79%), while there was 27,01% of male respondents, while 1,15% of students preferred not to answer.

## Age

Regarding age, the distribution is more balanced, and the UBFA sample consist of 0,57% persons aged below 21 years, 43,68% persons aged 21-23, 36,78% aged 24-26, 10,34% aged 27-29, and 8,62% over 29 years. These results correspond with the general age of students enrolled in master programs and specialisation courses, while the relative high number of persons above 29 years (8,62%) resulted from the strategy of including alumni students, and not the general age of students engaged in programs, as it may be a case in other countries since this percentage is higher (16,58%).

## Learning difficulties or disabilities

There is an important percentage of people with various learning difficulties or disabilities (*Learning difficulties* – 2,30%, *Visual/Hearing/Speaking/Kinetic disabilities* – 1,15%, and *other disabilities* such as diabetes- 2, 30%) that needs to be taken into account when envisioning future courses, particularly since the local results correspond to the results on the consortium level. One of the participants highlighted that due to his kinetic disability student was not able to attend all teaching activities (such as field visits, consultation, etc).

Fig 1. Mapping of the various backgrounds of the respondents based on responses to Q1.2, Q1.3 and Q1.7



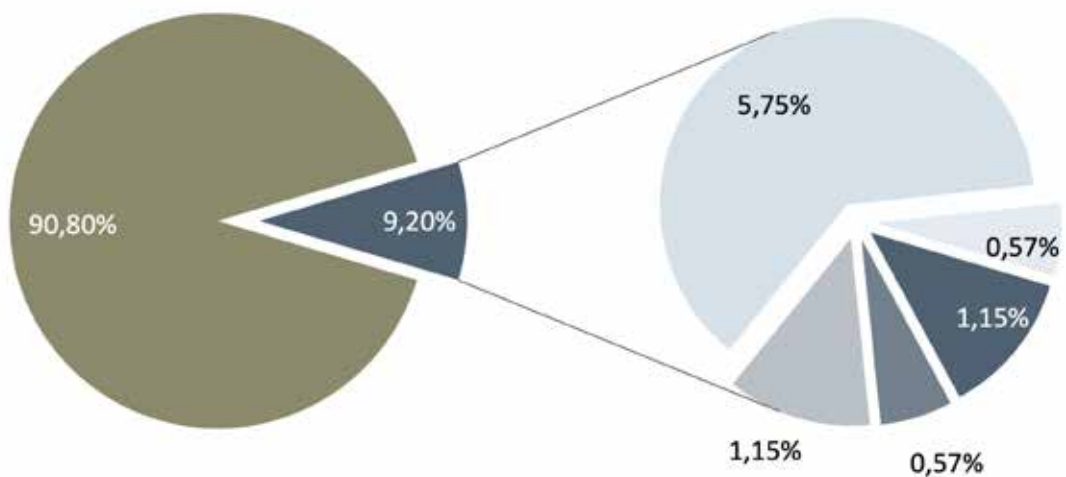
## Respondents' studies or professional background

The dominant percentage of UBFA respondents comes from the *Architectural background* (90,80%), while all other fields form a sample of 9,20%. Their professional backgrounds differ from *Engineering* (1,15%), *Social sciences* (0,57%), *Agriculture/Landscape Design and planning* (1,15%), *Urban and Regional planning* (5,75%) and *Other* (0,57%). The range of other disciplines is smaller compared to the results at the consortium level which corresponds to the tradition of dealing with heritage and sustainability that is closely related to the field of architecture, and rarely represented in other closely related fields.

### Q1.4 studies | professional background

- Architecture
- Engineering
- Spatial Planning / Land Surveying / Topography / Geography
- Social Sciences
- Environmental Science / Engineering
- Management / Economics
- Agriculture / Landscape Design & Planning
- Interior / Industrial Design
- Archaeology / Heritage Conservation
- Urban and Regional Planning
- Other

Fig 2. Mapping of the various backgrounds of the respondents based on responses to Q1.4



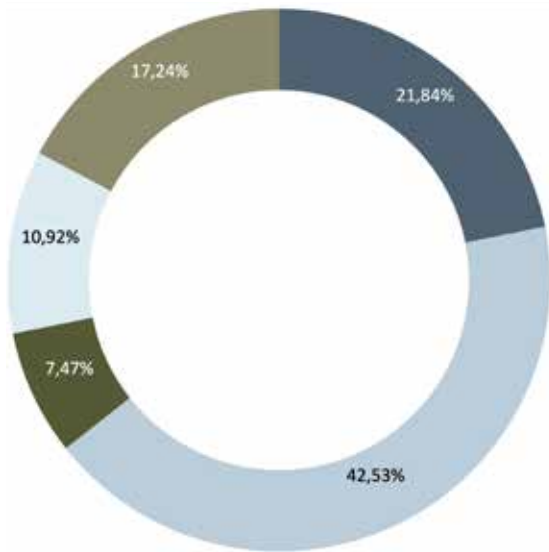


Fig 3. Mapping of the various backgrounds of the respondents based on responses to Q1.5

### Q1.5 Program of Studies

- Second cycle: 4th / 5th year of 5-year single cycle integrated Master Studies
- Second cycle: Master's degree studies / professionalization courses
- Third Cycle: Specialisation School
- Third Cycle: PhD studies
- Recent Alumni of the above Programs

### Type of program that they currently attend

The UBFA sample corresponds to the HERSUS sample and records the balanced variability regarding programs, especially having in mind that percentage of respondents correspond to the number of students enrolled in individual programs (4th and 5th year of 5-year single cycle Integrated Master Studies – 21,84%, Master degree studies/ professional courses – 42,53%, Specialisation School – 7,47%, Ph.D. Studies – 10,92% and Recent Alumni – 17,24%.

### Main Focus of their current studies

Similar to professional background and question 1.4, 87,93% of students have *Architecture and Built environment* as their main focus of studies, respective number of students (7,47%) are engaged in studies of *Sustainability and environmental design*. Other fields record lack of representation. The percentage of students with main focus on *Architecture and Built environment* is reasonably higher than on a consortium level (87,93% compared to 63,05%), which can be explained through the elective character of courses that tackle problems of sustainability and heritage. This also testifies about the need to develop new programs, that will be solely devoted to the interface between heritage and sustainability.

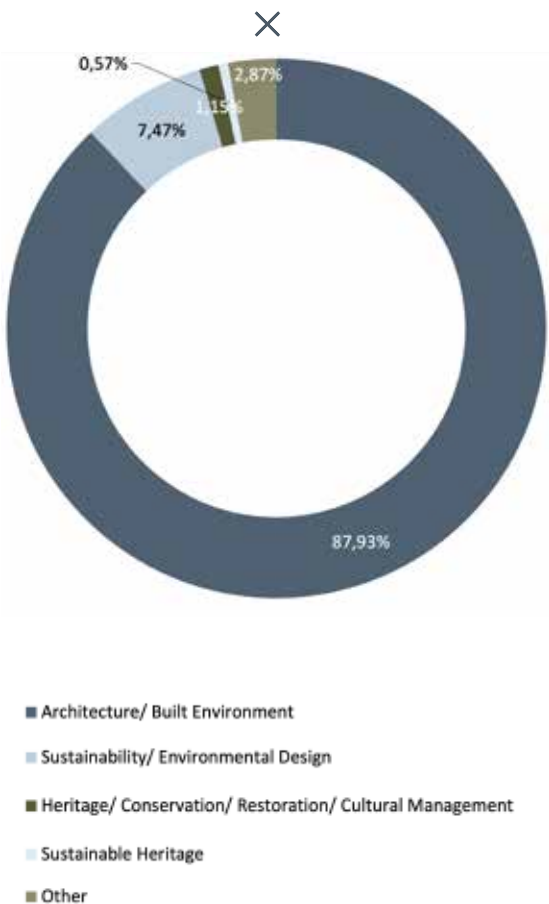


Fig 4. Mapping of the various backgrounds of the respondents based on responses to Q1.6

## The distribution of available courses in the curriculums

The analysis will be drawn upon the results corresponding to 1) *4th and 5th year of Integrated Master Studies* – 38 respondents, 2) *Master's degree studies in Architecture and Built environment* – 70 respondents, 3) *Specialization School in Sustainability/ Environmental Design* – 6 respondents, and 4) *Specialization School in Architecture and Built environment* – 5 respondents.

1) The Integrated studies are mainly focused on *Architecture* (92,1%), with median number of 72 courses, where 3 to 4 courses raise issues or are focused on each of the defined subject groups: a) Documentation, Conservation and Restoration of Cultural Heritage, b) Sustainability/Environmental Design, c) Sustainability and Cultural Heritage, d) Sustainability/ Environmental Design/Planning and e) value/appreciation or dialogue with the National/International Historic Context, thus corresponding to the results on the consortium level.

2) The Master studies are focused on *Architecture* (100%), with median number of 26 courses, where 2 to 3 courses raise issues or are focused on each of the

defined subject groups: a) Documentation, Conservation and Restoration of Cultural Heritage, b) Sustainability/Environmental Design, c) Sustainability and Cultural Heritage, d) Sustainability/Environmental Design/Planning and e) value/appreciation or dialogue with the National/International Historic Context. In relation to the number of subjects, which is respectively higher than on the consortium level (26 to 20 subjects), the results testifies that the representation of topics in question, are higher from the program of Integrated studies. Aside the number of subjects, the results correspond to the results on the consortium level.

3) The Specialization School focused on *Sustainability* (100%), with median number of 10 courses, from which almost all deal with topics of Sustainability/Environmental Design, only 1 tackles the question of Sustainability and Cultural Heritage and 1 on value/appreciation or dialogue with the National/International Historic Context.

4) The Specialization School focused on *Architecture and Built environment* (100%), with median number of 13 courses, from which 5 deal with topics of Sustainability/ Environmental Design, while none deals with all other defined subject groups.

Table 01. Available courses in the existing programs of studies according to responses to Q2.1

	Responses		Focus of Studies			Taught Courses of the Curriculum	Courses focusing mainly on documentation Conservation Restoration of Cultural Heritage			Courses focusing mainly on Sustainability / Environmental Design		Courses focusing both on Sustainability & Cultural Heritage		Courses raising issues of Sustainability / Environmental Design / Planning		Courses raising issues of the value / appreciation or dialogue with the National / International Historic Context	
	number	% of total samples	Architecture	Heritage	Sustainability	Median	Median	% of total courses	Median	% of total courses	Median	% of total courses	Median	% of total courses	Median	% of total courses	
4th / 5th year of 5-year single cycle integrated Master Studies	38	5,0%	92,1%	2,6%	2,6%	72	4	5,6%	3	4,2%	3	4,2%	3	4,2%	3	4,2%	
Master's degree studies /rofessionalization courses	1	0,1%	0,0%	0,0%	100,0%	24	1	4,2%	2	8,3%	1	4,2%	4	16,7%	2	8,3%	
	0	0,0%	0,0%	0,0%	0,0%	0	0	0,0%	0	0,0%	0	0,0%	0	0,0%	0	0,0%	
	70	9,1%	100,0%	0,0%	0,0%	26	3	11,5%	3	11,5%	3	11,5%	3	11,5%	2	7,7%	
Specialization School	6	0,8%	0,0%	0,0%	100,0%	10	0	0,0%	8	80,0%	1	10,0%	2	20,0%	1	10,0%	
	0	0,0%	0,0%	0,0%	0,0%	0	0	0,0%	0	0,0%	0	0,0%	0	0,0%	0	0,0%	
	5	0,7%	100,0%	0,0%	0,0%	13	0	0,0%	5	38,5%	0	0,0%	0	0,0%	0	0,0%	

# IMPACT OF ACADEMIC ACTIVITIES IN STRENGTHENING STUDENTS COMPREHENSION

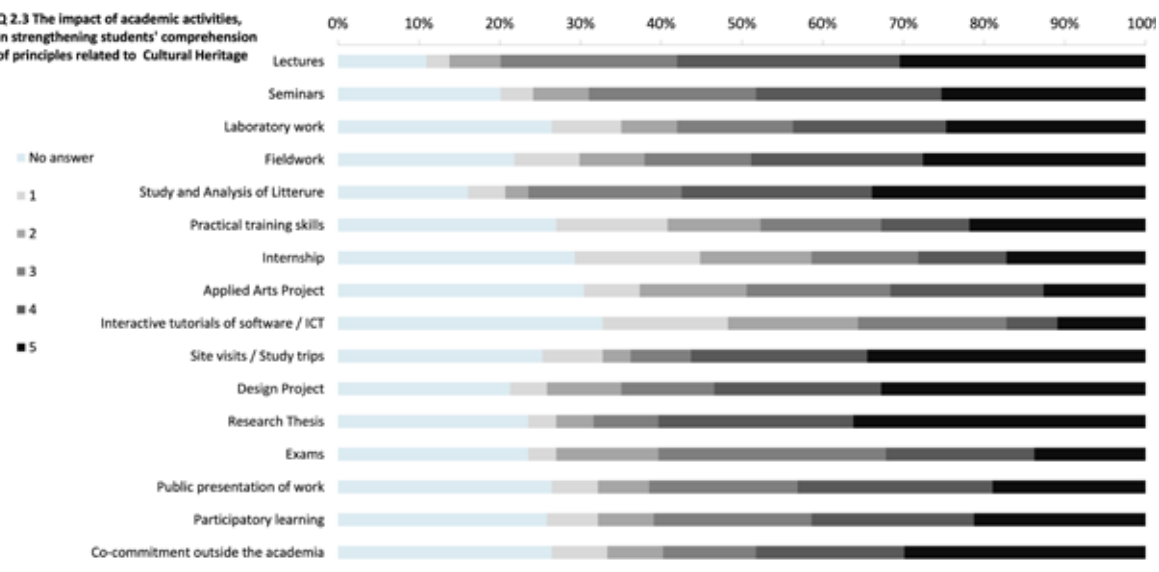
In relation to issues of *Sustainability*, local results from UBFA testify that the three most effective academic activities are *Lectures*, *Study and Analysis of Literature*, and *Research Thesis*, while three least effective are *Interactive tutorials of software/ICT*, *Applied Arts Project*, and *Internship*. These results mainly correspond to the results on the consortium level, while the difference is noted within the importance of *Design project* and *Study and analysis of Literature* for strengthening student's comprehension of principles related to Sustainability.

In relation to issues of *Cultural Heritage*, local results from UBFA testify that the three most effective academic activities are *Research Thesis*, *Lectures* and *Study and Analysis of Literature*, while three least effective are *Interactive tutorials of software/ICT*, *Internship* and *Practical Training skills*. These results mainly correspond to results on the consortium level, while the difference is noted within the importance of *Design project* for strengthening students comprehension of principles related to Heritage. Additionally, on the consortium level, students expressed opinion that *Exams* is one of the few academic activities that is the least effective.

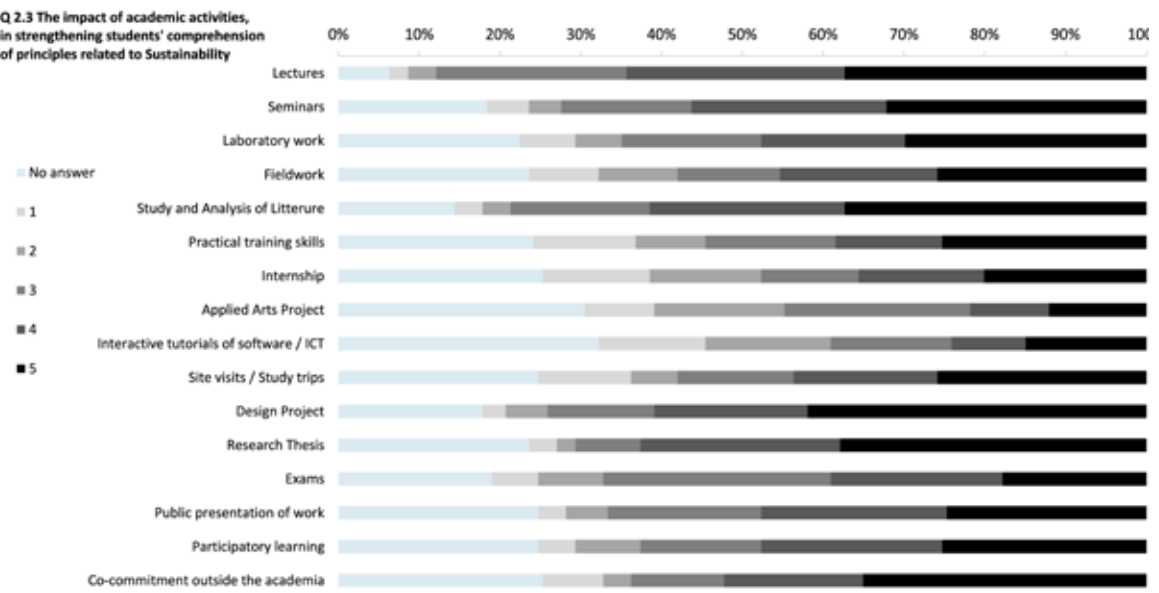
In relation to the *interface of Sustainability and Heritage*, local results from UBFA testify that the three most effective academic activities are *Research Thesis*, *Design project* and *Site visits/Study trips*, while three least effective are *Interactive tutorials of software/ICT*, *Applied Arts projects*, and *Internship*. These results mainly correspond to results on the consortium level, while the difference is noted in the opinion that *Exams* are one of the few academic activities that is the least effective.

Fig 5. The impact of academic activities in strengthening students' comprehension of principles related to (a) sustainability, (b) cultural heritage or (c) both

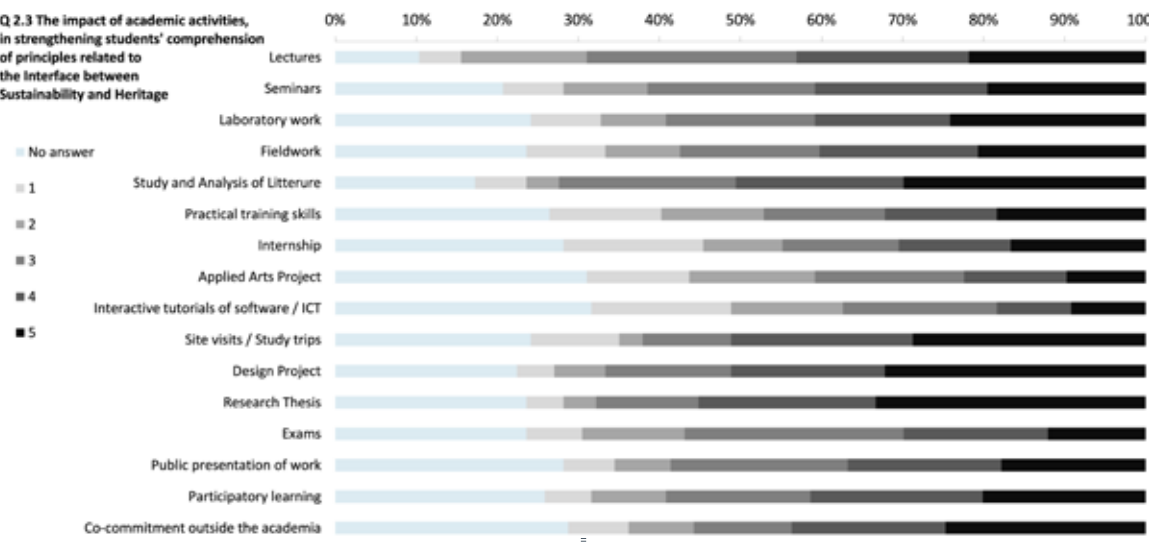
Q 2.3 The impact of academic activities, in strengthening students' comprehension of principles related to Cultural Heritage



Q 2.3 The impact of academic activities, in strengthening students' comprehension of principles related to Sustainability



Q 2.3 The impact of academic activities, in strengthening students' comprehension of principles related to the Interface between Sustainability and Heritage



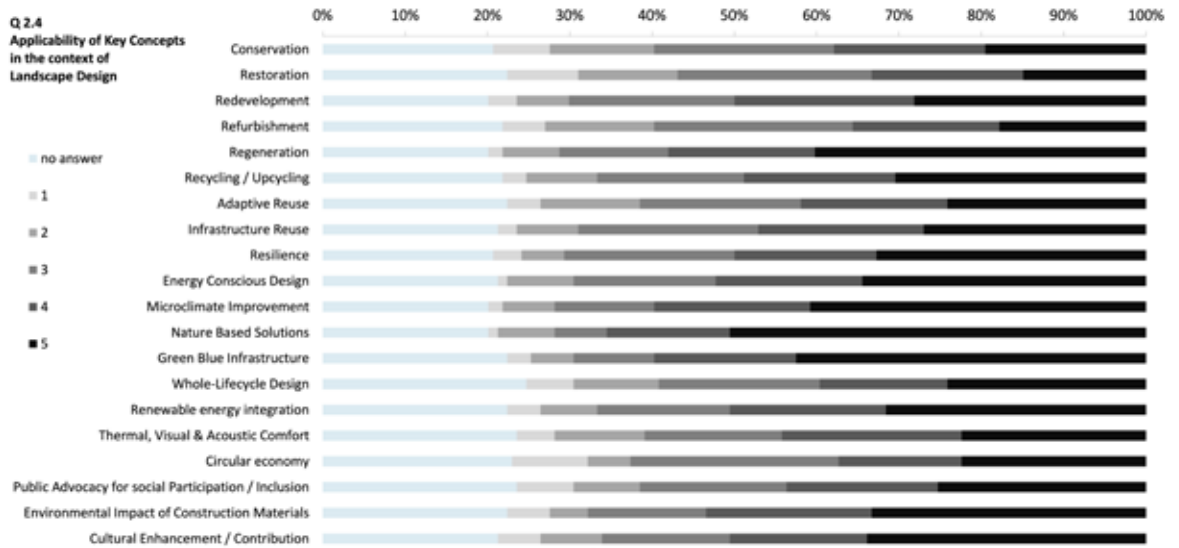
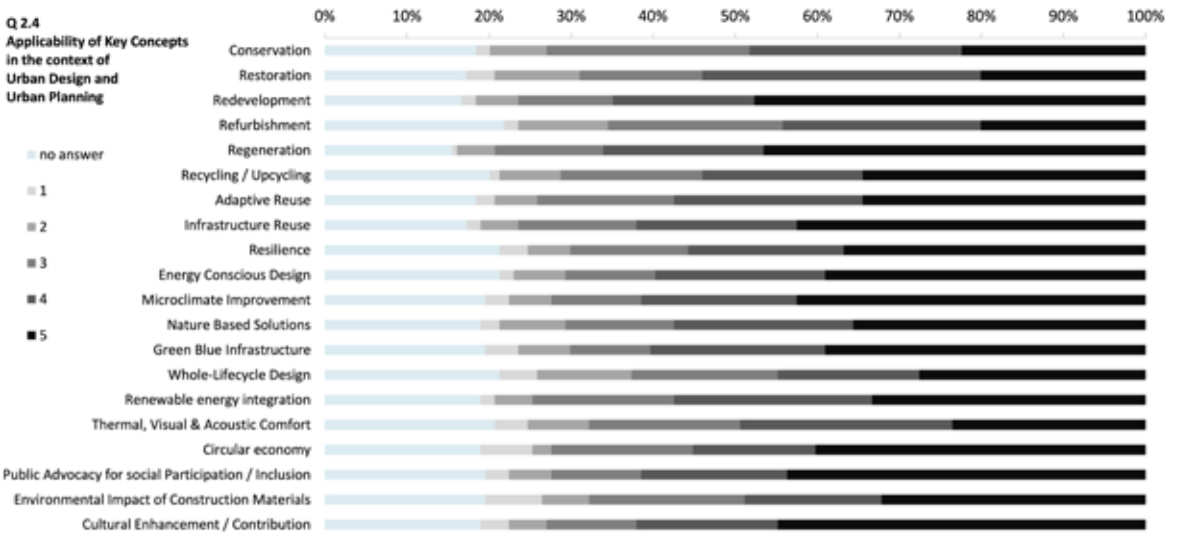
# APPLICABILITY OF KEY CONCEPTS RELATED TO SUSTAINABILITY AND CULTURAL HERITAGE IN RELATION TO DIFFERENT SCALES

Regarding applicability of Key concepts in the scale of *Construction detailing, Interior Design and Architectural Design*, local results from UBFA indicate that the three most applicable concepts are *Thermal, Visual and Acoustic Comfort, Renewable Energy integration* and *Refurbishment*, while three least effective are *Green Blue infrastructure, Public Advocacy for Social Participation/ Inclusion*, and *Circular Economy*. These results mainly correspond to results on the consortium level, while noticed difference emerges in the importance of *Restoration* for this scale.

Regarding applicability of Key concepts in the scale of *Urban planning and Design*, local results from UBFA indicate that the three most applicable concepts are *Regeneration, Redevelopment* and *Cultural Enhancement/ Contribution* while three least effective are *Whole life cycle design, Restoration* and *Refurbishment*. These results mainly correspond to results on the consortium level, while there is a notable difference in local context devoted towards *Cultural Enhancement / Contribution*.

Regarding applicability of Key concepts in the scale of *Landscape design*, local results from UBFA indicate that the three most applicable concepts are *Nature based solutions, Green Blue infrastructure* and *Microclimate improvement*. while three least effective are *Conservation, Restoration* and *Refurbishment*. When it comes to the least effective, there is a complete matching, while in the most effective ones there are large deviations. On the consortium level, three most effective concepts are *Nature based solutions, Regeneration* and *Cultural Enhancement/Contribution*.

Fig 6. Applicability of Key Concepts related to sustainability and cultural heritage in the context of different scales of design practice





# STUDENTS' SELF-EVALUATION IN TERMS OF THE SKILLS AND KNOWLEDGE

Regarding issues of *Sustainability*, local results from UBFA reveal that students evaluated their skills and knowledge to be satisfying (marks 4 and 5) in *fundamentals*, *presentation communication* and *awareness raising*, while not unsatisfying (marks 1 and 2) in *practical experience*, *specialist conservation skills*, and *managerial administrative skills*. It is worth mentioning, that opinion among areas with best achieved skills and knowledge is the same with the consortium, while there is a notable difference in skills that need to be improved (*local and international context* on the consortium level).

In relation to issues of *Cultural heritage*, local results from UBFA reveal that students evaluated their skills and knowledge to be satisfying (marks 4 and 5) in *fundamentals*, *presentation communication* and *technical competences*, while not unsatisfying (marks 1 and 2) in *practical experience*, *analytic tools and methods*, and *specialist conservation skills*. These results mainly correspond to results on the consortium level, while the difference is noted within the achieved skills and knowledge of *awareness raising* (consortium level) in contrast to *technical competences* (local level), and lack of skills in *international context* (consortium level) in contrast to *specialist conservation design skills* (local level).

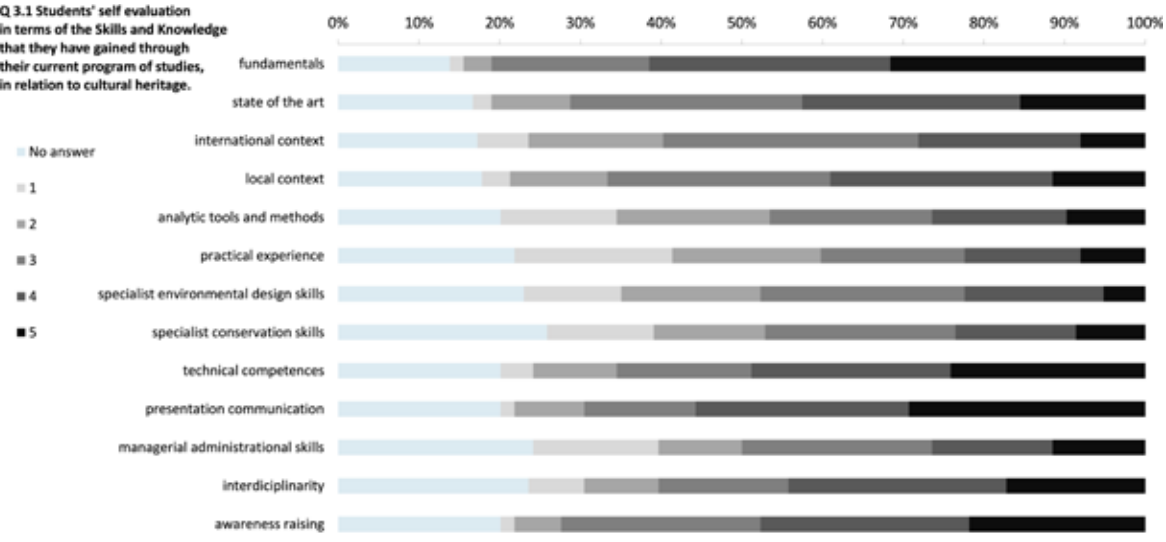
In relation to issues of *Sustainability and Heritage*, local results from UBFA reveal that students evaluated their skills and knowledge to be satisfying (marks 4 and 5) in *presentation communication*, *fundamentals* and *awareness raising*, while not unsatisfying (marks 1 and 2) in *practical experience*, *analytic tools and methods*, and *specialist conservation skills*. These results mainly correspond to results on the

consortium level, while the difference is noted within the lack of skills in *international and national context* on the consortium level in contrast to *specialist conservational and analytical skills and tools* at the local level.

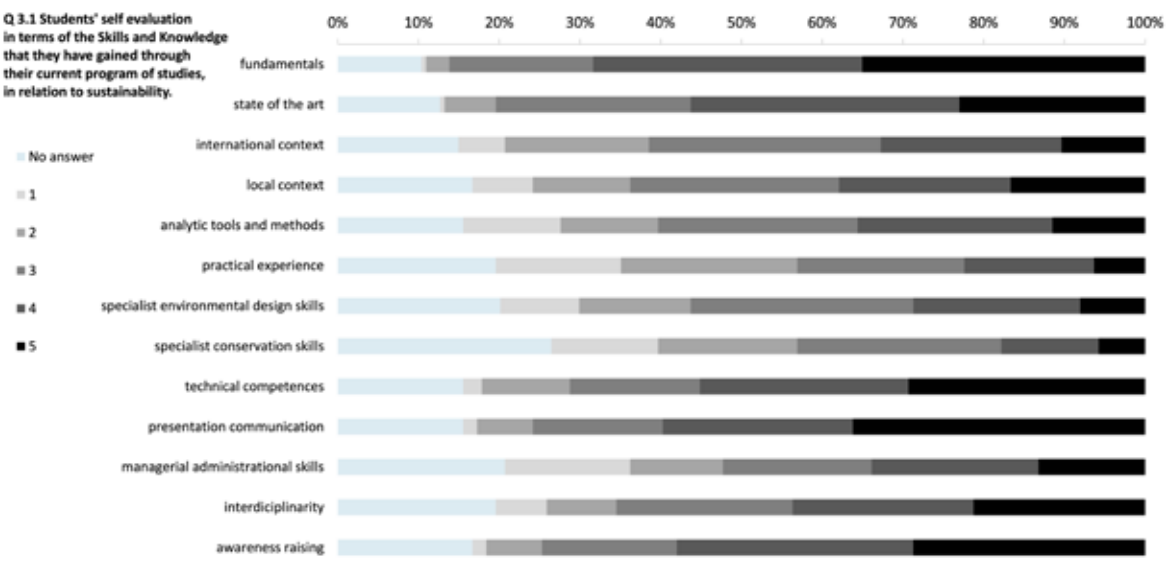
Fig 7. Students' self-evaluation in terms of the Skills and Knowledge that they have gained through their current program of studies in relation to (a) sustainability, (b) cultural heritage or (c) both



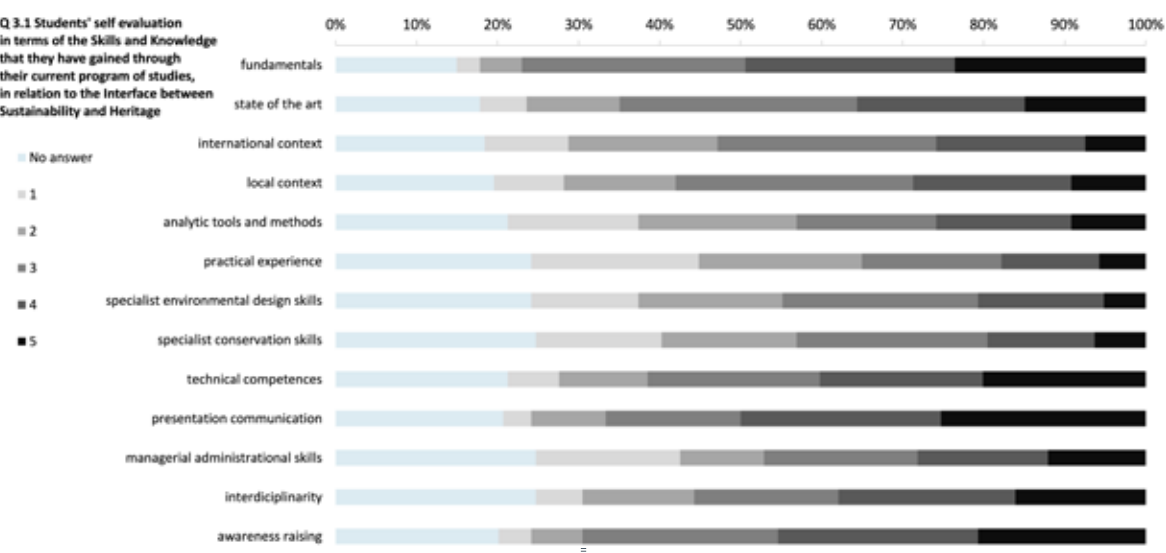
**Q 3.1 Students' self evaluation in terms of the Skills and Knowledge that they have gained through their current program of studies, in relation to cultural heritage.**



**Q 3.1 Students' self evaluation in terms of the Skills and Knowledge that they have gained through their current program of studies, in relation to sustainability.**



**Q 3.1 Students' self evaluation in terms of the Skills and Knowledge that they have gained through their current program of studies, in relation to the Interface between Sustainability and Heritage**



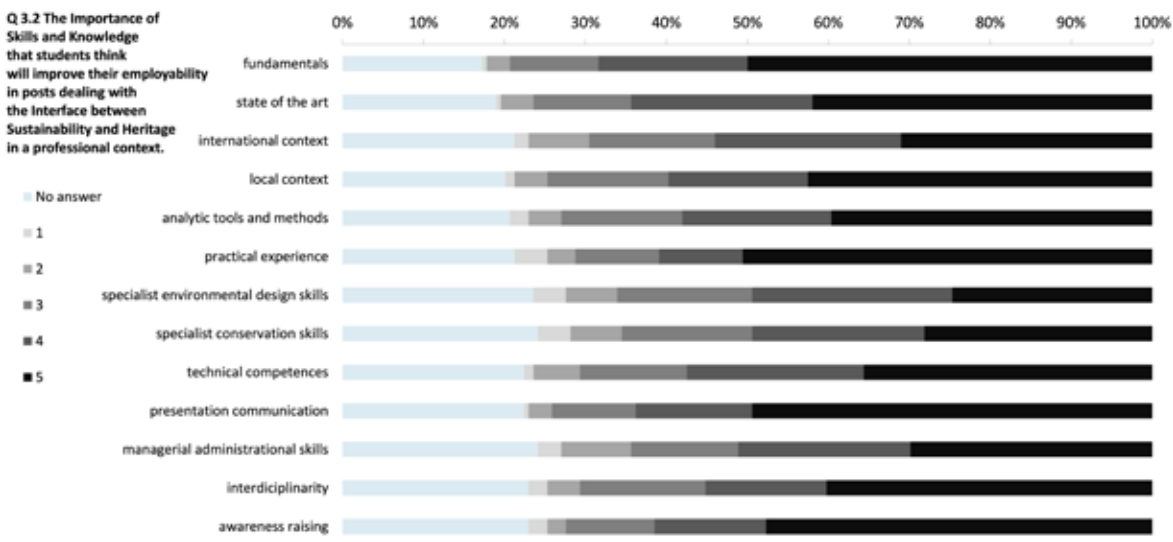
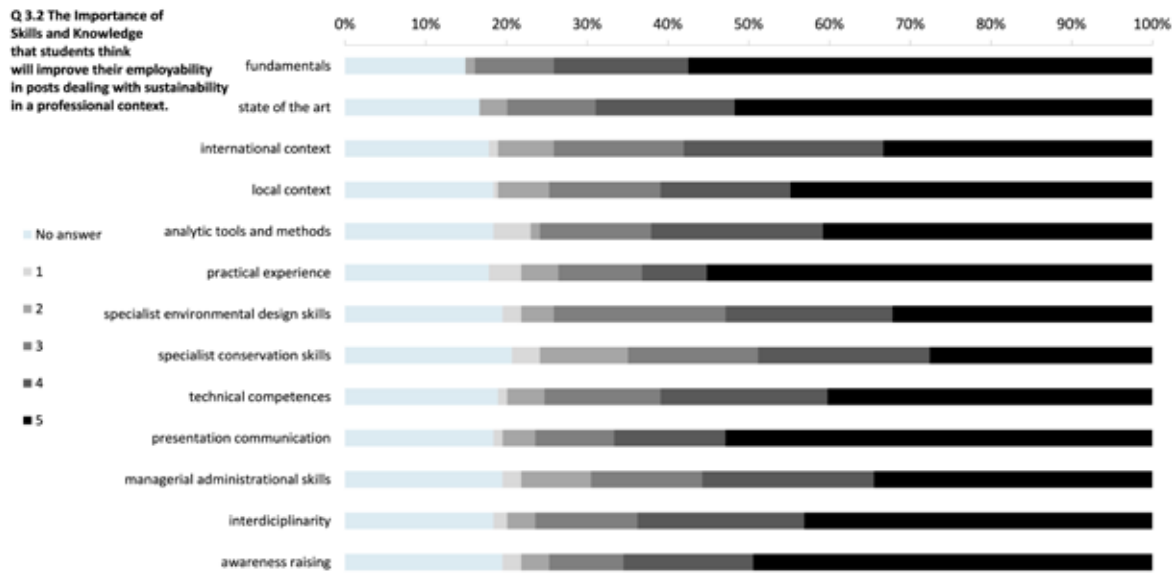
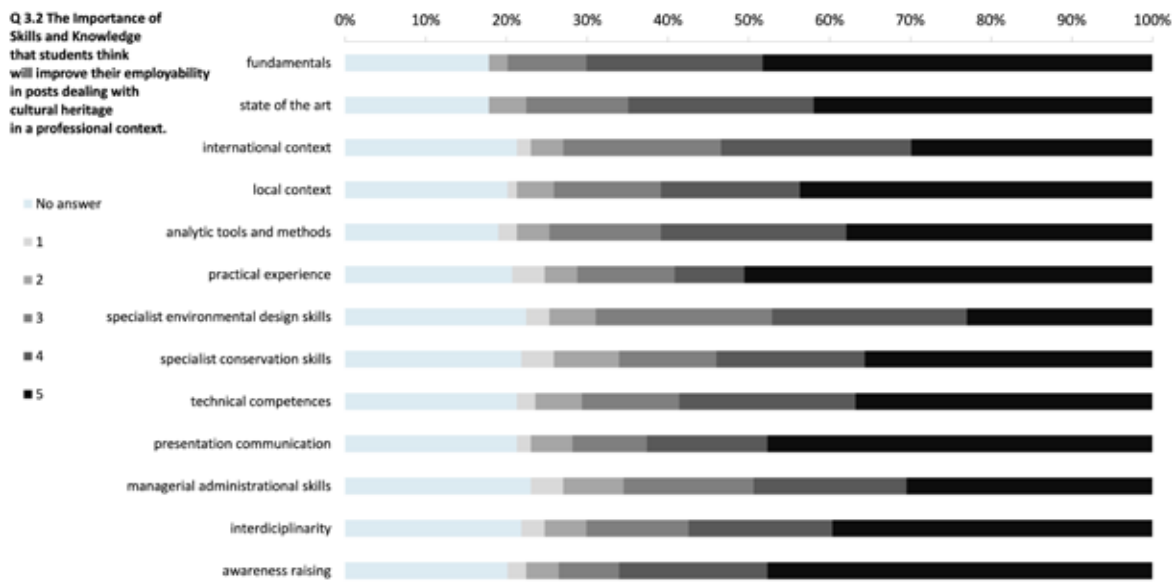
# THE IMPORTANCE OF SKILLS AND KNOWLEDGE THAT STUDENTS THINK WILL IMPROVE THEIR EMPLOYABILITY

In relation to issues of *Sustainability*, local results from UBFA reveal that students greatly evaluate importance of skills and knowledge in *fundamentals*, *state of the art*, and *presentation communication*, while they find less important knowledge and skills in the field of *specialist conservation skills*, *managerial administrative skills*, and *practical experience*. These results mainly correspond to results on the consortium level, while the difference is noted within the importance of *awareness raising* on the consortium level in contrast to the *state of the art*, as well as in the recognized importance in *international and national contexts* on the consortium level.

In relation to issues of *Cultural Heritage*, local results from UBFA reveal that students greatly evaluate importance of skills and knowledge in *fundamentals*, *awareness raising*, and *state of the art*, while they find less important knowledge and skills in the field of *specialist conservation skills*, *managerial administrative skills*, and *specialist environmental design skills*. These results mainly correspond to results on the consortium level, while the difference is noted within the importance of *awareness raising* on the consortium level.

In relation to issues of *interface between Sustainability and Heritage*, local results from UBFA reveal that students greatly evaluate importance of skills and knowledge in *fundamentals*, *presentation communication*, and *state of the art*, while they find less important knowledge and skills in the field of *managerial administrative skills*, *specialist conservation skills*, and *specialist environmental design skills*. These results mainly correspond to results on the consortium level, while the difference is noted within the importance of *awareness raising* on the consortium level.

Fig 8. The Importance of Skills and Knowledge that students think will improve their employability in posts dealing with (a) sustainability, (b) cultural heritage or (c) both, in a professional context



# DISCUSSION / CONCLUSIONS

The conducted questionnaire is a significant resource in demystifying and critically arguing the importance of enhancing the concepts of sustainability and heritage in the context of education in Serbia. Through a series of relational and critical issues, a number of cause-and-effect problems are recognized, especially when it comes to the relationship between academic activities, competencies, and knowledge and skills. On this basis, the need for a more complex study of heritage in the context of architectural education is unequivocally identified. This statement is also recognized within the UNESCO / UIA Charter for Architectural Education, where the architectural heritage education is highlighted as a particular field essential to (1) understanding sustainability, the social context and sense of place in building design, and (2) transforming the professional architectural mentality so that its creative methods are part of a continuous and harmonious cultural process.



## DISSEMINATION PROCESS

The dissemination process and the communication of the Students' Questionnaires was extensive. It consisted of three phases: the general email to all the student categories involved; the involvement of targeted students in a guided fill-in activity; the dissemination on social networks.

During the first dissemination phase, the luav Team sent almost 4000 emails to all the contacts given by the IUAV office of the students from the Second Cycle - Master Degree courses, PhD, Specialization School course and recent Alumni. The email explained the project and the Questionnaire's purposes. After this general email, the team contacted students from the past courses led by professor Emanuela Sorbo (738), and students graduated with her (50).

This first dissemination phase started from the activating day of the link, and it was concluded in four days (April 03rd – 07th).

The second phase of promotion consisted of the students' involvement in the Restoration Theories and Techniques course led by Professor Emanuela Sorbo and SSIBAP students in a guided fill-in activity to answer students' doubts (almost 100 students filled in the Questionnaire on these occasions).

During the last two weeks (from April 12th to 15th), the IUAV Social Networks (Instagram and Facebook) helped the dissemination process online to reach, by April 19th, 200 completed questionnaires. In this phase, Hersus Project and the IO2 activities were promoted via social networks outside the luav community at the National and International level.



Sofia Tonello  
Emanuela Sorbo

ITALY

02

## ABSTRACT / ITALY / Iuav



*The students' questionnaires involved about 500 students from Iuav and other Italian Universities. The LimeSurvey Platform registered 206 complete and 294 incomplete questionnaires. The most involved categories are the Second Cycle – Master's Degree courses, with more than 300 accesses. It can be noticed how about 290 students stopped filling in at question Q2.1.*

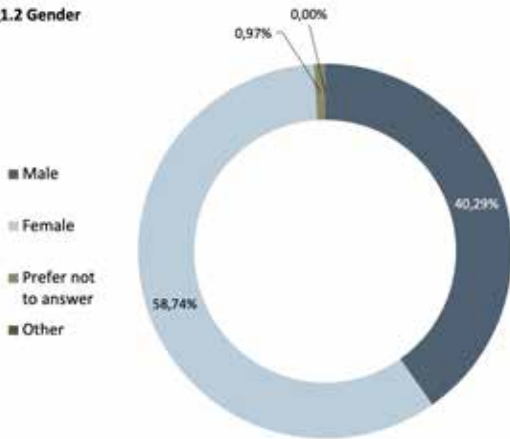
*The difficulties for Iuav students to address specific courses to Sustainability and/or Cultural Heritage emerged from the questionnaires, given the fact that current programs address architecture with an interdisciplinary perspective.*

*The answers to the third part show the most interesting results and reveal students' perception of educational programs and highlight their specific expectation about the future work environment.*

# RESPONDENTS SAMPLE



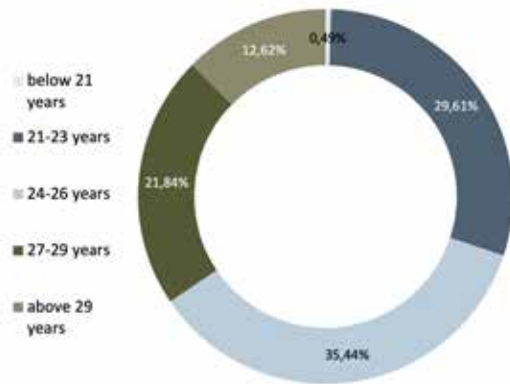
**Q1.2 Gender**



## Gender

Among the answers by students who attend higher education institutions in Italy (26,89% of the total responses), 58,74% are female students, and 40,29% are males.

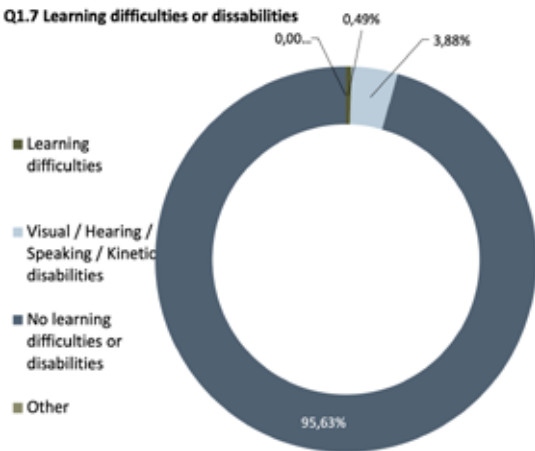
**Q1.3 Age**



## Age

Students' age is homogeneously distributed between 21 to 26 years old (21-23 years 29,61%, 24-26 years 35,44%, 27-29 years 21,84%, above 29 years 12,62%).

**Q1.7 Learning difficulties or disabilities**



## Learning difficulties or disabilities

The total percentage of studnest with learning difficulties or dissabilities reaches 4,37%, of which 3,88% with visual, hearing, speaking or kinetic disabilitties and 0.49% with other dissabilities.

Fig 1. Mapping of the various backgrounds of the respondents based on responses to Q1.2, Q1.3 and Q1.7

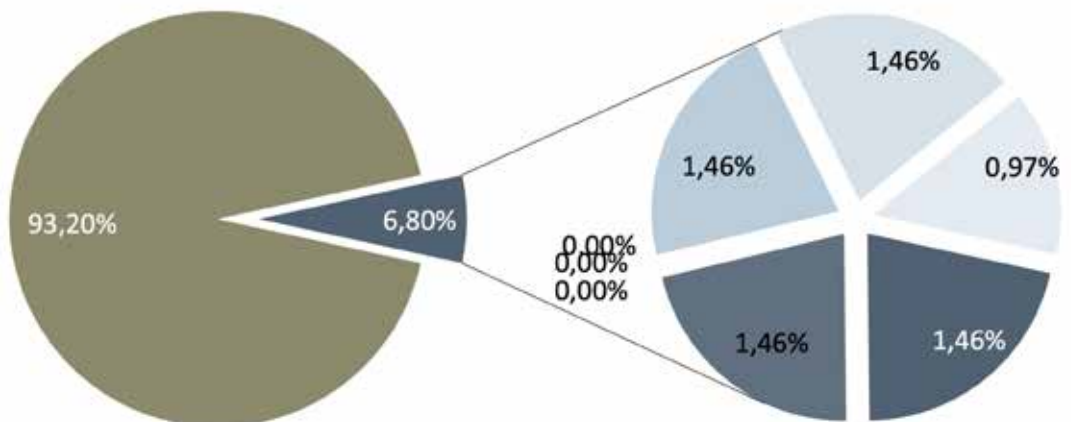


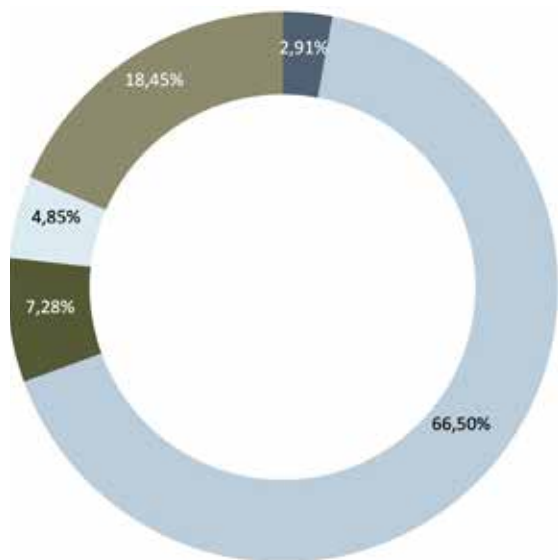
## Respondents' studies or professional background

The graph Q1.4 (Figure 02. Mapping of the various backgrounds of the respondents based on responses to Q1.4) focuses on the students' studies/professional background. Almost all the students studied in the Architectural field (93,20%). The remaining part (6,80%) are almost equally divided in Engineering, Spatial Planning/Land Survey/Topography/Geography, Archaeological/Heritage Conservation, Urban and Regional Planning and History of Arts ("other").



Fig 2. Mapping of the various backgrounds of the respondents based on responses to Q1.4

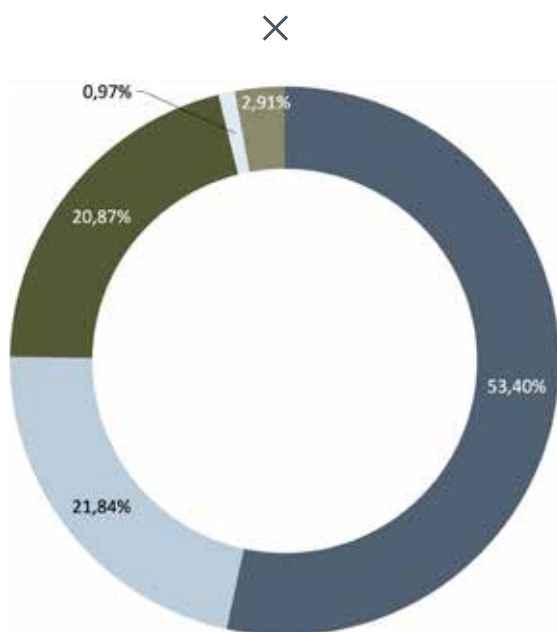




### Q1.5 Program of Studies

- Second cycle: 4th / 5th year of 5-year single cycle integrated Master Studies
- Second cycle: Master's degree studies / professionalization courses
- Third Cycle: Specialisation School
- Third Cycle: PhD studies
- Recent Alumni of the above Programs

Fig 3. Mapping of the various backgrounds of the respondents based on responses to Q1.5



- Architecture/ Built Environment
- Sustainability/ Environmental Design
- Heritage/ Conservation/ Restoration/ Cultural Management
- Sustainable Heritage
- Other

Fig 4. Mapping of the various backgrounds of the respondents based on responses to Q1.6

### Type of program that they currently attend

More than half of the students who completed the questionnaires attend Second Cycle - Master's degree studies, and many of these do so in the field of Architecture and Cultural Heritage. The questionnaire also involved 15 students from Third Cycle - Specialisation School (7,28%), 10 from Third Cycle - PhD (4,85%), 38 recent Luav Alumni (18,45%). Only 6 students attend a Second Cycle - 4th/5th year of 5-year Single Cycle integrated Master Studies. This small number reflects the educational path in Architecture in Italy because almost all Italian Degrees' path in Architecture consists of Bachelor and Master Degree programs.

### Main Focus of their current studies

The mapping of the focus of studies indicates that almost all the students consider Architecture/ Built Environment (53,40 %) as central themes in their educational path. Sustainability is considered the main focus by 21,84% of them; Cultural Heritage by 20,87%.

The distribution of available courses in the curriculums

Table 01 shows an analysis of existing curricula that students attend (Second and Third Cycle).

The data highlight that almost 55% of the courses in Architecture study programs in Italy focus on *Sustainability and Cultural Heritage*.

Second Cycle - Master's degree Students in *Sustainability Curricula* at Luav attend 13 courses divided into 2 courses on *Documentation/Conservation/Restoration of Cultural Heritage*, 3 courses on *Sustainability/ Environmental Design*, and 2 courses focusing on both.

Second Cycle - Master's degree Students in *Cultural Heritage Curricula* at Luav attend 14 courses divided into 3 courses on *Documentation/Conservation/Restoration*

of *Cultural Heritage*, 3 courses on *Sustainability/ Environmental Design*, and 4 courses focusing on both.

Students from Third Cycle courses in Specialisation Schools focus on *Architecture and Cultural Heritage Documentation/ Conservation/Restoration of Cultural Heritage and Raising the value/appreciation or dialogue with the National/International Historical Context* (71,5 %). Students from Specialisation School highlight how the theme of Sustainability is present in their study programs, in particular in the link between Sustainability and Cultural Heritage.

Table 01. Available courses in the existing programs of studies according to responses to Q2.1

	Responses		Focus of Studies			Taught Courses of the Curriculum	Courses focusing mainly on documentation Conservation Restoration of Cultural Heritage			Courses focusing mainly on Sustainability / Environmental Design		Courses focusing both on Sustainability & Cultural Heritage		Courses raising issues of Sustainability / Environmental Design / Planning		Courses raising issues of the value / appreciation or dialogue with the National / International Historic Context	
	number	% of total samples	Architecture	Heritage	Sustainability	Median	Median	% of total courses	Median	% of total courses	Median	% of total courses	Median	% of total courses	Median	% of total courses	
4th / 5th year of 5-year single cycle integrated Master Studies	6	0,8%	66,7%	16,7%	16,7%	17	2	11,8%	3	17,6%	2	11,8%	4	23,5%	2	11,8%	
Master's degree studies / professionalization courses	43	5,6%	0,0%	0,0%	100,0%	13	2	15,4%	3	23,1%	2	15,4%	2	15,4%	2	15,4%	
	17	2,2%	0,0%	100%	0,0%	14	3	21,4%	2	14,3%	2	14,3%	3	21,4%	2	14,3%	
	75	9,8%	100,0%	0,0%	0,0%	14	2	14,3%	2	14,3%	2	14,3%	2	14,3%	1	7,1%	
Specialization School	0	0,0%	0,0%	0,0%	0,0%	0	0	0,0%	0	0,0%	0	0,0%	0	0,0%	0	0,0%	
	14	1,8%	0,0%	100%	0,0%	28	16	57,1%	2	7,1%	4	14,3%	2	7,1%	4	14,3%	
	1	0,1%	100,0%	0,0%	0,0%	38	22	57,9%	3	7,9%	7	18,4%	3	7,9%	38	100,0%	

# IMPACT OF ACADEMIC ACTIVITIES IN STRENGTHENING STUDENTS COMPREHENSION

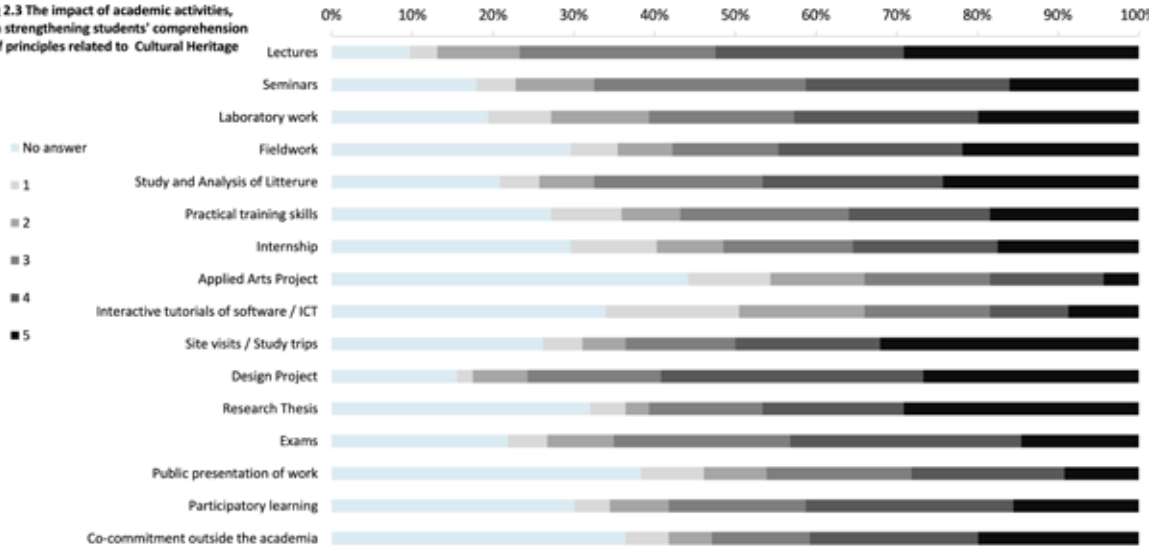
Italian students consider *Lectures* and *Seminars* as important as practical activities, such as *Laboratory working activities* and *Practical training skills*, both in Sustainability and Cultural Heritage.

The most relevant activities in strengthening students' comprehension of Sustainability and Cultural Heritage principles are *Design project activities*, *Research thesis activities*, *Participatory Learning*, and *Co-commitment outside the academic activities*. In strengthening their comprehension of the principles related to Cultural Heritage issues, students consider *Lectures*, *Seminars*, *Site visit* and *Study trips* more important than in the other fields. Students evaluated the *Study and Analysis of Literature* positively.

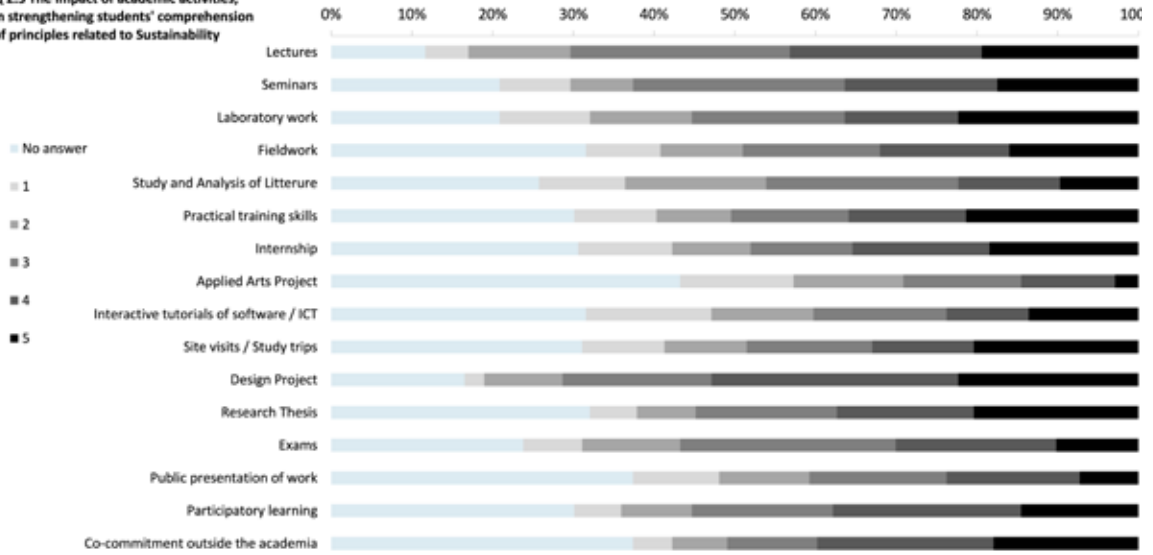
Almost all the students thought of the interface between Sustainability and Cultural Heritage from an operative perspective. They considered the importance of *Lectures* and *Seminars* to comprehend the *Fundamentals* and the *State of art* as a base for the *Design Project* with an interdisciplinary perspective.

Fig 5. The impact of academic activities in strengthening students' comprehension of principles related to (a) sustainability, (b) cultural heritage or (c) both

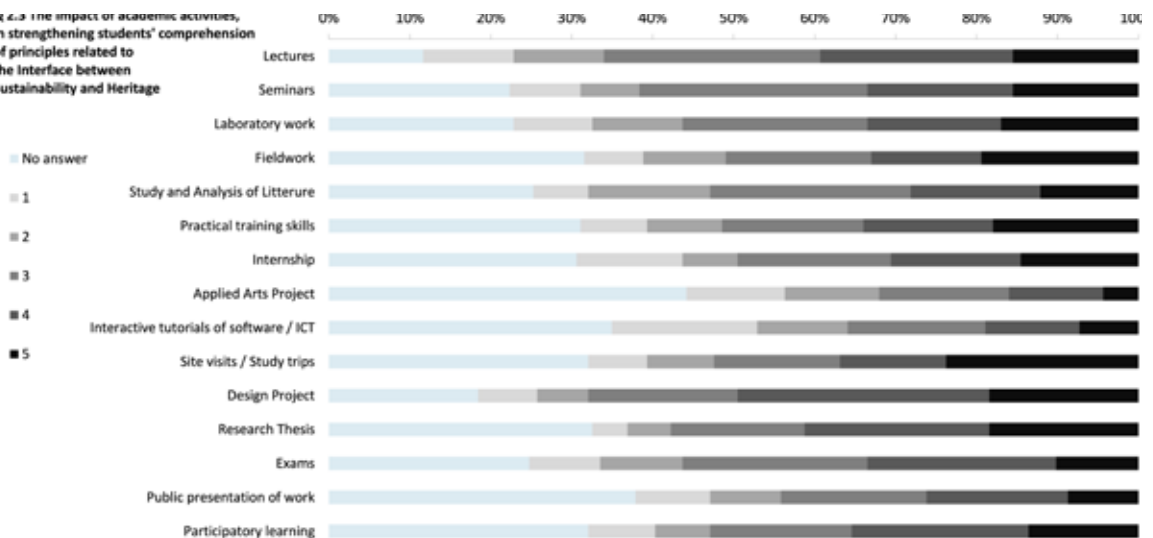
Q 2.3 The impact of academic activities, in strengthening students' comprehension of principles related to Cultural Heritage



Q 2.3 The impact of academic activities, in strengthening students' comprehension of principles related to Sustainability



Q 2.3 The impact of academic activities, in strengthening students' comprehension of principles related to the Interface between Sustainability and Heritage

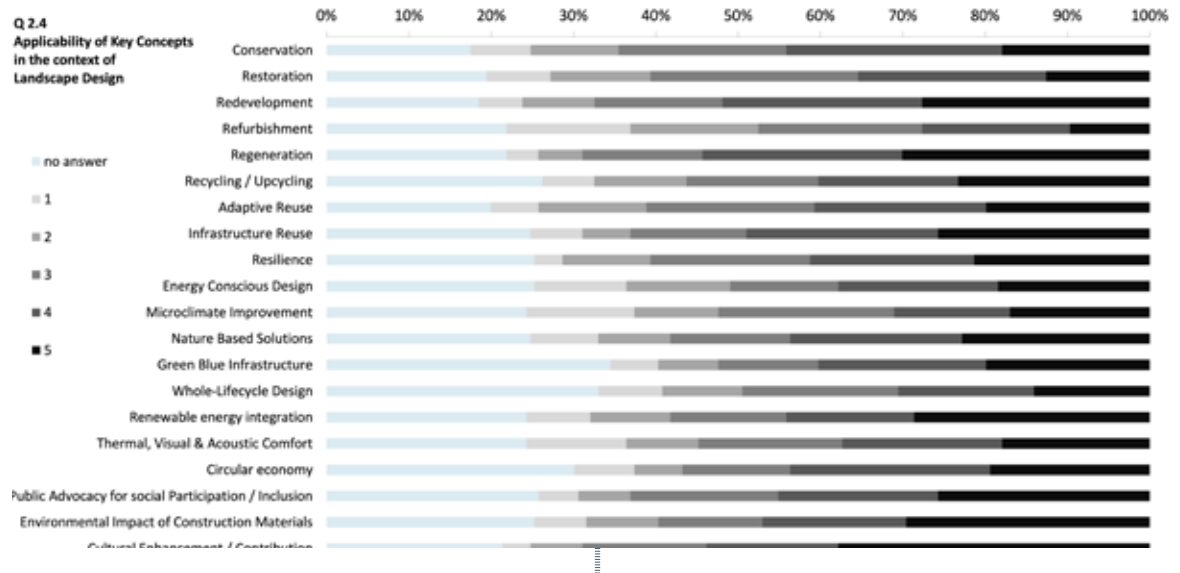
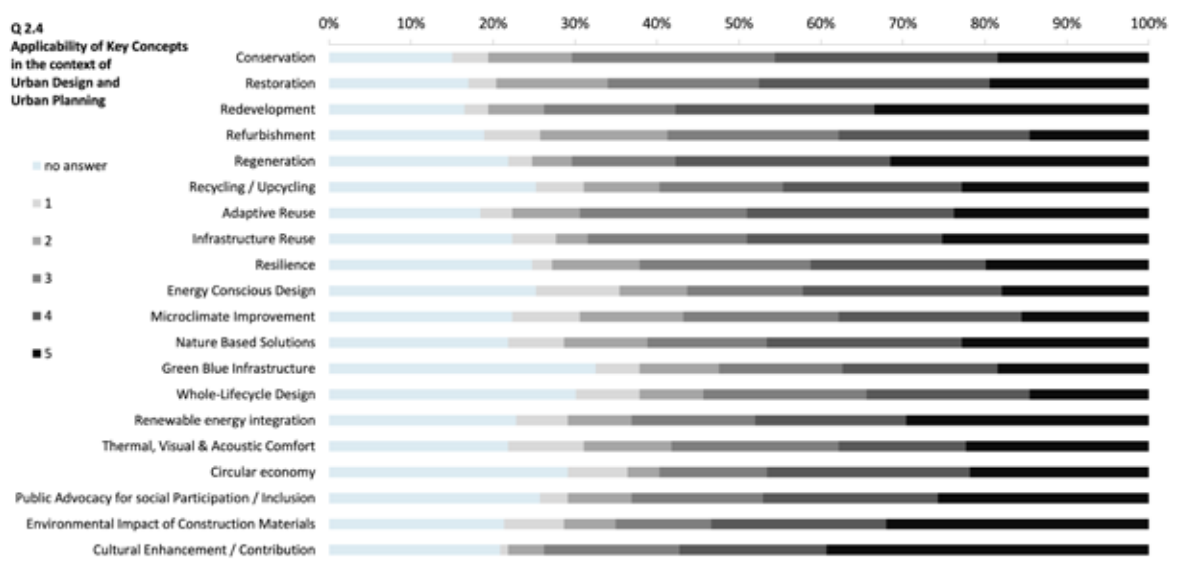
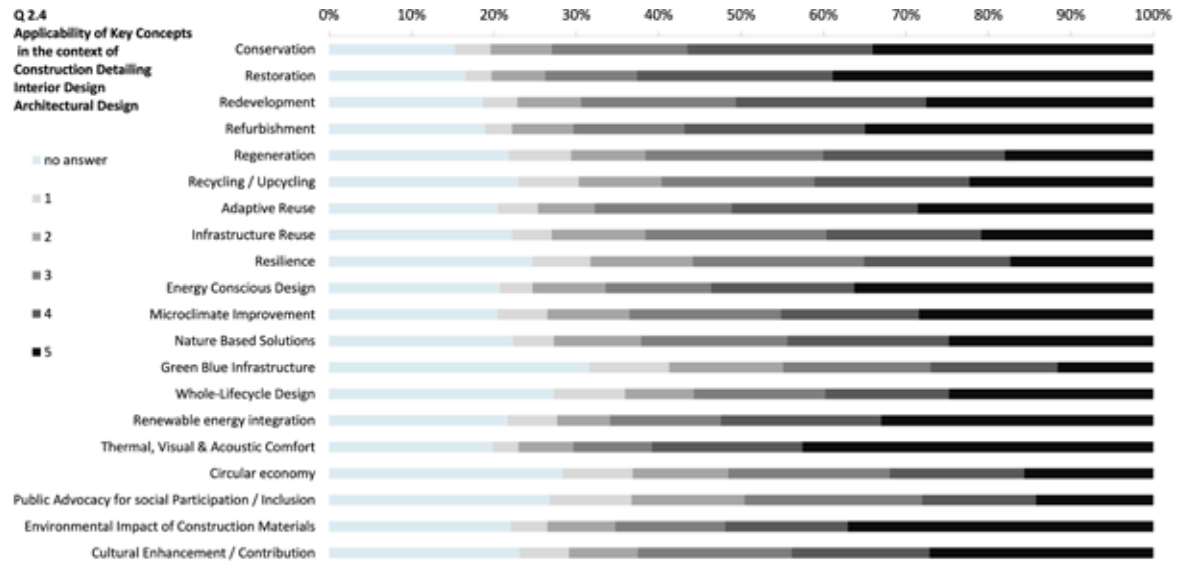


# APPLICABILITY OF KEY CONCEPTS RELATED TO SUSTAINABILITY AND CULTURAL HERITAGE IN RELATION TO DIFFERENT SCALES

Question Q2.4 helps to understand the students' perception of 20 key concepts related to Sustainability and Cultural Heritage at different scales of design practice. *Regeneration, Environmental Impact of Construction Materials* and *Cultural Enhancement* maintain a high score in students' perception. Almost 50% of the students consider the *Cultural Enhancement* concept more relevant in Urban Design, Planning and Landscape Design than in Architectural design.

Italian students consider Architectural and Construction Detailing design more related to the concepts of *Thermal, visual, and acoustic comfort, Restoration* and *Adaptive reuse*. They consider Urban Planning and Design more linked to *Regeneration, Redevelopment, and Infrastructure reuse* and Landscape Design more related to *Nature Base Solutions, Infrastructure Reuse* and *Resilience*.

Fig 6. Applicability of Key Concepts related to sustainability and cultural heritage in the context of different scales of design practice



# STUDENTS' SELF-EVALUATION IN TERMS OF THE SKILLS AND KNOWLEDGE

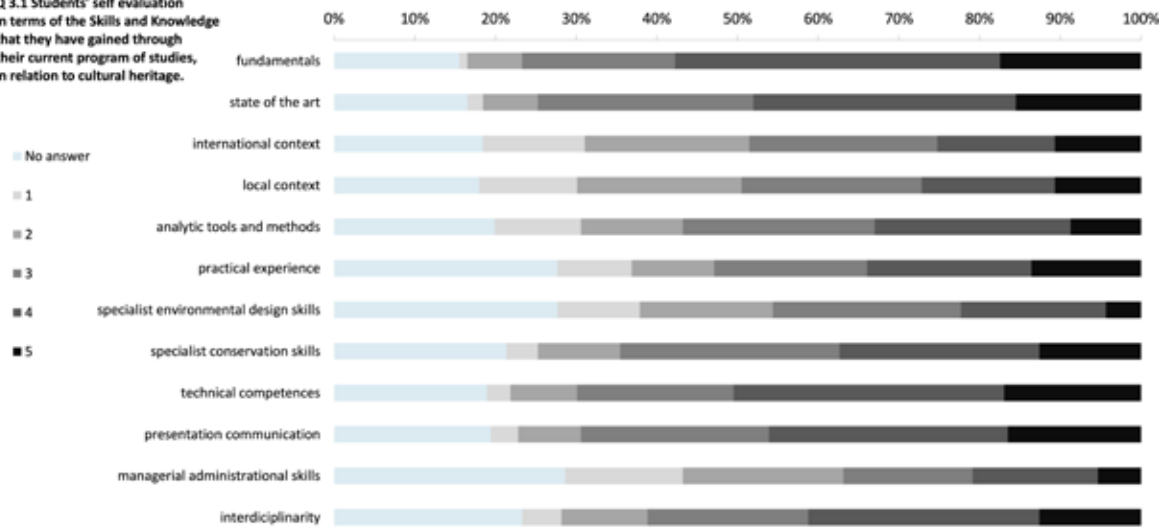
The following graphs show the self-rating exercise done by the students about the Skills and Knowledge they have gained through their current program of studies concerning Sustainability, Heritage, or both.

Students consider *Interdisciplinary competencies* and *Awareness-raising* as strengths in their educational paths in Sustainability, Cultural Heritage or both. Italian students think they have gained adequate knowledge about *Fundamentals*, *State-of-the-art* and *Technical competencies* related to Cultural Heritage, and they feel less confident about Sustainability issues. Almost 15% of the students give themselves 5 on their competencies on Cultural Heritage. While less than 10% of the students rate themselves with 5 on their competencies related to Sustainability. The 3 and 4 rates are frequent, and the general result highlights that students feel more comfortable with *Fundamentals*, *Knowledge of State-of-the-art*, *Analytic tools and methods*, *Technical competencies* and *Presentation communication*.

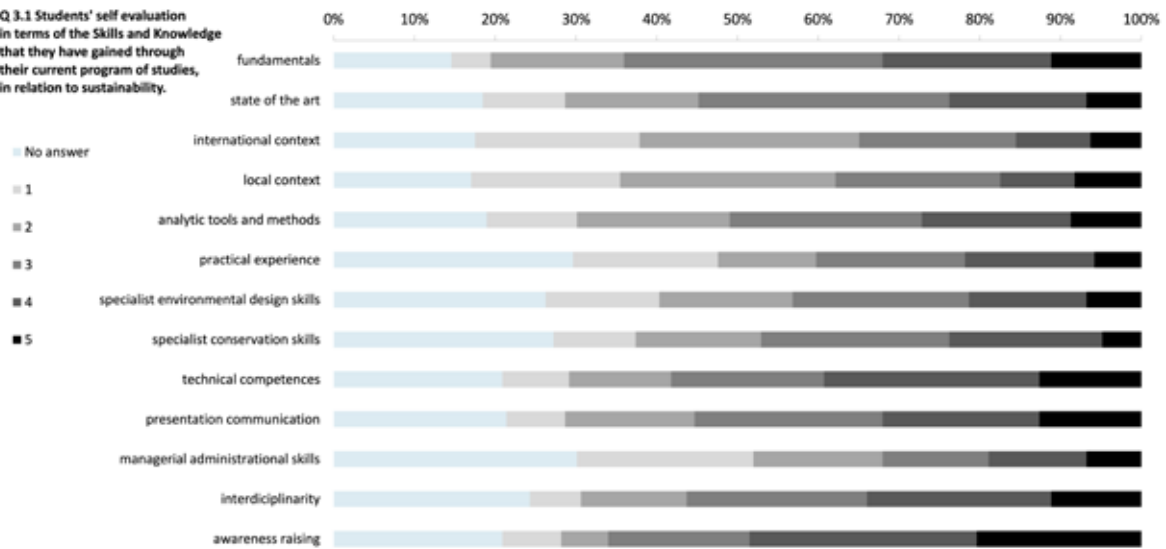
Fig 7. Students' self-evaluation in terms of the Skills and Knowledge that they have gained through their current program of studies in relation to (a) sustainability, (b) cultural heritage or (c) both



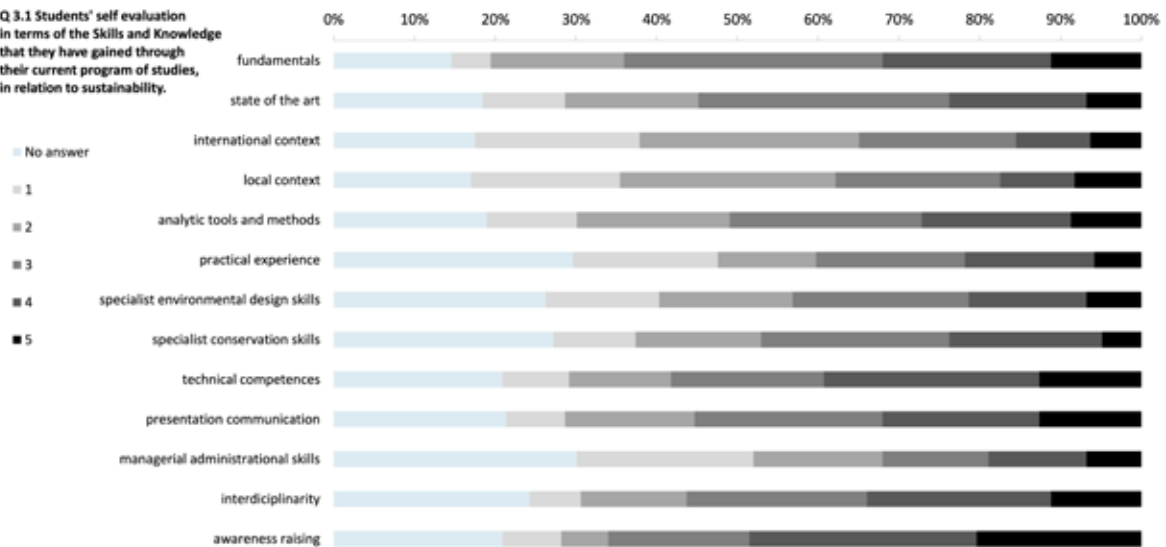
**Q 3.1 Students' self evaluation in terms of the Skills and Knowledge that they have gained through their current program of studies, in relation to cultural heritage.**



**Q 3.1 Students' self evaluation in terms of the Skills and Knowledge that they have gained through their current program of studies, in relation to sustainability.**



**Q 3.1 Students' self evaluation in terms of the Skills and Knowledge that they have gained through their current program of studies, in relation to sustainability.**



# THE IMPORTANCE OF SKILLS AND KNOWLEDGE THAT STUDENTS THINK WILL IMPROVE THEIR EMPLOYABILITY

The 3.2 Question inquires students' perception of the importance of Skills and Knowledge in improving their employability dealing with Sustainability or Cultural Heritage or both in the work environment.

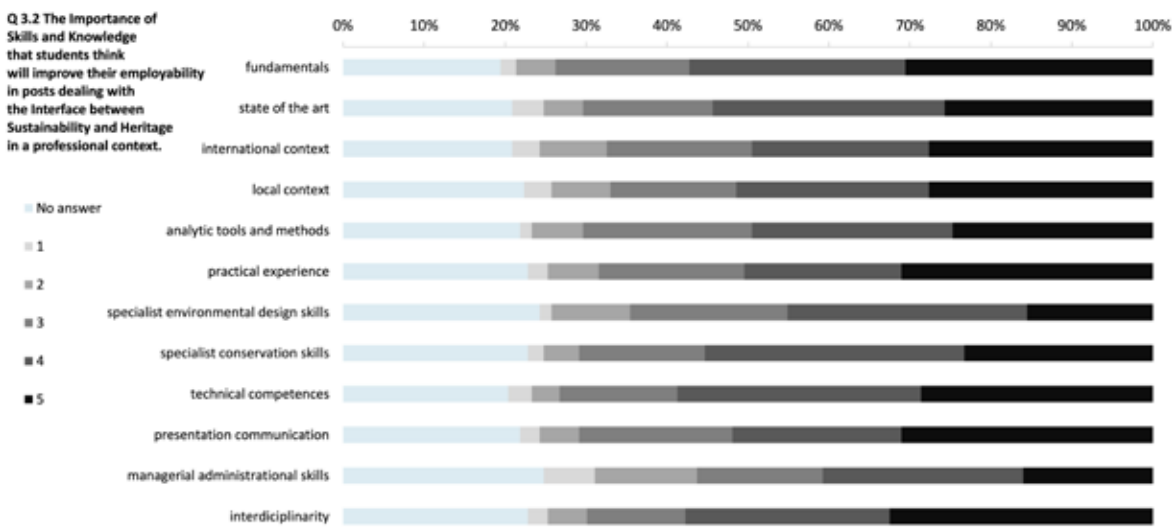
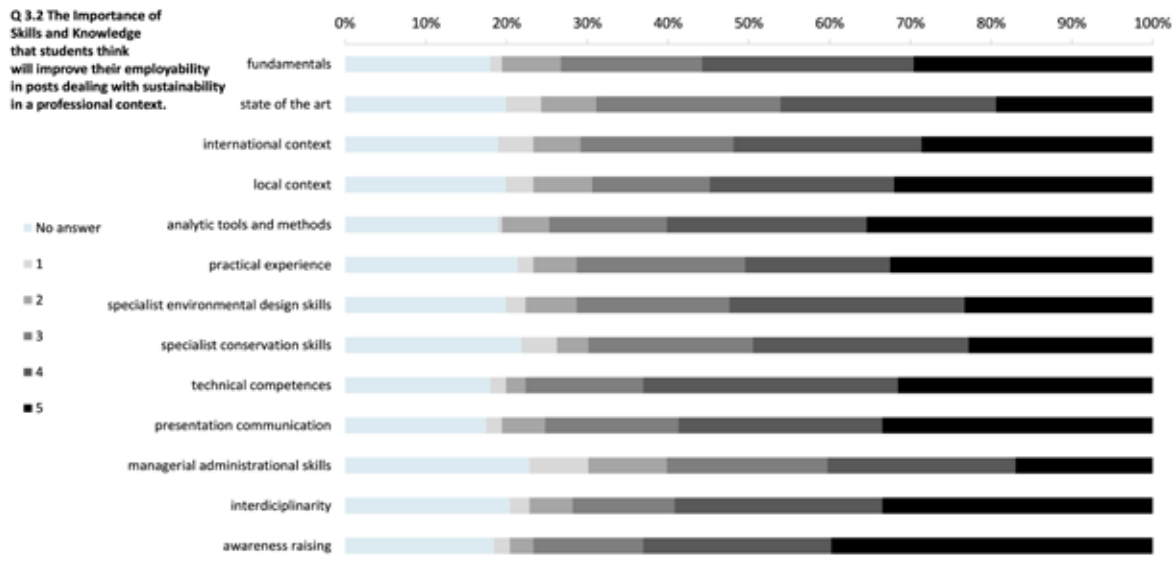
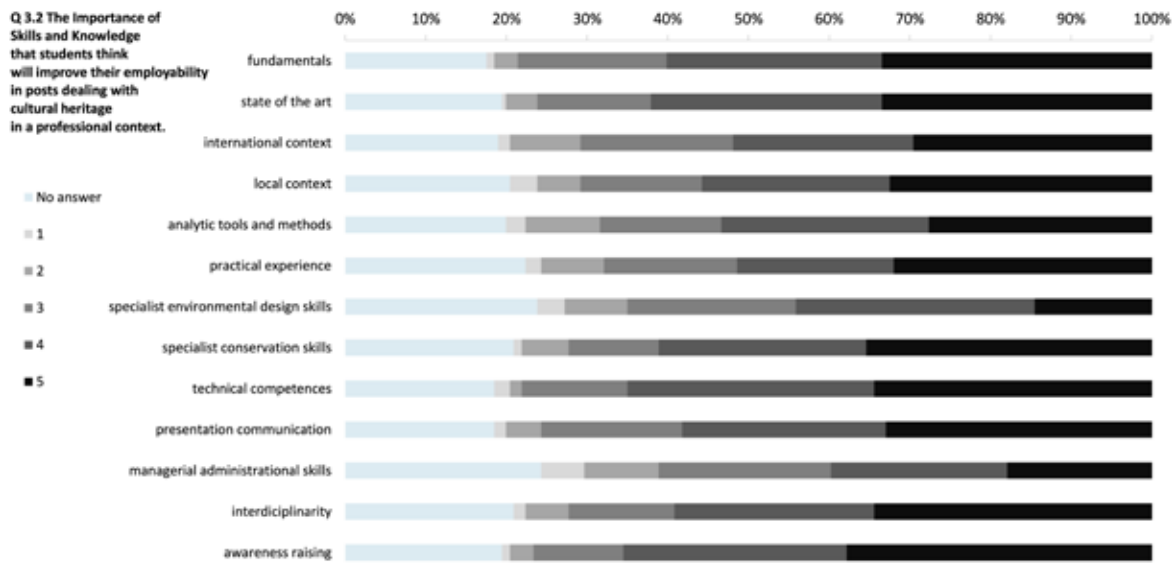
Students shared the idea that *Managerial administration skills* and *Specialist environmental design skills* are unnecessary in future working activities in Sustainability and Cultural Heritage fields. Three graphs (a, b, c) highlight that students consider the postgraduate level specialisation in Sustainability and Cultural Heritage essential to be employed in these fields. The knowledge of the *Fundamentals, State of Arts, International and Local context, the comprehension of Analytic tools and methods and Interdisciplinary perspectives, Technical competencies* and *Awareness-raising* are considered equally important by the students.

The Questionnaire highlights a close connection between students' perception and some of the ideas expressed by the Experts in Q3.2a and Q3.2b of the experts' Questionnaire.

In particular, Experts consider Sustainability and Cultural Heritage complex issues, so they suggest that students, after graduation, should attend Specialisation Schools.

The students' perception confirms this idea because they required more specialisation in the field of Sustainability and Cultural Heritage (66,50%).

Fig 8. The Importance of Skills and Knowledge that students think will improve their employability in posts dealing with (a) sustainability, (b) cultural heritage or (c) both, in a professional context



# DISCUSSION / CONCLUSIONS

*Questionnaires highlight that students emphasise the importance of Cultural Heritage and Sustainability in their Educational Career, considering them from an interdisciplinary perspective. This is the main challenge in teaching methodologies in Iuav Educational Methods (as reported in IO1).*

*While the Master's degree Students (Second Cycle) declare they need a better specialisation in Sustainability and Cultural Heritage, the Students of Specialisation Schools (Third Cycle) declare a high level of achievement regarding the learning objectives concerning Cultural Heritage.*

*This state-of-the-art reveal common ground between students' perceptions and experts' ideas, highlighting the importance of the Third level of education to achieve high-quality skills and knowledge required in a work environment concerning Cultural Heritage and Sustainability.*



## DISSEMINATION PROCESS

The questionnaire for the State of the Art was addressed to students, who are in the 4th / 5th year study cycles, graduate students enrolled in the MSc program in Conservation and Restoration of Historic Buildings and Sites, the MSc, program in Energy Technologies and Sustainable Design and the PhD program, as well as recent UCY alumni. The coordinator of the HERSUS Team at UCY, Prof. Maria Philokyprou disseminated the questionnaires to the administrative coordinator of the Department of Architecture at UCY, who forwarded them to current students and alumni. This effort was supplemented by continuous prompts and reminders by Prof. Maria Philokyprou and other colleagues of the Department of Architecture in order to achieve a significant response rate. At the same time the questionnaires were sent out to other public and private institutions in Cyprus in order to gather additional responses, as the number of students in the University of Cyprus is rather limited (an incoming cohort of between 20-30 each year for a total of five years, another 10-20 in each master course and about 30 PhD students).

The UCY team received 79 fully completed responses.



Theodora Hadjipetrou  
Maria Nodarakí  
Maria Philokyprou  
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## ABSTRACT / CYPRUS / UCY

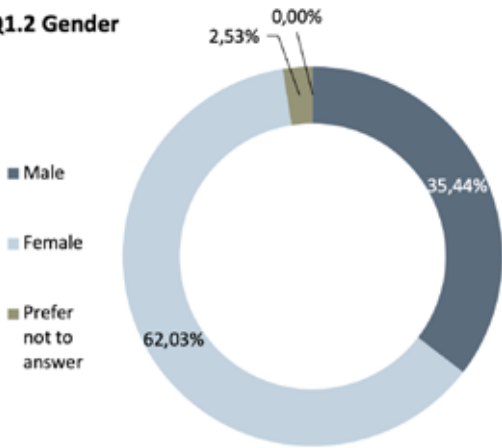


*This part of the report (Template 2) analyses the students' questionnaires, conducted by UCY. The sections of each report follow the 3 parts of the questionnaire with a final section discussing the findings. This part of the report consists mainly of graphs that reflect the findings on the quantitative analysis. For each question, the UCY team populate the graphs that reflect the answers obtained in Cyprus. The graphs are used in order to comment on the particular results and on issues that require clarification regarding local conditions. The analysis also focuses on specific questions that yield the most interesting / notable results. The cumulative results referring to all participating countries are available in Appendix.*

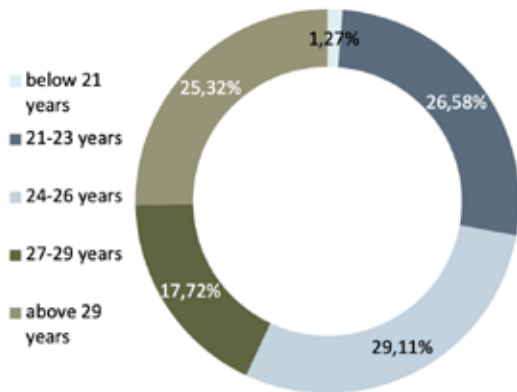
# RESPONDENTS SAMPLE



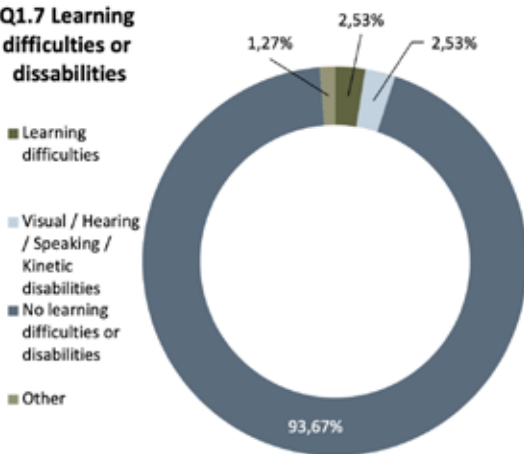
## Q1.2 Gender



## Q1.3 Age



## Q1.7 Learning difficulties or disabilities



### Gender

The data retrieved from the excel graphs, indicated that more female students (62,03%) than male students (35.44%) participated in the survey. This can be explained by the fact that the number of female students studying architecture at the University of Cyprus is much higher than male students.

### Age

The percentage of the respondents with regards to their age is more or less equally split. A slightly larger number of the respondents were 24-26 years old (29,11%), 26,58% of the respondents were 21-23 years old, 17,72% were 27-29 years old and 25,32% were above 29.

### Learning difficulties

The majority of respondents have no learning difficulties or disabilities (93,67%).

Fig 1. Mapping of the various backgrounds of the respondents based on responses to Q1.2, Q1.3 and Q1.7



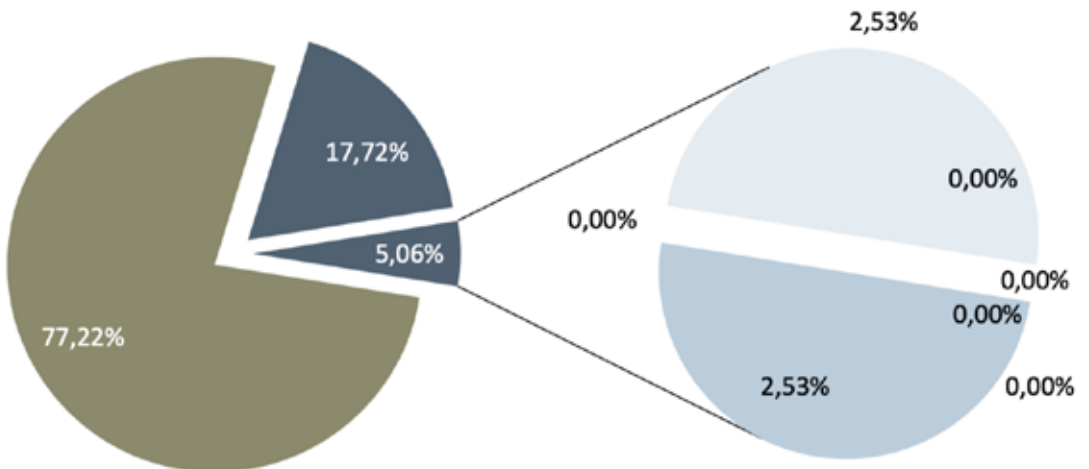
Respondents' studies or professional background

The majority of the respondents (77,22%) have *Architecture* as their professional background and 17,72% have *Engineering* as their professional background.

Q1.4 studies | professional background

- Architecture
- Engineering
- Spatial Planning / Land Surveying / Topography / Geography
- Social Sciences
- Environmental Science / Engineering
- Management / Economics
- Agriculture / Landscape Design & Planning
- Interior / Industrial Design
- Archaeology / Heritage Conservation
- Urban and Regional Planning
- Other

Fig 2. Mapping of the various backgrounds of the respondents based on responses to Q1.4



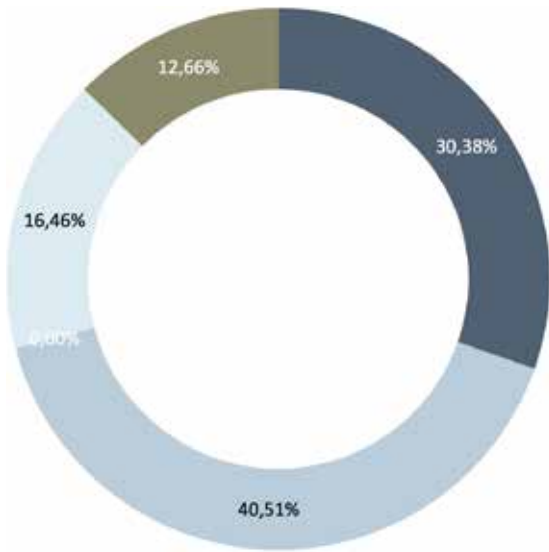


Fig 3. Mapping of the various backgrounds of the respondents based on responses to Q1.5

#### Q1.5 Program of Studies

- Second cycle: 4th / 5th year of 5-year single cycle integrated Master Studies
- Second cycle: Master's degree studies / professionalization courses
- Third Cycle: Specialisation School
- Third Cycle: PhD studies
- Recent Alumni of the above Programs

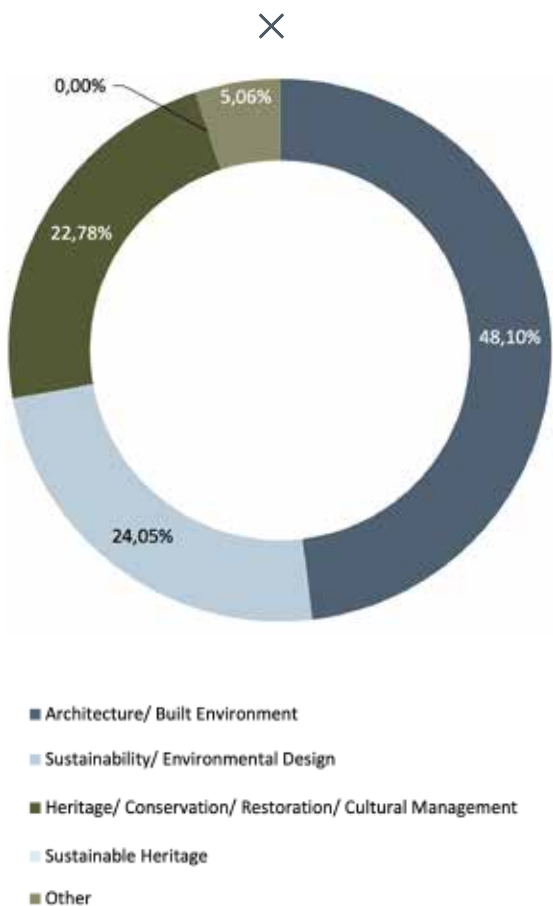


Fig 4. Mapping of the various backgrounds of the respondents based on responses to Q1.6

#### Type of program that they currently attend

About 40,51% of the participants currently attend Master degree studies or professional development courses and 30,38% are in their 4th / 5th year of a 5-year BSc / Graduate Professional Diploma integrated cycle of studies.

#### Main Focus of their current studies

The main focus of the current studies for 48,10% of the respondents is in *Architecture and the Built Environment*, whereas the main focus of the studies for 24,05% is in *Sustainability and Environmental Design* and for 22,78% is in *Heritage/ Conservation, Restoration and Cultural Management*.

#### The distribution of available courses in the curriculums

According to the data retrieved from the excel graphs for question Q2.1, regarding the 4th / 5th year Architecture students, 87,50% noted that they have *architecture* as their main focus of studies, the number of taught courses necessary for the Completion of the Degree are 40. 5,0% of the courses focus

mainly on Documentation, Conservation and Restoration of Cultural Heritage, 5% on Sustainability and Environmental Design, 2,5% focus on both Sustainability and Cultural Heritage, 5% of the courses delve on issues of Sustainability, Environmental Design and Planning and 2,5% delve on issues of the value and appreciation of cultural heritage and on engaging stakeholders in constructive dialogue within the National and International Historic Context. For the respondents who attend Master's degree studies and professional development courses, the majority of these come from three different specializations: Sustainability, Heritage and Architecture. The number of taught courses necessary for the Completion of the Degree are about 10. For students in Master's Degrees in Sustainability the participants noted that 10,00% of their courses focus mainly on Documentation, Conservation and Restoration of Cultural Heritage, 80,00% on Sustainability and Environmental Design, 10,00% focus on both Sustainability and Cultural Heritage, 50,00% of the courses delve on issues of Sustainability, Environmental Design and Planning and 10,00 % delve on such issues as the value and appreciation

of cultural heritage and engagement in constructive dialogue with the National and International Historic Context. For students in Master's Degrees on Heritage the participants noted that 40,00% of the courses focus mainly on Documentation, Conservation and Restoration of Cultural Heritage, 10,00% on Sustainability and Environmental Design, 10,00% focus on both Sustainability and Cultural Heritage, 10,00 % of the courses delve on issues of Sustainability, Environmental Design and Planning and 20,00 % raise delve on such issues as the value and appreciation of cultural heritage and the engagement in constructive dialogue with the National and International Historic Context. For the students in Master's Degrees in Architecture, only 10,00 % of the courses focus on Sustainability and Environmental Design and raise issues of Sustainability, Environmental Design and Planning.

Table 01. Available courses in the existing programs of studies according to responses to Q2.1

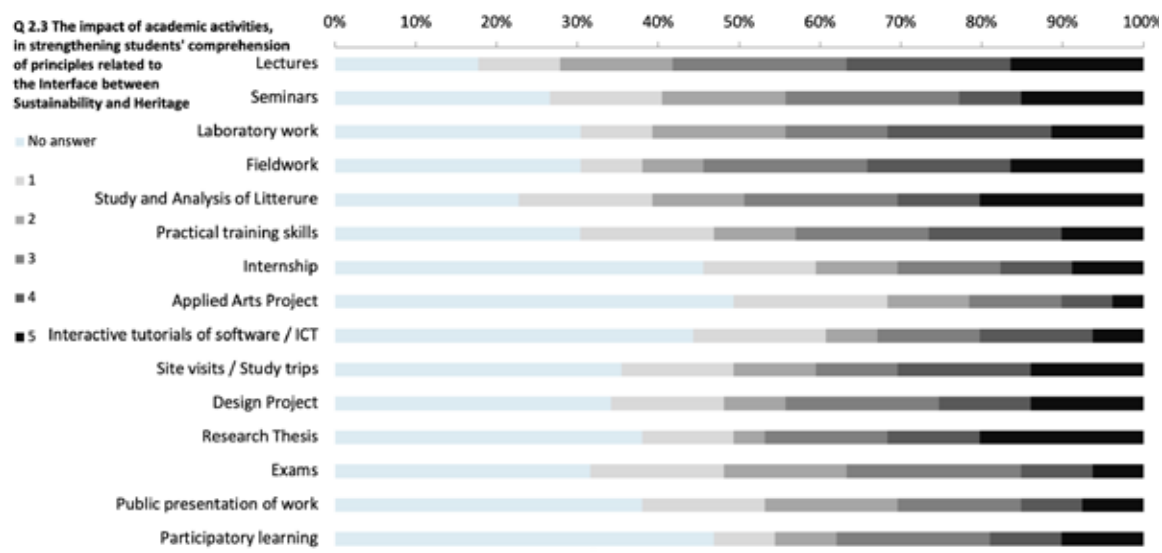
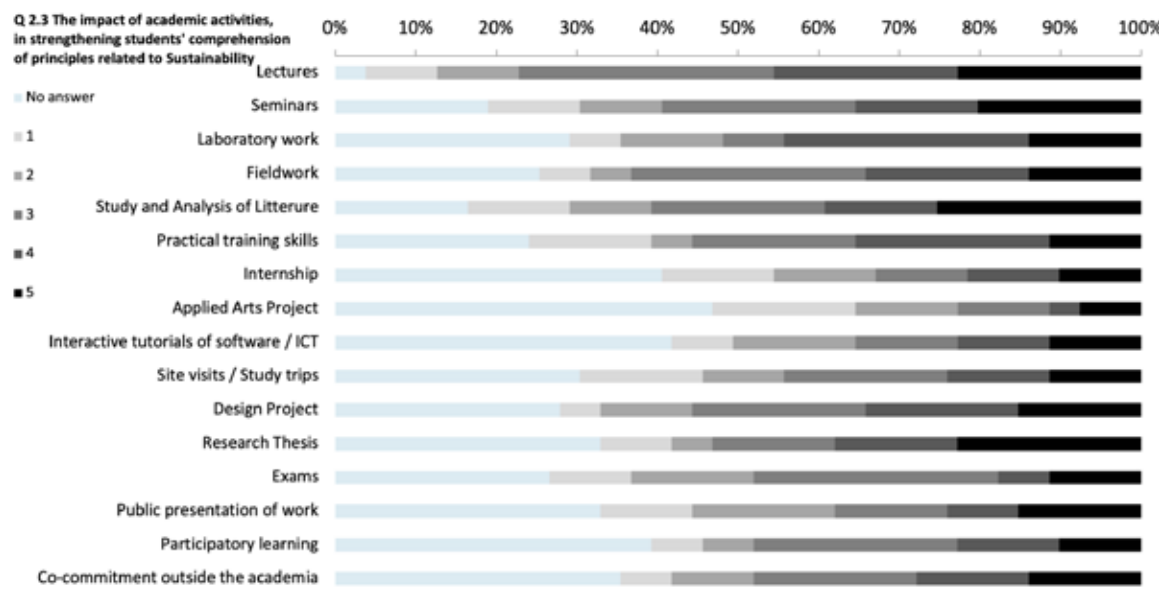
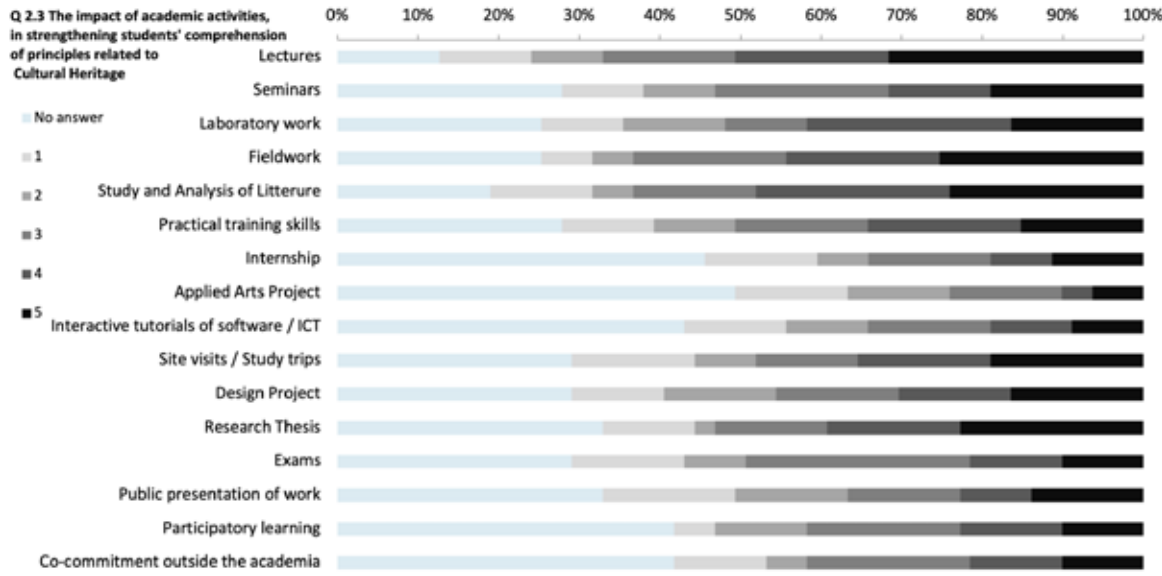
	Responses		Focus of Studies			Taught Courses of the Curriculum	Courses focusing mainly on documentation Conservation Restoration of Cultural Heritage			Courses focusing mainly on Sustainability / Environmental Design		Courses focusing both on Sustainability & Cultural Heritage		Courses raising issues of Sustainability / Environmental Design / Planning		Courses raising issues of the value / appreciation or dialogue with the National / International Historic Context	
	number	% of total samples	Architecture	Heritage	Sustainability	Median	Median	% of total courses	Median	% of total courses	Median	% of total courses	Median	% of total courses	Median	% of total courses	
4th / 5th year of 5-year single cycle integrated Master Studies	24	3,1%	87,5%	0,0%	0,0%	40	2	5,0%	2	5,0%	1	2,5%	2	5,0%	2	5,0%	
Master's degree studies / professionalization courses	13	1,7%	0,0%	0,0%	100,0%	10	1	10,0%	8	80,0%	1	10,0%	5	50,0%	1	10,0%	
	16	2,1%	0,0%	100%	0,0%	10	4	40,0%	1	10,0%	1	10,0%	1	10,0%	2	20,0%	
	2	0,3%	100,0%	0,0%	0,0%	10	0	0,0%	1	10,0%	0	0,0%	1	10,0%	0	0,0%	
Specialization School	0	0,0%	0,0%	0,0%	0,0%	0	0	0,0%	0	0,0%	0	0,0%	0	0,0%	0	0,0%	
	0	0,0%	0,0%	0,0%	0,0%	0	0	0,0%	0	0,0%	0	0,0%	0	0,0%	0	0,0%	
	0	0,0%	0,0%	0,0%	0,0%	0	0	0,0%	0	0,0%	0	0,0%	0	0,0%	0	0,0%	

# IMPACT OF ACADEMIC ACTIVITIES IN STRENGTHENING STUDENTS COMPREHENSION

Question 2.3 focuses on the impact of specific educational activities in strengthening the students' comprehension of principles related to Sustainability or Cultural Heritage or both. The educational activities are rated on a scale from 1: minimal impact, to 5: dominant activity. According to the data retrieved from the excel graphs, for strengthening students' comprehension of principles related to *Sustainability*, the 25,32% of the respondents consider the *Study and Analysis of Literature* as the dominant activity and 22,78% of the respondents consider *Lectures* as the dominant activity. 31,65% and 25,23% of the students respectively express the opinion that *Lectures* and *Fieldwork* respectively are the dominant activities for strengthening their comprehension of principles related to Cultural Heritage. For the better comprehension of the principles related to the *interface between Sustainability and Cultural Heritage*, students believe that the dominant activities are the *Study and Analysis of relevant Literature* (20,25%) as well as *Lectures* and *Fieldwork* (16,46%).

Comparing the results of UCY to the results at the international level, the students at the international level do not share the same opinion as the students in Cyprus and hold the belief that *Design Projects, Research Thesis, Lectures, Concurrent practice* in the particular field outside the academia, *site visits and site trips* are the most important activities for strengthening students' comprehension of principles related to either *Sustainability or Cultural Heritage* or both.

Fig 5. The impact of academic activities in strengthening students' comprehension of principles related to (a) sustainability, (b) cultural heritage or (c) both

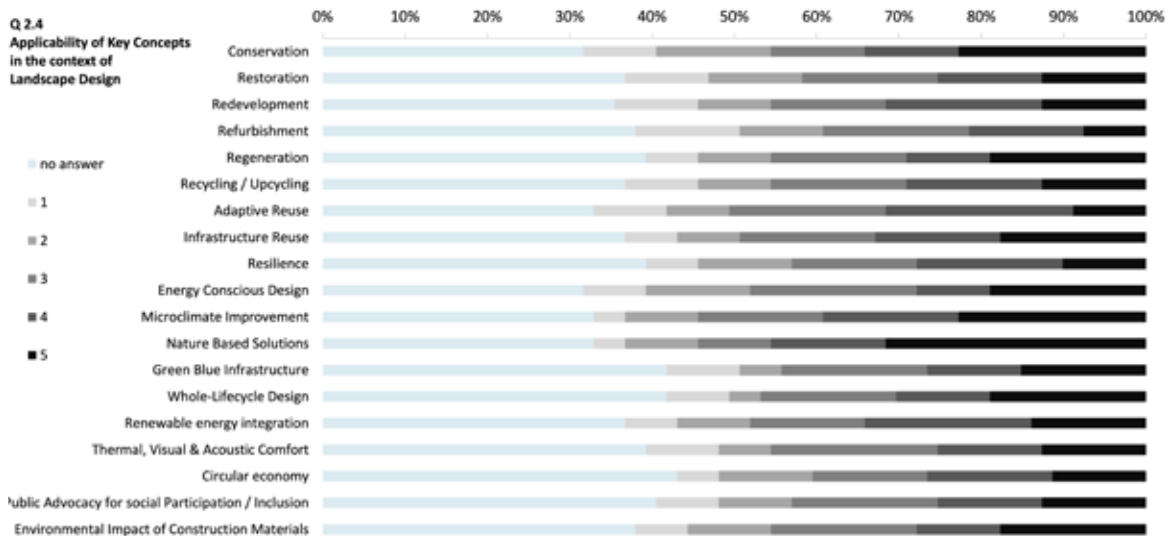
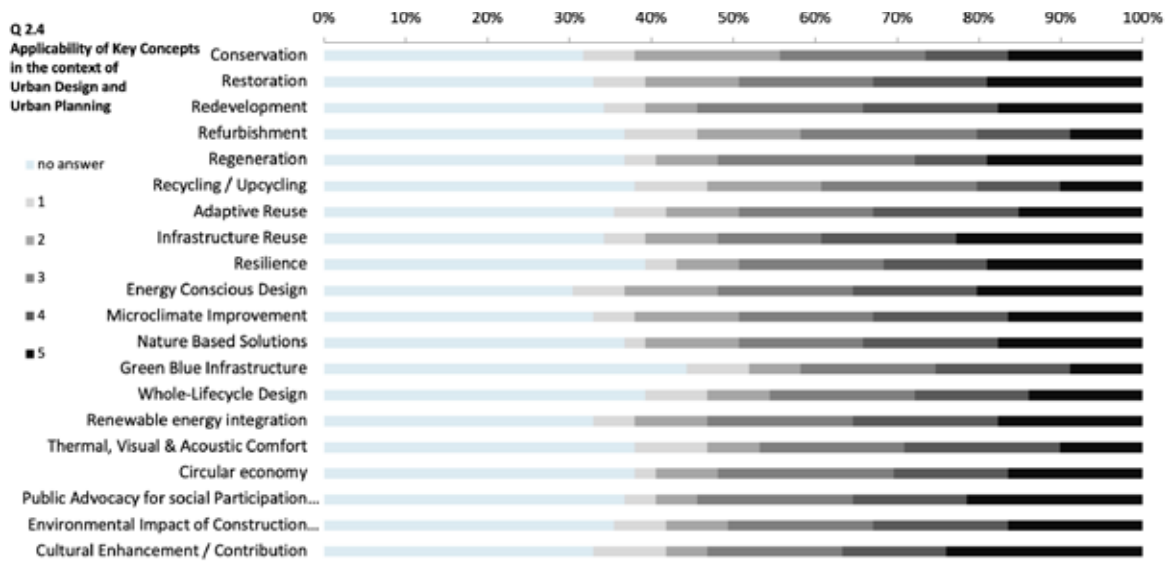
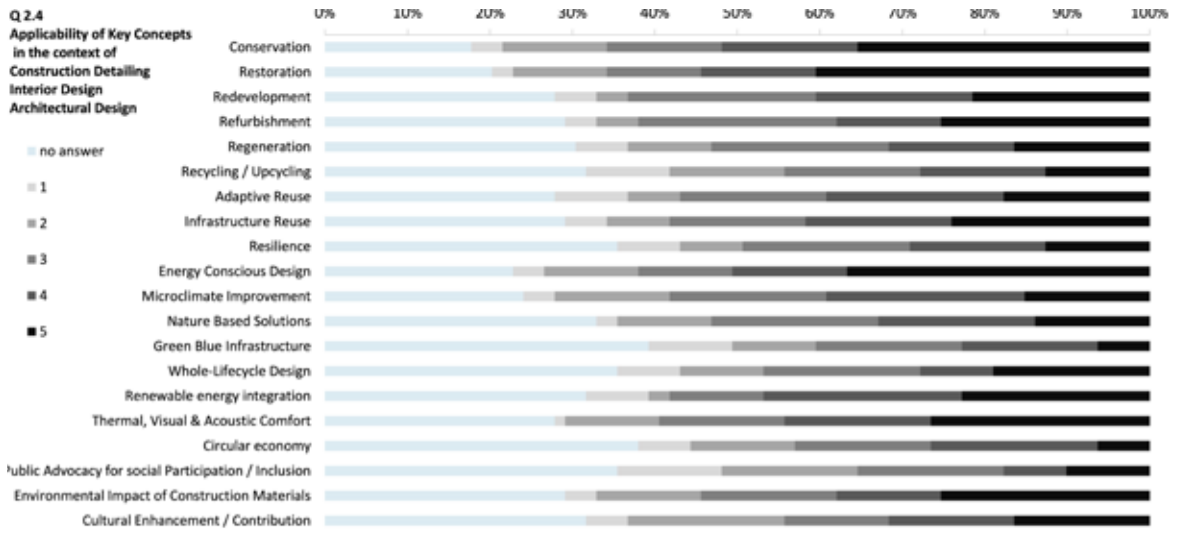


# APPLICABILITY OF KEY CONCEPTS RELATED TO SUSTAINABILITY AND CULTURAL HERITAGE IN RELATION TO DIFFERENT SCALES

Question 2.4 refers to the applicability of key concepts in the context of sustainability, heritage or both. As far as *Construction Detailing, Interior Design and Architectural Design* are concerned, 40,51% of the respondents consider the key concept of *Restoration* to have the maximum applicability while 36,71% believe that *Energy Conscious Design* is the most applicable key concept. 24,05% and 22,78% expresses the opinion that *Cultural Enhancement and Contribution* and *Infrastructure Reuse* are the most relevant key concepts in the context of *Urban Design and Urban Planning* respectively. In the context of *Landscape Design*, 31,65% of the respondents believe that the most significant key concept is that of *Nature Based Solutions* and 22,78% believe that *Cultural Enhancement and Contribution* are the most interlinked.

Comparing the results of UCY to the results at the international level, most of the students at the international level think that the key concepts of *Restoration, Conservation, Energy Conscious Design and Thermal Visual and Acoustic Comfort* are mainly applied in the context of *Construction Detailing, Interior Design and Architectural Design* while students in Cyprus do not consider the key concept of *Thermal Visual and Acoustic Comfort* to be so important. In the context of *Urban Design and Urban Planning, Redevelopment, Infrastructure Reuse and Cultural Enhancement and Contribution* are considered to be the most related key concepts according to the results of the survey at the international level. Finally, in the context of *Landscape Design* the key concepts of *Nature Based Solutions, Cultural Enhancement and Contribution and Regeneration* are noted as the most important. Similar opinions hold true for the students in Cyprus.

Fig 6. Applicability of Key Concepts related to sustainability and cultural heritage in the context of different scales of design practice



# STUDENTS' SELF-EVALUATION IN TERMS OF THE SKILLS AND KNOWLEDGE

Question Q3.1 deals with students' self-evaluation in terms of Skills and Knowledge they have gained through their current program of studies. In relation to *Sustainability*, 31,65% of the students hold the belief that they have gained a good understanding of the *fundamentals* (4 to the 5-point rating scale), 27,85% a good knowledge of the *state of art* (4 to the 5-point rating scale) and 25,32% good *presentation and communication skills* (4 to the 5-point rating scale). 20,25% of the students believe that they have gained the maximum of skills related to *presentation communication* (5 to the 5- point rating scale), 27,85% and 21,52% respectively express the opinion that they have gained many skills related to *fundamentals* and *local context* (4 to the 5-point rating scale) through their current programs of studies in terms of *cultural heritage*. Moreover, 31,65% of the respondents are of the opinion that study programs in terms of cultural heritage, help *raise their awareness* of matters related to that field (4 to the 5-point rating scale) while 15,19% feel they have gained no *practical experience* (1 to the 5-point rating scale). In relation to the *interface between sustainability and heritage*, 27, 85% of the respondents believe that the study programs have helped them broaden their knowledge about the *state of art* (4 to the 5-point rating scale), 22,78% comprehend the *fundamentals* and *raise their awareness* (4 to the 5-point rating scale). Only 17,72% hold the belief that the study programs do not help them gain *practical experience* (1 to the 5-point rating scale).

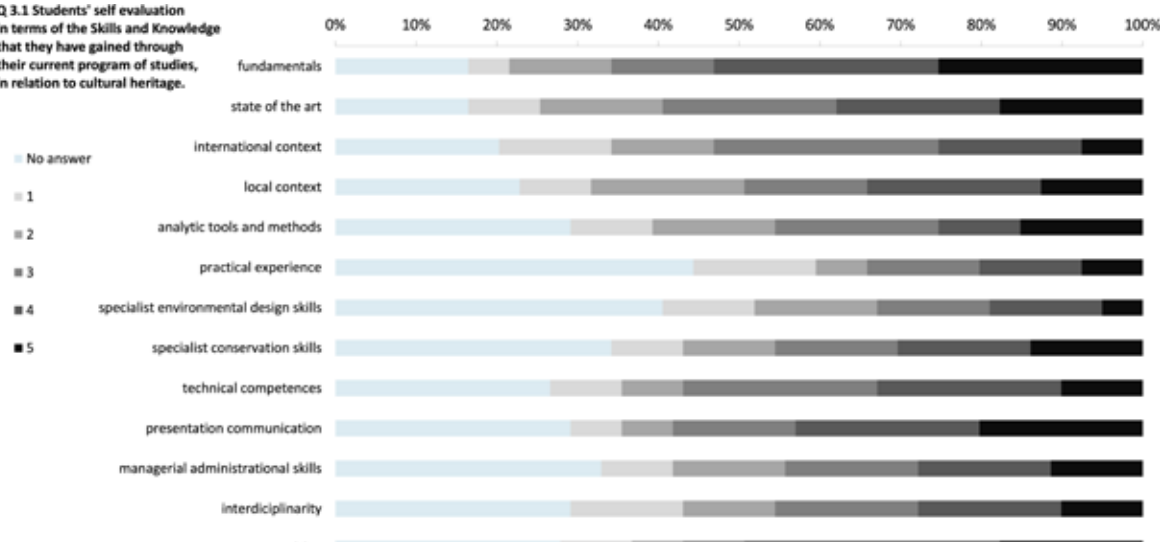
Comparing the results at UCY to the results at the international level, most of the students at the international level think that the study programs in relation to sustainability or heritage or both provide

tools mainly for the comprehension of the *fundamentals* and the *raising of awareness*, while students in Cyprus also note that *presentation and communication skills* and *understanding of the local context* are important learning outcomes of the existing study programs.

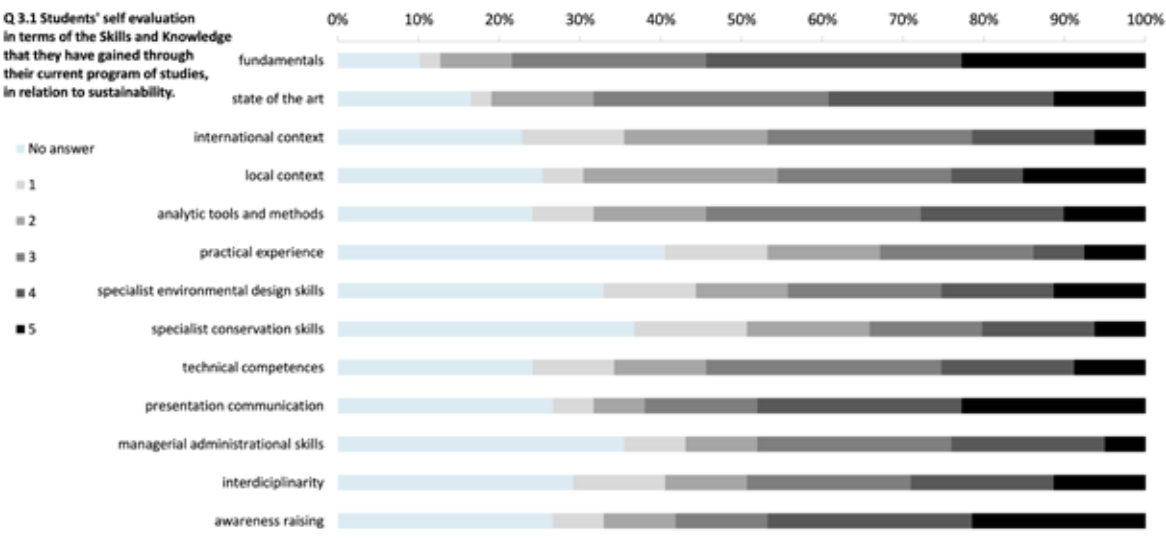
Fig 7. Students' self-evaluation in terms of the Skills and Knowledge that they have gained through their current program of studies in relation to (a) sustainability, (b) cultural heritage or (c) both



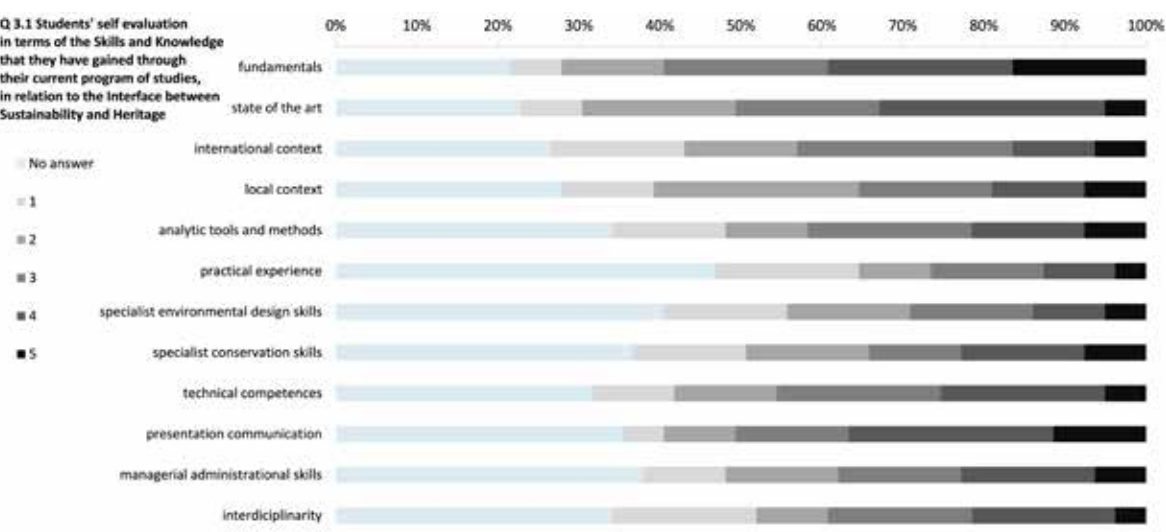
Q 3.1 Students' self evaluation in terms of the Skills and Knowledge that they have gained through their current program of studies, in relation to cultural heritage.



Q 3.1 Students' self evaluation in terms of the Skills and Knowledge that they have gained through their current program of studies, in relation to sustainability.



Q 3.1 Students' self evaluation in terms of the Skills and Knowledge that they have gained through their current program of studies, in relation to the Interface between Sustainability and Heritage

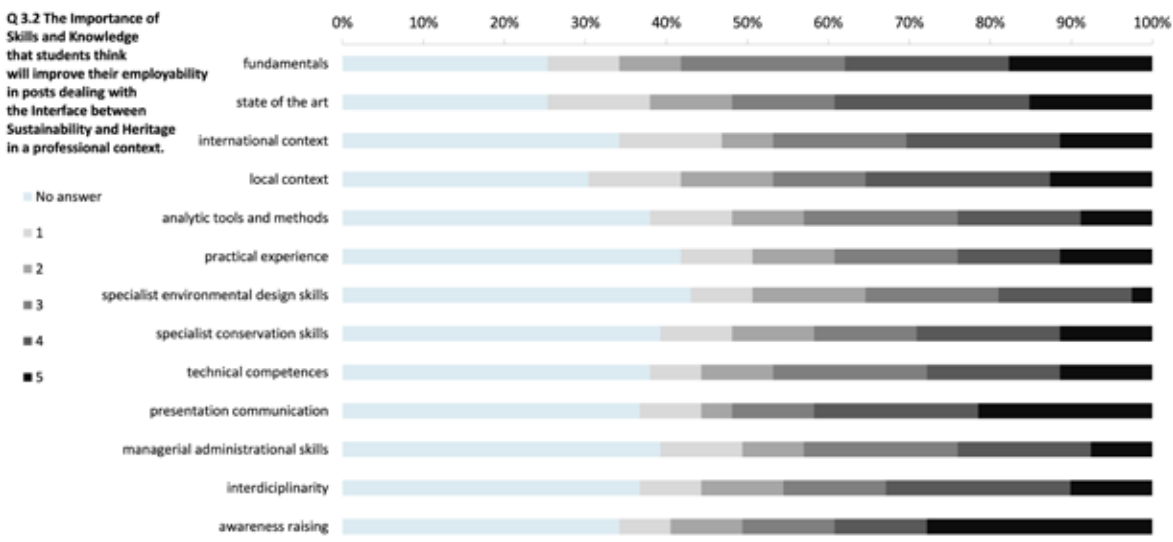
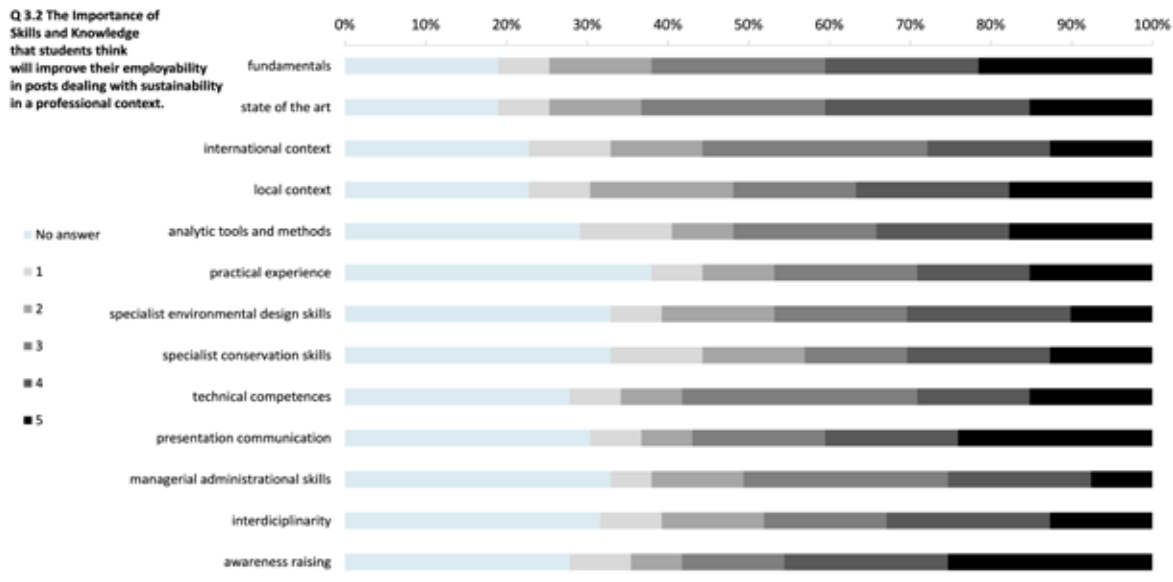
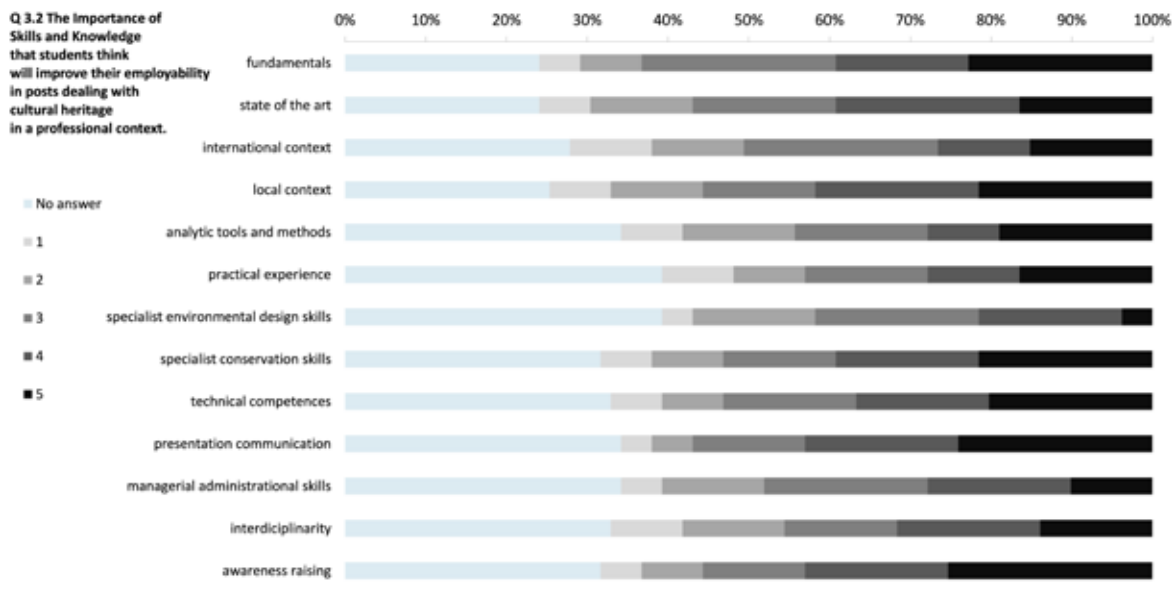


# THE IMPORTANCE OF SKILLS AND KNOWLEDGE THAT STUDENTS THINK WILL IMPROVE THEIR EMPLOYABILITY

Skills and Knowledge that students think will improve their employability in posts dealing with *Sustainability* in a professional context are: *presentation and communication skills* (24,05%), *raising awareness* (25,32%) and *comprehension of the fundamentals* (21,25%). Skills and Knowledge that students believe will improve their employability in posts dealing with *Heritage* in a professional context are: *raising awareness* (25,32%), *comprehension of the fundamentals* (22,78%) and *understanding of the local context* (21,25%). Skills and Knowledge that students think will improve their employability in posts dealing with the *Interface between Sustainability and Heritage* in a professional context are: *raising awareness* (27,85%) and *comprehension of the fundamentals* (17,72%).

Comparing the results of UCY to the results at the international level, most of the students at the international level think that the skills and knowledge that will improve their employability in posts dealing with sustainability or heritage or both, in a professional context are: *comprehension of the fundamentals*, *practical experience*, *presentation and communication skills* and *raising awareness in the subject matter*.

Fig 8. The Importance of Skills and Knowledge that students think will improve their employability in posts dealing with (a) sustainability, (b) cultural heritage or (c) both, in a professional context



# DISCUSSION / CONCLUSIONS

*UCY received 79 full responses. The Students' Survey provided information and conclusions with regards to the students' gender, age, learning difficulties or disabilities, prior studies, professional background, program of studies and prior training, as well as their main focus of studies and the available courses in their current programs of study. Furthermore, through the survey it was noted that the impact of specific academic activities in strengthening students' comprehension of principles related to sustainability, cultural heritage or both has been in the applicability of key concepts in the context of construction detailing, interior design, architectural design, urban design, urban planning and landscape design and the students' self-evaluation in terms of skills and knowledge. Finally, the survey also brought forth evidence regarding the importance of skills and knowledge that students think will improve their employability in posts dealing with sustainability, cultural heritage and both in a professional context.*



## DISSEMINATION PROCESS

The IO2 student Questionnaire dissemination was initiated in Greece on the 02.04.2021 and expired on 26.04.2021, attracting 285 responses out of which 120 were complete, accounting for 15.67% of the total of complete student questionnaires received in the five HERSUS countries. The remainder of this report analyses only complete questionnaires received during the aforementioned period.

The questionnaire dissemination initially sought to engage students beyond the critical level of study (4th year) at the School of Architecture AUTH, through targeted disseminations (email) in the classes – studios of the integrated diploma and relevant Master's Courses and also through mass dissemination through the School's website and social media. The questionnaire was subsequently also disseminated through the social medial of other schools of architecture in Greece, with the help of fellow academics.



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## ABSTRACT / GREECE / AUTH

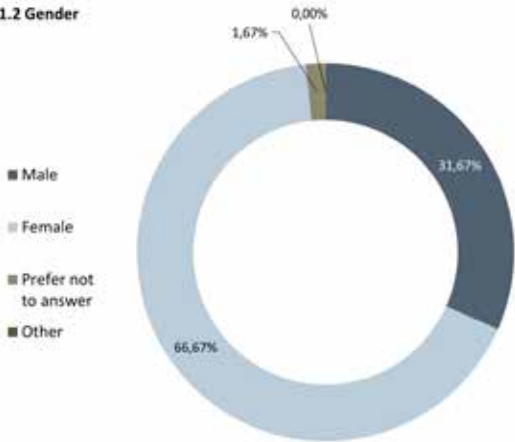


*This report presents the findings of the analysis of the Greek students' questionnaire, in the context of the HERSUS IO2 survey. The IO2 student Questionnaire dissemination in Greece attracted 120 complete responses, accounting for 15.67% of the student questionnaires received in the five HERSUS countries. The study was successful in engaging participants with a background in Architecture (Figure 2), this group constituting 85,83% of the Greek sample, while a considerable percentage of other disciplines that deal with the built environment is also present. 60% of the respondents indicate that they attend a 2nd Cycle Integrated Master's Program (5yr program), while a further 26,67% attend 2nd Cycle Master's Degrees (1-2 year program). The majority of responses come from students attending structured studies while the remaining can be attributed to PhD students and recent alumni of higher education programs.*

# RESPONDENTS SAMPLE



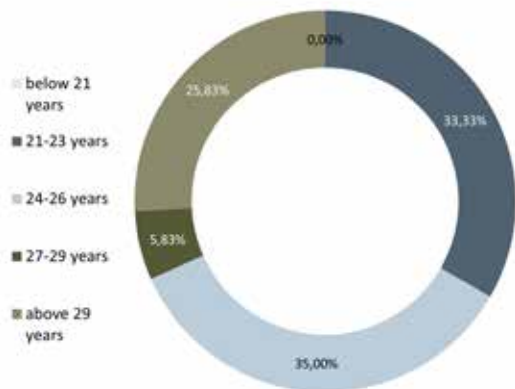
**Q1.2 Gender**



## Gender

As seen in Figure 1, out of the 120 respondents, two thirds were female and one third male, reflecting the gender distribution currently observed in the undergraduate and postgraduate courses in Greece.

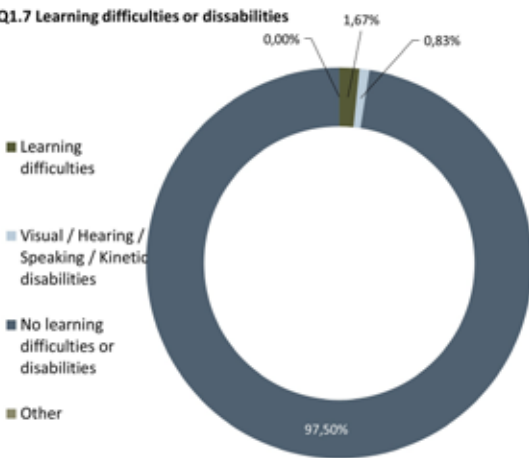
**Q1.3 Age**



## Age

The ages of the respondents (diagram for Q2) are spread across the targeted age groups, with almost seven out of ten students coming from the age groups 21-23 and 24-26, the remaining representing senior students, above 27 years old.

**Q1.7 Learning difficulties or disabilities**



## Learning difficulties or disabilities

The respondents' disability profiles (diagram for Q3) reveal a very small representation of disabled groups within the survey.

Fig 1. Mapping of the various backgrounds of the respondents based on responses to Q1.2, Q1.3 and Q1.7



## Respondents' studies or professional background

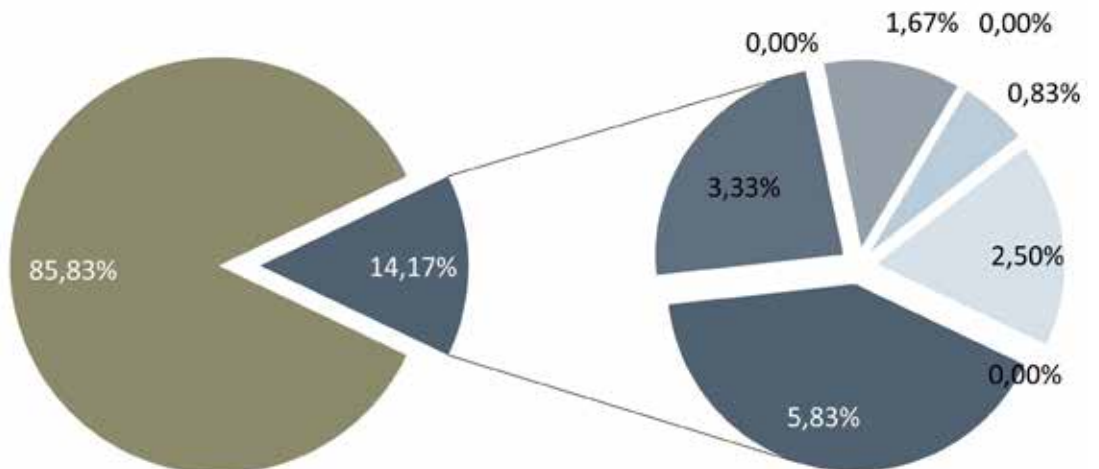
Overall the study was successful in engaging participants with a background in *Architecture* (Figure 2), this group constituting 85,83% of the Greek sample, while a considerable percentage of other disciplines that deal with the built environment is also present.



### Q1.4 studies | professional background

- Architecture
- Engineering
- Spatial Planning / Land Surveying / Topography / Geography
- Social Sciences
- Environmental Science / Engineering
- Management / Economics
- Agriculture / Landscape Design & Planning
- Interior / Industrial Design
- Archaeology / Heritage Conservation
- Urban and Regional Planning
- Other

Fig 2. Mapping of the various backgrounds of the respondents based on responses to Q1.4



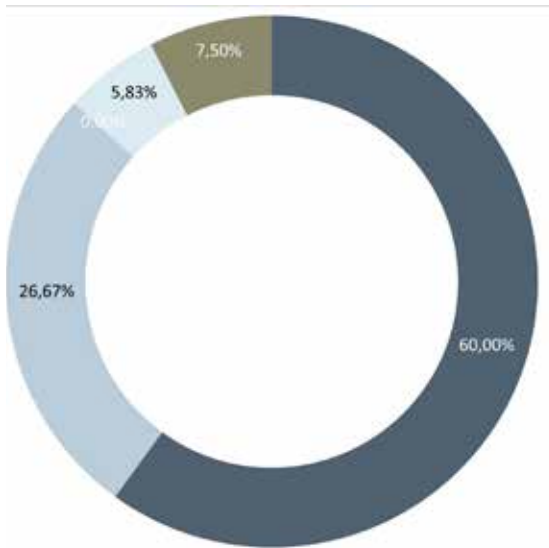
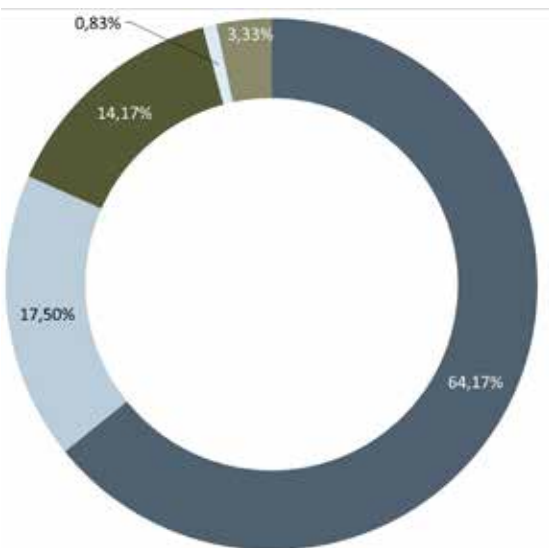


Fig 3. Mapping of the various backgrounds of the respondents based on responses to Q1.5

×



- Architecture/ Built Environment
- Sustainability/ Environmental Design
- Heritage/ Conservation/ Restoration/ Cultural Management
- Sustainable Heritage
- Other

Fig 4. Mapping of the various backgrounds of the respondents based on responses to Q1.6

### Q1.5 Program of Studies

- Second cycle: 4th / 5th year of 5-year single cycle integrated Master Studies
- Second cycle: Master's degree studies / professionalization courses
- Third Cycle: Specialisation School
- Third Cycle: PhD studies
- Recent Alumni of the above Programs

Type of program that they currently attend

Declaring their current status (Figure 3), respondents indicated that 60% of them attend a *2nd Cycle Integrated Master's Program (5yr program)*, while a further 26,67% attend *2nd Cycle Master's Degrees (1-2 year program)*. Thus, the majority of responses come from students attending structured studies while the remaining can be attributed to *PhD students* and *recent alumni* of higher education programs.

Main Focus of their current studies

Finally, when it comes to the main focus of their studies, 95% of the respondents can fit under three categories: *Architecture* – 64.17% , *Sustainability* – 17.5, and *Heritage* 14,17 (Figure 04).

The distribution of available courses in the curriculums

This section analyses responses received only from *4th – 5th year Diploma and 2nd Cycle Masters Students*, who comprise 86,67% of the whole sample and attend structured programs which include courses on heritage, sustainability or their interface. Out of the aforementioned, 72 students (60% of the whole sample) are currently in their 4th/5th year of studies. Almost nine out of ten students in this group declare the focus of studies being on Architecture thus largely reflecting the perceived ratio of courses in the Schools of Architecture in Greece and specifically at AUTH Specifically, students of this group perceive that 8.7% of their studies comprises of courses focusing

mainly on Documentation / Conservation / Restoration of Cultural Heritage, a percentage that is considerably higher compared to the 6% found across all HERSUS countries. The percentage of courses focusing mainly on Sustainability / Environmental Design (6,5% of the program of studies) is also considerably higher than the 4% found across all HERSUS countries. The percentage of courses focusing both on sustainability and cultural heritage is on par with that found across all HERSUS countries and reveals the perception of possibly one course through their studies effectively combining the two disciplines. Furthermore, 6,5% of integrated Masters' studies is perceived to include courses that raise issues of sustainability/environmental design/planning and an equal percentage of courses that raise issues of the value/appreciation or dialogue with the National/international Historic Context. Overall, the perceived ratios reveal a larger percentage of courses being devoted to Heritage Conservation / Restoration, revealing the earlier development and involvement of heritage studies in Architecture as compared to disciplines and courses related to sustainability. In terms of 2nd Cycle Master's Degree studies, the respondents from programs that focus on architecture mirror the outcome of the relevant analysis of Integrated

Diploma programs, whereby a larger percentage of courses is perceived as being devoted to Heritage Conservation / Restoration, with sustainability also forming a considerable part of their studies, and courses that focus both on sustainability and heritage being also existent. Students of Cultural Heritage Master's programs understandably perceive that more than 50% of their studies focus mainly on heritage conservation and restoration but at the same time acknowledge that 7.7% of their studies focus on sustainability and environmental design, while declaring that a further 7,7% focuses on the interface of the two disciplines. On the other hand, students attending Sustainability Master's Programs perceive their studies to focus completely on sustainability but at the same time acknowledge that 25% of them focus on the interface between sustainability and heritage. Overall, Heritage-related Master's programs are found to be more inclusive of the two disciplines while sustainability-related Postgraduate programs of study are found to be able to better integrate the two disciplines in the context of interdisciplinary courses (focusing equally on sustainability and heritage).

Table 01. Available courses in the existing programs of studies according to responses to Q2.1

	Responses		Focus of Studies			Taught Courses of the Curriculum	Courses focusing mainly on documentation Conservation Restoration of Cultural Heritage			Courses focusing mainly on Sustainability / Environmental Design		Courses focusing both on Sustainability & Cultural Heritage		Courses raising issues of Sustainability / Environmental Design / Planning		Courses raising issues of the value / appreciation or dialogue with the National / International Historic Context	
	number	% of total samples	Architecture	Heritage	Sustainability	Median	Median	% of total courses	Median	% of total courses	Median	% of total courses	Median	% of total courses	Median	% of total courses	
4th / 5th year of 5-year single cycle integrated Master Studies	72	9,4%	87,5%	6,9%	5,6%	46	4	8,7%	3	6,5%	1	2,2%	3	6,5%	3	6,5%	
Master's degree studies / professionalization courses	16	2,1%	0,0%	0,0%	100,0%	4	0	0,0%	4	100,0%	1	25,0%	4	100,0%	0	0,0%	
	7	0,9%	0,0%	100%	0,0%	13	7	53,8%	1	7,7%	1	7,7%	1	7,7%	2	15,4%	
	6	0,8%	100,0%	0,0%	0,0%	24	3	12,5%	2	8,3%	2	8,3%	3	12,5%	3	12,5%	
Specialization School	0	0,0%	0,0%	0,0%	0,0%	0	0	0,0%	0	0,0%	0	0,0%	0	0,0%	0	0,0%	
	0	0,0%	0,0%	0,0%	0,0%	0	0	0,0%	0	0,0%	0	0,0%	0	0,0%	0	0,0%	
	0	0,0%	0,0%	0,0%	0,0%	0	0	0,0%	0	0,0%	0	0,0%	0	0,0%	0	0,0%	

# IMPACT OF ACADEMIC ACTIVITIES IN STRENGTHENING STUDENTS COMPREHENSION

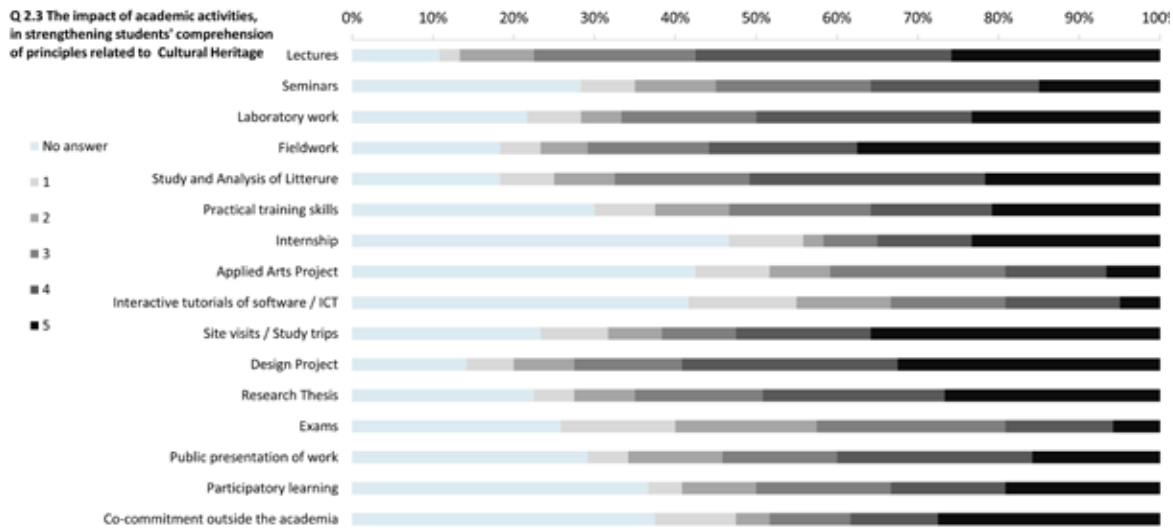
According to the respondents' views, as shown in figure 05a, the educational activities of *Lectures, Laboratory work, Design Project* and *Research Thesis* have the greatest influence on the comprehension of principles related to *Sustainability*. Specifically, these activities receive a higher than 4 rating by almost 50% of the students. Furthermore, close to 40% of the students have evaluated the activities of; *Fieldwork, Study and Analysis of Literature, Site visits*, and *Co-commitment outside the academia*, as having a major influence on comprehending the aforementioned principles. *Seminars, Practical training skills, Internship, Participatory learning*, and *Public Presentation of work* are declared to have prevalence by almost 30% of the sample. On the contrary, the activities; *Applied Arts Projects, Interactive tutorials of software* and *Exams* are considered to have minimal influence.

Regarding the educational activities in the context of *Cultural Heritage* (figure 05b), the results with regard to the impact of lectures do not show a significant difference. The dominant educational activities, ranked above 4 by at least 50% and above 5 by at least 35% (high confidence) are *Fieldwork, Site visits, Design Project*. Furthermore, more than 50% of the student sample ranks the activities; *Research Thesis, Laboratory work, Study and Analysis of Literature*, with marks higher than 4, underlining their prevalence alongside the aforementioned. *Public presentation of work* and *Co-commitment activities outside the academia* are declared to be of prevalence by close to 40% of the sample while *Practical training skills, Seminars, Internship* and *Participatory learning* receive higher than 4 ranking by almost 30% of the respondents. Receiving the lowest percentages are the activities of *Applied Arts Projects, Interactive tutorials* and *Exams*.

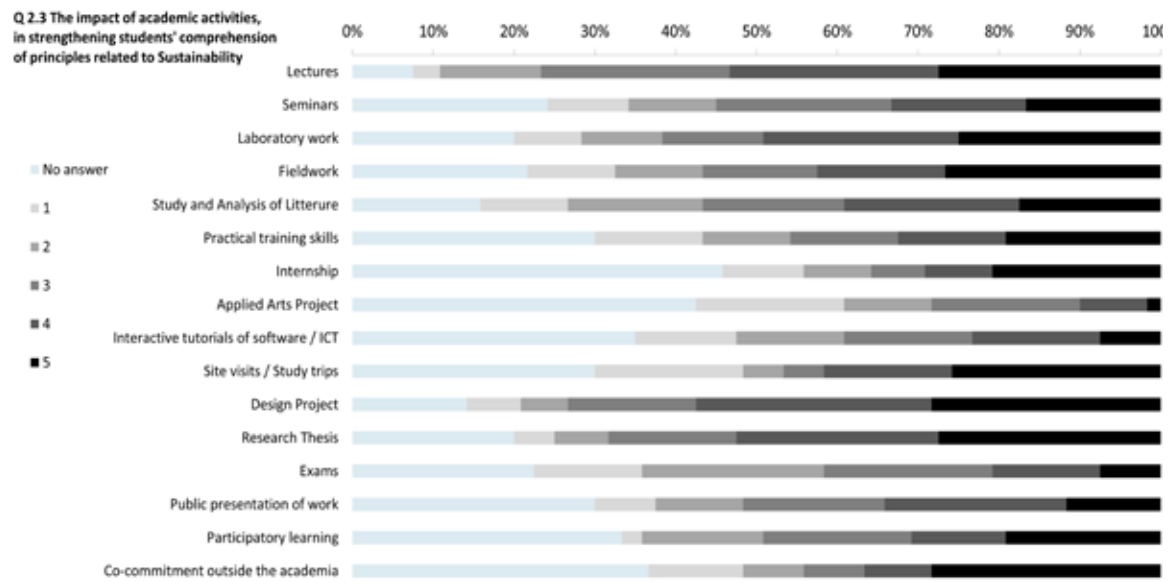
Finally figure 05c reveals that respondents had less confidence in specific activities that have enhanced their comprehension of issues pertaining to the *interface of heritage and sustainability*. The activities of *Laboratory work, Fieldwork, Site visits, Design Project, Research Thesis* and *Co-commitment outside the academia* receive higher than 4 ranking by almost 35% of the students. The activities of *Lectures, Study and Analysis of Literature, Practical training skills, Internship* and *Participatory learning* also receive relatively high ratings. According to students, least relevant are always the activities of *Applied Arts Projects, Interactive tutorials* and *Exams*.

Fig 5. The impact of academic activities in strengthening students' comprehension of principles related to (a) sustainability, (b) cultural heritage or (c) both

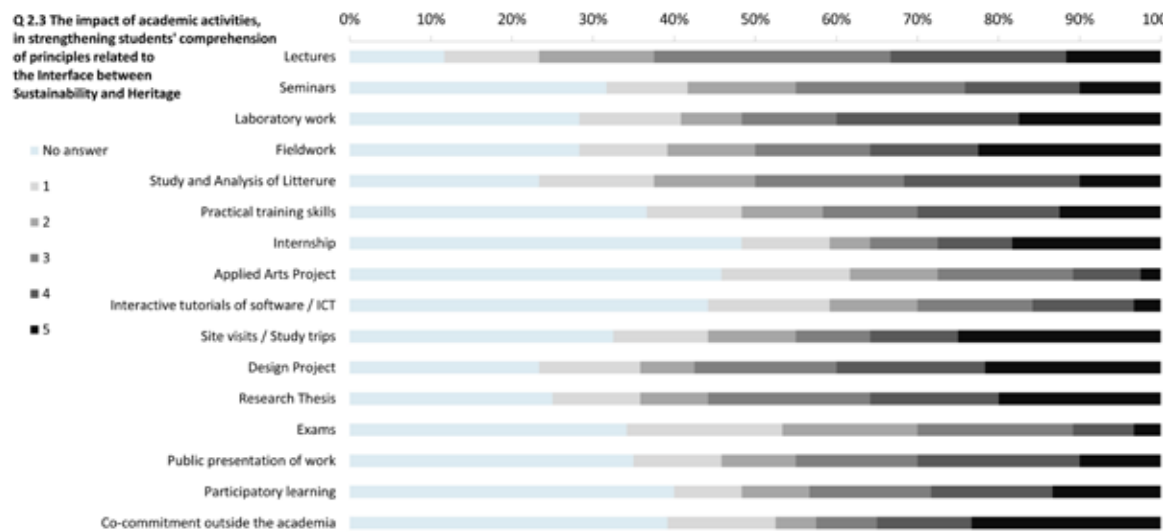
Q 2.3 The impact of academic activities, in strengthening students' comprehension of principles related to Cultural Heritage



Q 2.3 The impact of academic activities, in strengthening students' comprehension of principles related to Sustainability



Q 2.3 The impact of academic activities, in strengthening students' comprehension of principles related to the Interface between Sustainability and Heritage



# APPLICABILITY OF KEY CONCEPTS RELATED TO SUSTAINABILITY AND CULTURAL HERITAGE IN RELATION TO DIFFERENT SCALES

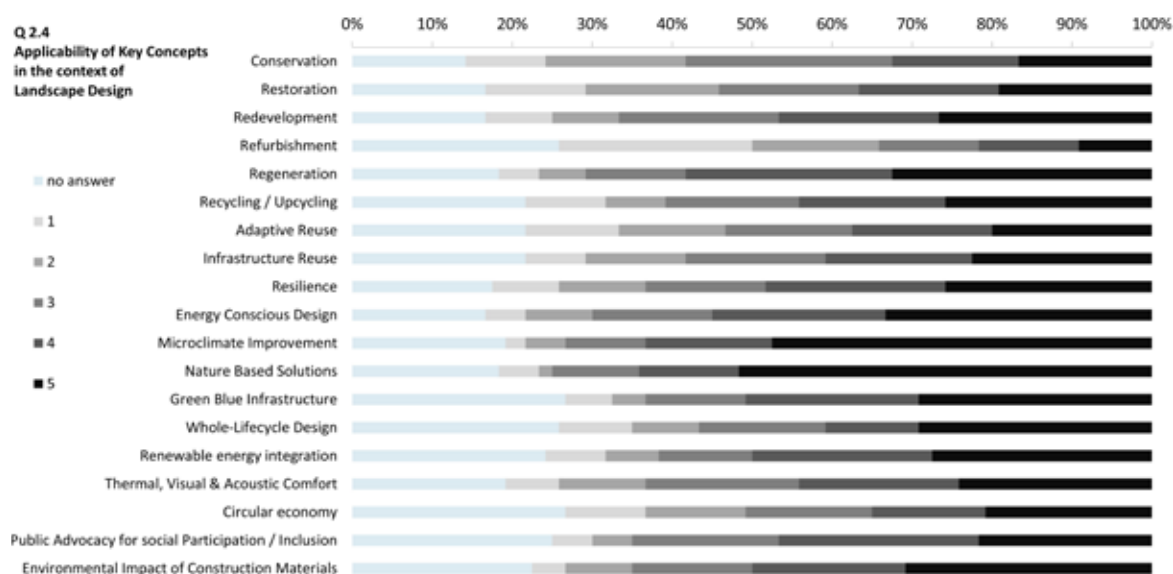
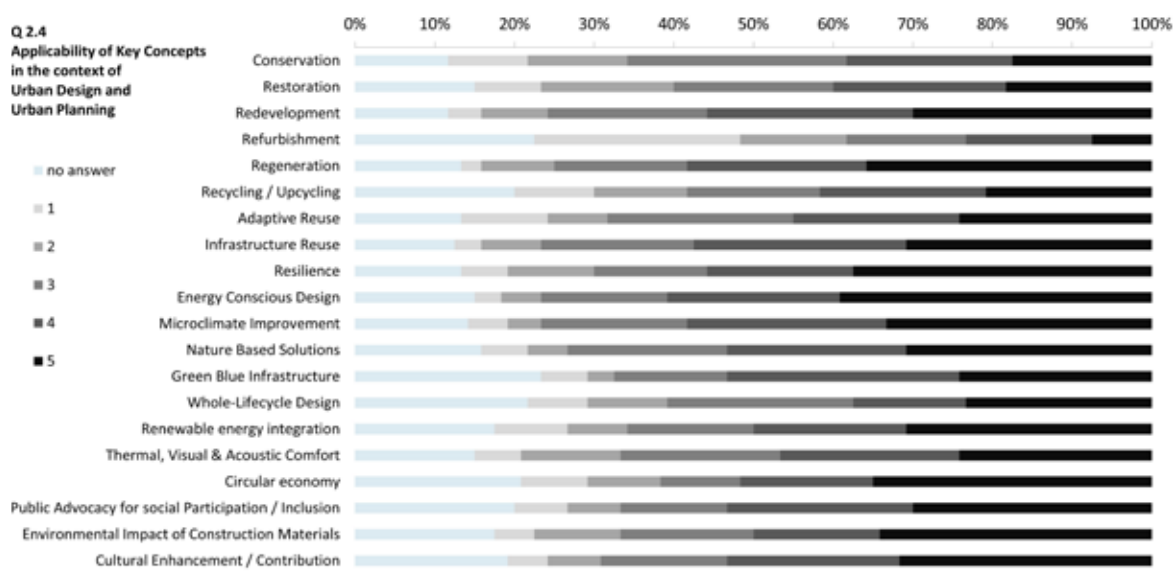
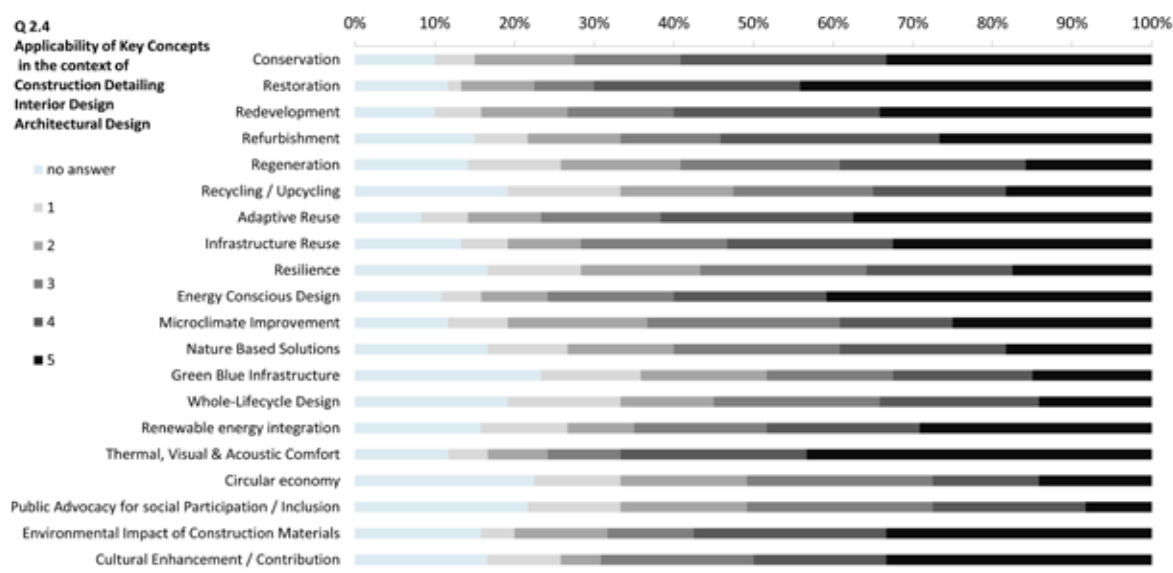
As to the applicability of key concepts in the context of the scale of building/*interior/detail design* (Figure 06 a), those concepts recognized as most prevalent (ranked higher than 4) by close to 70% of the sample (receiving higher than 5 ranking by 45%) are: *Restoration* and *Thermal/Visual/Acoustic comfort*. Following in prevalence, (receiving 4 ranking by more than 60%) are the concepts of *Adaptive Reuse* and *Energy conscious design* (also receiving a higher than 5 ranking by more than 40%). Also receiving almost equally high rankings are the concepts of *Conservation*, *Redevelopment* and *Environmental Impact of Construction Materials*. *Refurbishment* and *Infrastructure Reuse* are declared to have applicability in the relevant scale by more than 50% of the students. Overall, apart from *Circular Economy* and *Public Advocacy* (which are denoted to have minimal applicability), all the remaining concepts are highly ranked (above 4) by close to 30% of the sample, revealing a wide array of concept applicability in the relevant scale of *Architectural / Building Design*.

As seen in Figure 06b, the concepts of *Regeneration*, *Resilience* and *Energy Conscious Design* are ranked as the most relevant to the *Urban Design Scale* (ranked above 4 by close to 60%). *Redevelopment*, *Infrastructure reuse* and *Microclimate improvement* are also highly ranked and seen as relevant to the urban scale. Moreover, more than 50% of students regard *Nature Based Solutions*, *Green Blue Infrastructure*, *Circular Economy*, *Public Advocacy*, *Environmental Impact of Construction Materials*, *Cultural Enhancement / Contribution*, and *Thermal / Visual / Acoustic Comfort* as also highly applicable. Finally, with the exception of

*Refurbishment*, all remaining concepts are ranked above 4 by at least 25% of the sample.

The concepts that are seen as more relevant and applicable to *Landscape Design* (Figure 06c) are *Nature Based Solutions* and *Microclimate Improvement* (receiving 5 ranking by more than 50%), with the concept of *Regeneration* following in prevalence, receiving a higher than 4 ranking by more than 60% of the sample. The concepts of *Redevelopment*, *Public Advocacy*, *Renewable Energy Integration*, *Green/Blue Infrastructure*, *Resilience*, *Energy Conscious Design*, *Environmental Impact of Construction Materials* and *Cultural Enhancement / Contribution* are all rated above 4 by more than 50% of the students, revealing their high applicability. All remaining concepts except from *Refurbishment* receive a high ranking by at least one in four students.

Fig 6. Applicability of Key Concepts related to sustainability and cultural heritage in the context of different scales of design practice





# STUDENTS' SELF-EVALUATION IN TERMS OF THE SKILLS AND KNOWLEDGE

According to the Students' self-evaluation in terms of *Knowledge that they have acquired through their current program of studies in relation to sustainability* (figure 07a), *Fundamentals* and *Awareness raising* are the most prevalent, receiving a higher than 4 ranking by 50% of the sample. At a second level, more than 40% of the students have evaluated the skills of *State of the art*, *Technical competences* and *Presentation communication* as adequately attained (ranked more than 4). Furthermore, 25% of the students declare to have a generally good comprehension of the *Local Context*, *Analytic Tools*, *Specialist Environmental Design Skills*, *Managerial Skills* and be aware of *interdisciplinarity* through their studies on sustainability. On the contrary, *Knowledge of the International context*, *Practical experience* and *Specialist conservation skills* are not considered as skills addressed at a satisfactory level in relation to *sustainability*.

As seen in Figure 07b, most students believe that the knowledge of *Fundamentals*, *Presentation communication* and *Awareness raising* are most prevalent skills that have been obtained through academic study programs in relation to *cultural heritage*. Specifically, these three skills receive a higher than 4 rating by 50% of the students while *State of the art*, *Technical competences*, *Specialist conservation skills* and *Interdisciplinarity* are also considered as obtained skills. On the other hand, students indicate possible lack of knowledge on the *International context* and on *Specialist environmental design skills*, in relation to *Cultural Heritage*.

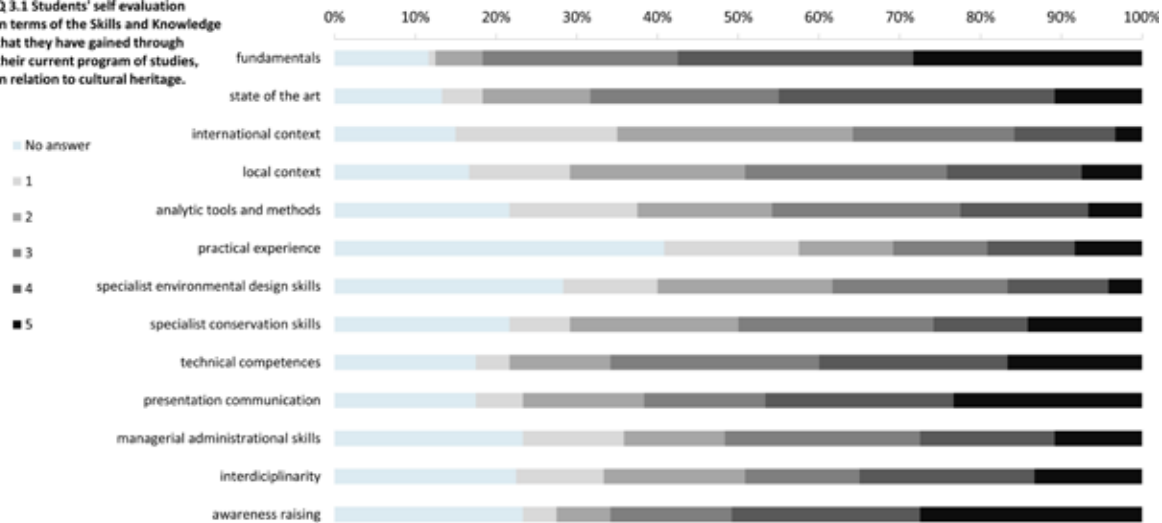
Finally, with regard to figure 07c, students indicate that they have obtained much less knowledge overall, in relation to the *interface between sustainability and heritage*.

*Fundamentals' knowledge*, *Presentation communication* and *Awareness raising skills* receive a higher than 4 ranking by almost 30%. Furthermore, *Technical competences*, *Managerial administrative skills* and *Interdisciplinarity* are considered as skills that have been partially acquired, receiving a higher than 4 rating by 20%.

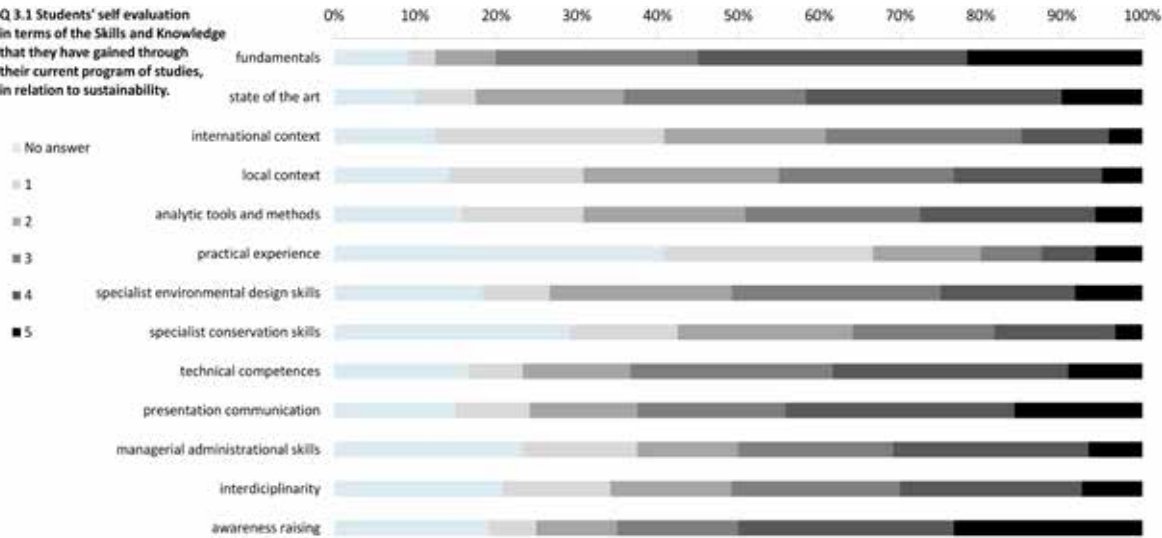
Fig 7. Students' self-evaluation in terms of the Skills and Knowledge that they have gained through their current program of studies in relation to (a) sustainability, (b) cultural heritage or (c) both



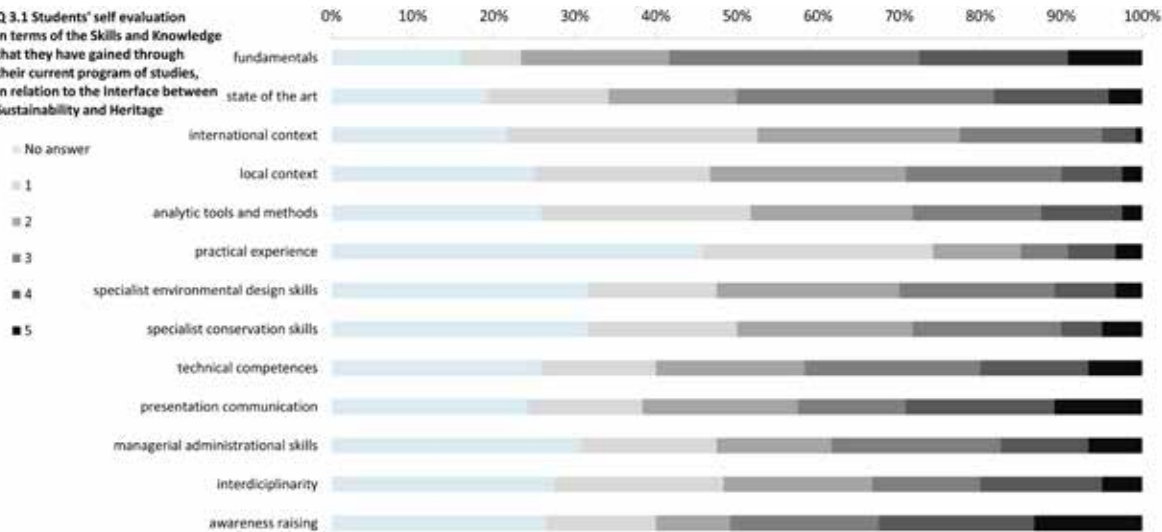
Q 3.1 Students' self evaluation in terms of the Skills and Knowledge that they have gained through their current program of studies, in relation to cultural heritage.



Q 3.1 Students' self evaluation in terms of the Skills and Knowledge that they have gained through their current program of studies, in relation to sustainability.



Q 3.1 Students' self evaluation in terms of the Skills and Knowledge that they have gained through their current program of studies, in relation to the Interface between Sustainability and Heritage



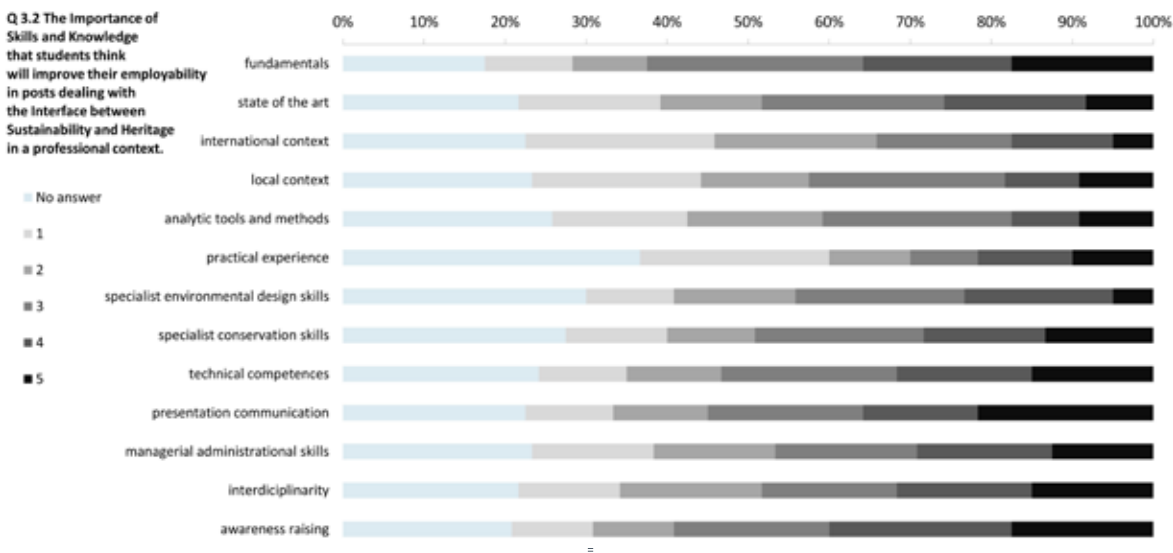
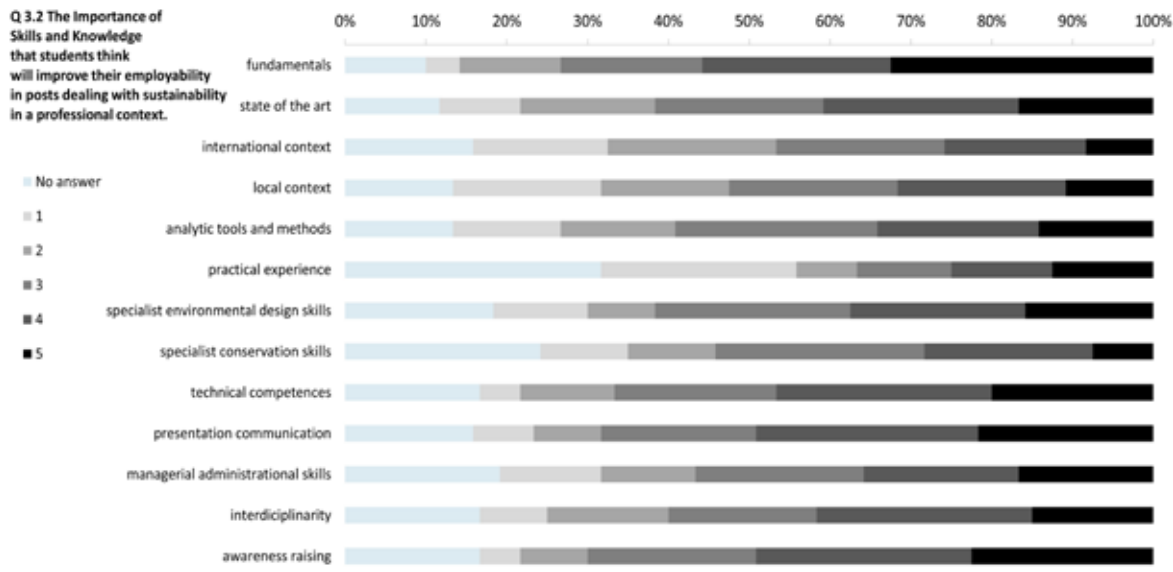
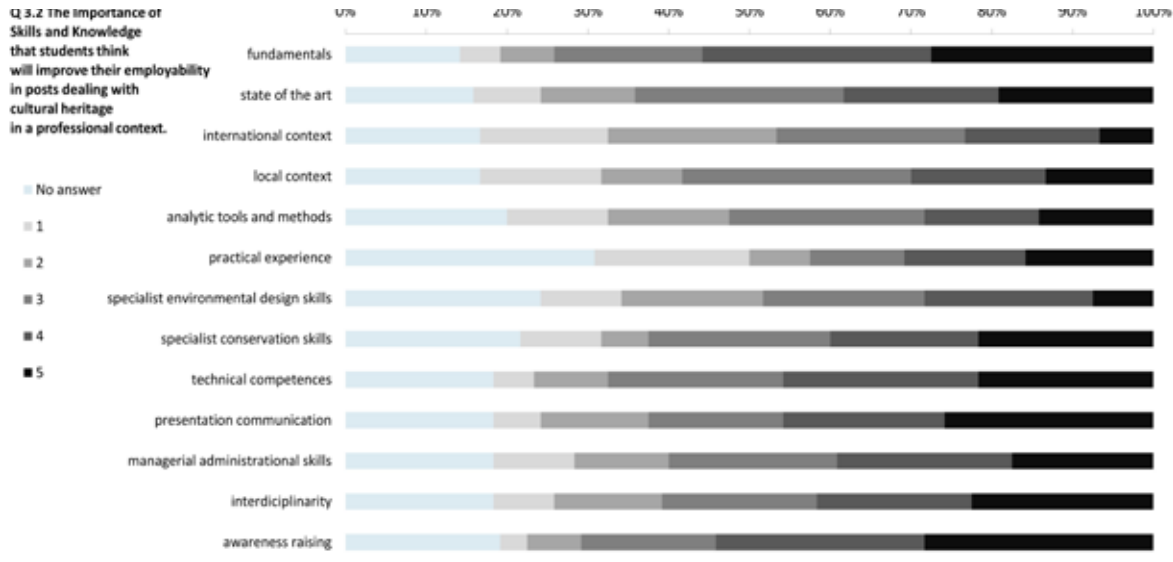
# THE IMPORTANCE OF SKILLS AND KNOWLEDGE THAT STUDENTS THINK WILL IMPROVE THEIR EMPLOYABILITY

According to students, all skills included in the questionnaire are important to improve their employability in posts dealing with *sustainability* (figure 08). However, the importance of *Fundamentals* stands out, as it is rated with 5 by 3 out of 10 students. The skills of *Technical competences*, *Presentation communication* and *Awareness raising* are considered very important for the employability. Among the comparatively lowest in importance but receiving a high rating (more than 4) by at least 25% of the students, is the *International context* and *Specialist conservation skills*.

The same skills are important to improve students' employability in posts dealing with *cultural heritage*. *Fundamentals*, *Presentation communication* and *Awareness raising* receive the largest percentage. The vast majority of skills receive relatively high ratings, as well as 30% of students rate them with more than 4. The lowest importance for the employability in posts dealing with heritage are the skills of *International context* and *Specialist environmental design skills*.

Finally, as seen in figure 08c, referring to the employability in posts dealing with the *interface between sustainability and cultural heritage*, the skills of *Fundamentals*, *Presentation communication* and *Awareness raising* receives the largest percentage. A noteworthy fact is that the *Specialist environmental design skills* are rated as absolute relevant only by 5%, similar to the skill of *International context*.

Fig 8. The Importance of Skills and Knowledge that students think will improve their employability in posts dealing with (a) sustainability, (b) cultural heritage or (c) both, in a professional context



# DISCUSSION / CONCLUSIONS

The 102 student Questionnaire dissemination in Greece attracted 120 complete responses, accounting for 15.67% of the student questionnaires received in the five HERSUS countries. The study was successful in engaging participants with a background in Architecture (Figure 2), this group constituting 85,83% of the Greek sample, while a considerable percentage of other disciplines that deal with the built environment is also present. 60% of the respondents indicate that they attend a 2nd Cycle Integrated Master's Program (5yr program), while a further 26,67% attend 2nd Cycle Master's Degrees (1-2 year program). The majority of responses come from students attending structured studies while the remaining can be attributed to PhD students and recent alumni of higher education programs. Their views reflect that:

- Larger percentages of courses are included in the Greek integrated Masters' curriculums than those observed across all HERSUS countries focusing mainly on



## DISSEMINATION PROCESS

The dissemination process followed by USE team of professors began within their close context, inviting all students from their own courses, related to these topics, to complete the questionnaire at the Architecture Program, mainly students from undergraduate and master programs, involving MARPH (Máster en Arquitectura y Patrimonio Histórico) and MCAS (Máster en Ciudad y Arquitectura Sostenibles). They used a period of time during their own classes to encourage students to pursue this task, as well as emails and on-line channels were used to ask for participation. The course coordinators were also contacted in order to expand the access to the questionnaire to all the groups of such subjects. The survey group was also enlarged requesting the participation of PhD students from the Architecture PhD Program, whose coordinator has recognized the activity within those of the doctorate. Close research collaborators who were recent alumni and who have worked with the components of HERSUS Seville team in the past years has also participated in the questionnaire. The implication of the program coordinators and university colleagues have been crucial to achieve the obtained level of participation. Regarding the monitoring, there was a continuous follow-up carried out by USE HERSUS team visiting the platform and contrasting the data, which encouraged the decision-making in relation to expanding the channels of dissemination. In the survey carried out at the University of Seville, 187 complete questionnaires were registered out of 766 carried out by the five universities of the consortium, representing 24.41% of the total.



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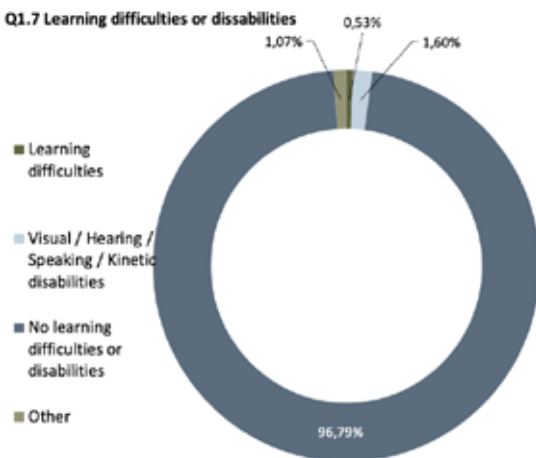
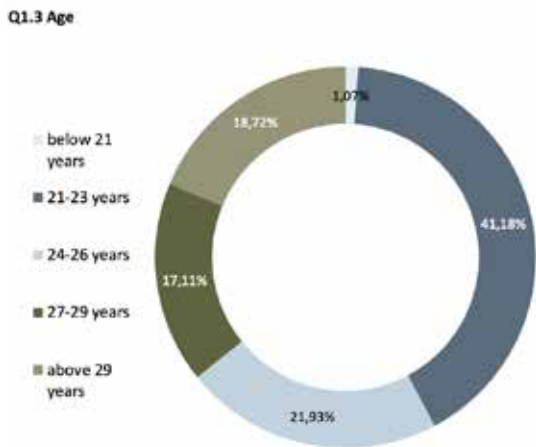
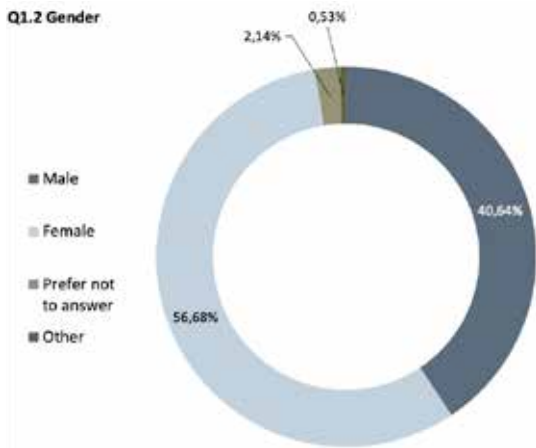
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## ABSTRACT / SPAIN / USE



The survey carried out at the University of Seville include 187 complete questionnaires out of 766 carried out by the five universities of the consortium, representing 24.41% of the total. As for the "Programs of studies", the highest participation was obtained from "4th / 5th year" students with 53.48% and "PhD" students with 24.60%. The "available courses" in 4th / 5th years are mainly focused on "Architecture" with 81%, leaving in a second place "Heritage" with 15% and afterwards "Sustainability" with 3%. With regards to the international context, similar percentages are presented, with "Heritage" being the main focus. As for the number of subjects, the same average as at the international level is maintained, with 50 courses. The master's degree studies in Spain have a similar number of courses, with an average of between 8 and 12. All the master's degrees have a link between "Heritage" and "Sustainability" with at least one course focusing both on "Sustainability / Cultural Heritage". It should be noted that the master's degree focused on "Heritage / Conservation / Restoration / Cultural Management" does not deal with a specific course on "Sustainability". The "academic activities" with the highest impact "strengthening student's comprehension" are "Lectures" and "Design Project" with more than 60%, and "Research Thesis" with more than 40%. "Laboratory work" and "Exams" are the activities that receive less consideration. A fairly equal rating of "skills and knowledge" is observed, although some aspects can be highlighted. "Fundamentals" is clearly the term with the highest acknowledgement, with more than 55% of the students. "Practical experience" obtains low rating, which infers the need for a better connection to the environment, as teaching practices integrated in real context strategies. In reference to the "importance of Skills and Knowledge" in a professional context, the results of the graphs are uniform in the three referenced levels (sustainability, cultural heritage or both). All the proposed fields receive more than 20% of the maximum rating and more than 40%. According to the students, all of the "Skills and Knowledge" have an important impact in a professional context and might consider that their acquisition is a continuous learning process that is completed in the professional stage. In relation to the international results, a clear parallelism can be observed.

# RESPONDENTS SAMPLE



## Gender

The range of responses by gender is no more than 10% away from a 50/50 distribution, so it can be considered a balanced participation. However, it is worth noting a higher percentage of participation of women with 56.68% over 40.64% of men, if taking into account the distribution of students in the Architecture Program at University of Seville: 51.26% men and 48.74% women (Statistical Yearbook 2019-2020 US).

## Age

Given the variety of profiles addressed in the questionnaire, that goes from students in the second cycle of the degree to doctoral students, there is a great diversity of ages. The profile is limited to students from the 4th year onwards, normally students over 21 years of age, so that the participation of the under-21 sector is negligible.

## Learning difficulties or dissabilities

Students with *learning difficulties or disabilities* represent 3.2% of the total number of participating students in Spain. Internationally, the questionnaire presents 4.31% of students in this category, so it can be considered that Spain has received significant participation in this aspect.

Fig 1. Mapping of the various backgrounds of the respondents based on responses to Q1.2, Q1.3 and Q1.7



## Respondents' studies or professional background

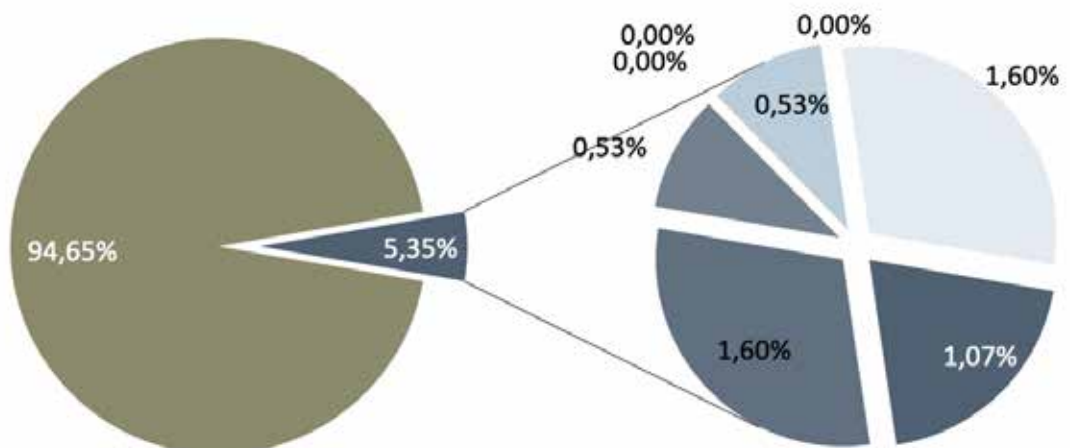
The *professional background* of the participants in the survey is *architecture* with 94.65%. This high percentage reflects the predominant profile of the students, most of them students of the Higher Technical School of Architecture of Seville (ETSAS). Within the remaining 5.35%, the categories *Spatial Planning / Land Surveying / Topography / Geography* and *Others* stand out with 1.60% each.



### Q1.4 studies | professional background

- Architecture
- Engineering
- Spatial Planning / Land Surveying / Topography / Geography
- Social Sciences
- Environmental Science / Engineering
- Management / Economics
- Agriculture / Landscape Design & Planning
- Interior / Industrial Design
- Archaeology / Heritage Conservation
- Urban and Regional Planning
- Other

Fig 2. Mapping of the various backgrounds of the respondents based on responses to Q1.4



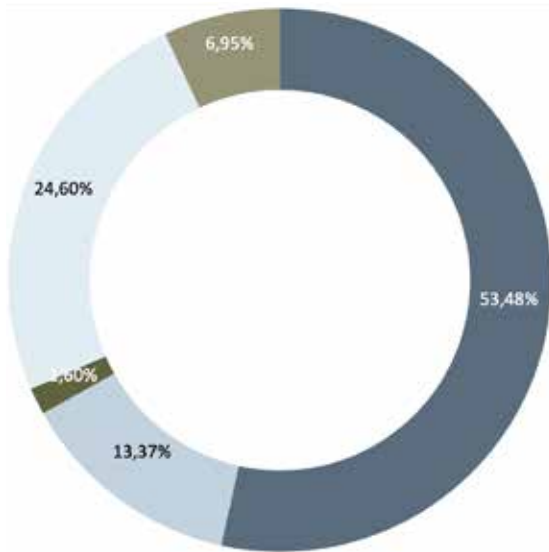


Fig 3. Mapping of the various backgrounds of the respondents based on responses to Q1.5

### Q1.5 Program of Studies

- Second cycle: 4th / 5th year of 5-year single cycle integrated Master Studies
- Second cycle: Master's degree studies / professionalization courses
- Third Cycle: Specialisation School
- Third Cycle: PhD studies
- Recent Alumni of the above Programs

### Type of program that they currently attend

As for the *Programs of studies*, the highest participation was obtained from *4th / 5th year students* with 53.48% and *PhD students* with 24.60%. The Spanish academic planning only differentiates: *Master's degree studies*, *PhD studies* and *architecture diploma studies*. In this situation, we can understand the very low participation in the *Specialization School* (1.60%) in Spain.

### Main Focus of their current studies

The *Main Focus* most highlighted by the participants is *Architecture / Built Environment* with 56.15%. The second section with 22.46% is *Heritage / Conservation / Restoration / Cultural Management*. However, 40.10% of participants choose one of the categories linked to sustainability and/or heritage as the *main focus*, although only 1.60% select *Sustainable Heritage*. The similarity in percentage between those who define *Architecture / Built Environment* as *main focus* (56.15%) and the percentage of students in the 4th and 5th year of the architecture diploma (53.48%) stands out. From this last relationship we could deduce an association of the *main focus* linked to sustainability and/or heritage with postgraduate studies.

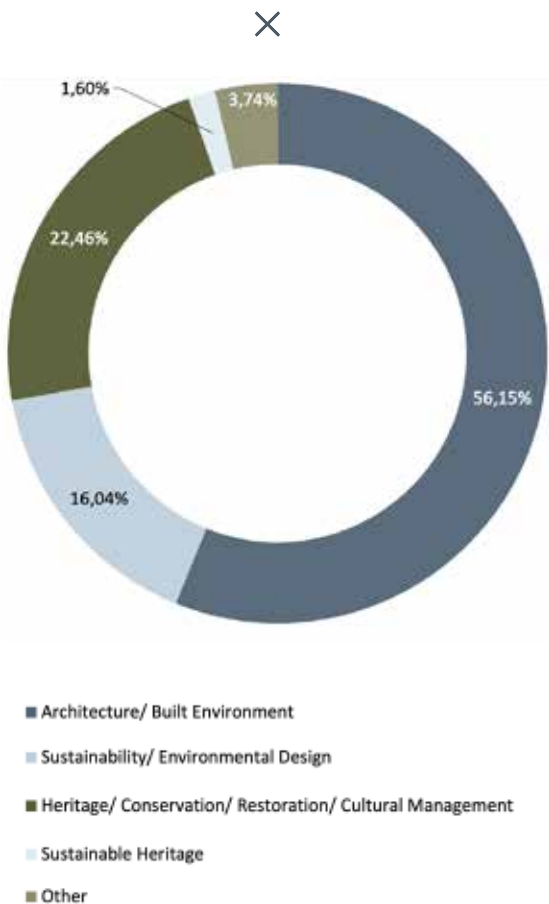


Fig 4. Mapping of the various backgrounds of the respondents based on responses to Q1.6



## The distribution of available courses in the curriculums

As mentioned in the introduction, in the *program of studies* in Spain there is no *specialisation school*. Therefore, there will be no comments on the associated results (3 answers).

The *available courses* in 4th / 5th years are mainly focused on *Architecture* with 81%, leaving in a second place *Heritage* with 15% and afterwards *Sustainability* with 3%. With regards to the international context, similar percentages are presented, with *Heritage* being the main focus, although with a greater difference, being 9.2% at international level compared to the Spanish 15%. As for the number of subjects, the same average as at the international level is maintained, with 50 courses. The subjects dedicated to heritage and sustainability also have a similar percentage at national and international level, with an average of one *course focusing both on Sustainability / Cultural Heritage*.

The master's degree studies in Spain have a similar number of courses, with an average of between 8 and 12. All the master's degrees have a link between *Heritage* and *Sustainability* with at least one course focusing both on *Sustainability / Cultural Heritage*. It should be noted that the master's degree focused on *Heritage / Conservation / Restoration / Cultural Management* does not deal with a specific course on *Sustainability*. In comparison with the international results, the main differences detected are in the absence of such sustainability subject mentioned above and in the number of taught courses of the curriculum focused on *Architecture / Built Environment* (Spanish average 11; International average: 20).

Table 01. Available courses in the existing programs of studies according to responses to Q2.1

	Responses		Focus of Studies			Taught Courses of the Curriculum	Courses focusing mainly on documentation Conservation Restoration of Cultural Heritage		Courses focusing mainly on Sustainability / Environmental Design		Courses focusing both on Sustainability & Cultural Heritage		Courses raising issues of Sustainability / Environmental Design / Planning		Courses raising issues of the value / appreciation or dialogue with the National / International Historic Context	
	number	% of total samples	Architecture	Heritage	Sustainability	Median	Median	% of total courses	Median	% of total courses	Median	% of total courses	Median	% of total courses	Median	% of total courses
4th / 5th year of 5-year single cycle integrated Master Studies	100	13,1%	81,0%	15,0%	3,0%	50	3	6,0%	2	4,0%	1	2,0%	2	4,0%	2	4,0%
Master's degree studies / professionalization courses	12	1,6%	0,0%	0,0%	100,0%	12	1	8,3%	7	58,3%	2	16,7%	7	58,3%	2	16,7%
	9	1,2%	0,0%	100%	0,0%	8	3	37,5%	0	0,0%	1	12,5%	0	0,0%	1	12,5%
	3	0,4%	100,0%	0,0%	0,0%	11	2	18,2%	2	18,2%	1	9,1%	1	9,1%	2	18,2%
Specialization School	2	0,3%	0,0%	0,0%	100,0%	8	5	62,5%	3	37,5%	2	25,0%	6	75,0%	3	37,5%
	0	0,0%	0,0%	0,0%	0,0%	0	0	0,0%	0	0,0%	0	0,0%	0	0,0%	0	0,0%
	1	0,1%	100,0%	0,0%	0,0%	20	2	10,0%	3	15,0%	1	5,0%	1	5,0%	0	0,0%

# IMPACT OF ACADEMIC ACTIVITIES IN STRENGTHENING STUDENTS COMPREHENSION

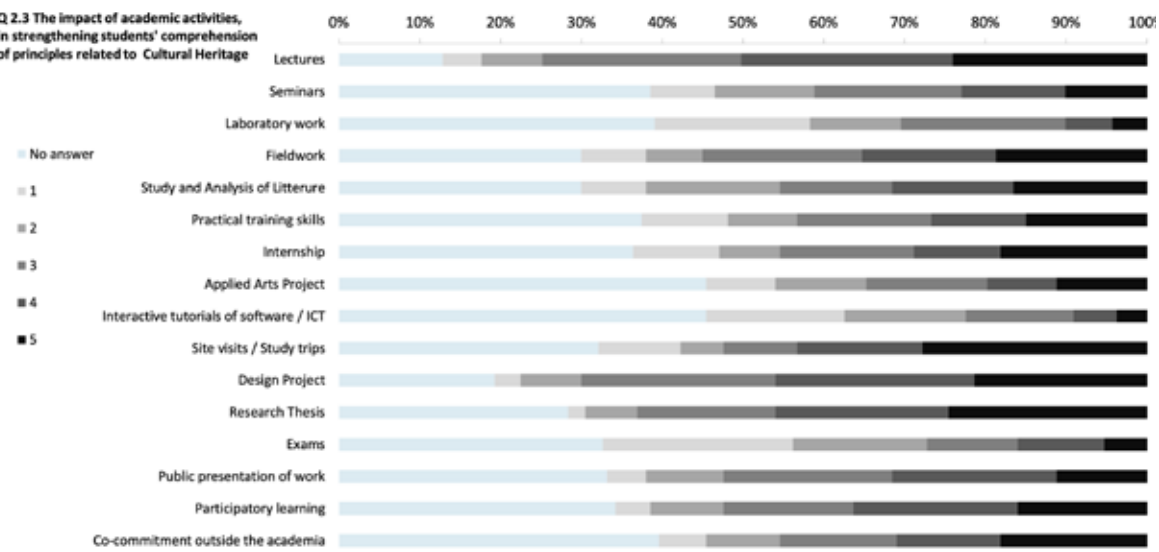
The three concepts present similar results from which related conclusions can be drawn. The *academic activities* with the highest impact *strengthening student's comprehension* are *Lectures* and *Design Project* with more than 60% rated between 3 and 5. The next most acknowledged activity is *Research Thesis* with more than 40% rated between 3 and 5. At the opposite side, *Applied Arts Projects* and *Interactive tutorial of software / ITC* are the least acknowledged activities with more than 45% *no answers* and less than 20% rated between 4 and 5.

The rest of the activities present more equal results. *Laboratory work* and *Exams* are the activities that receive less consideration. The other nine activities present very similar results rated with 4 and 5 between 35-25%.

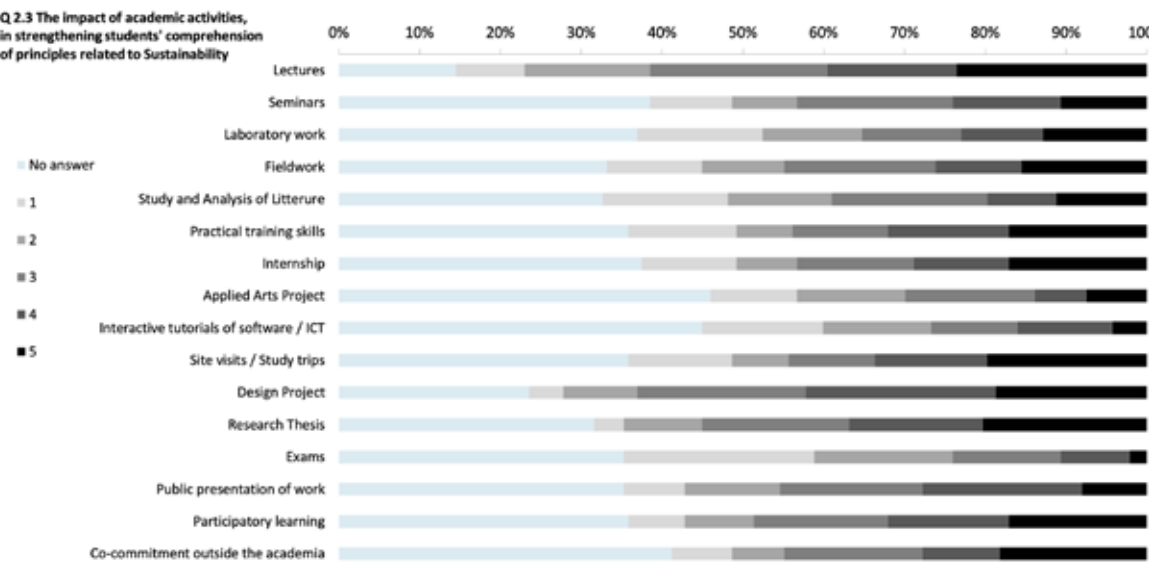
In the international context, similarities with the Spanish context are observed regarding the activities highlighted in the first paragraph which are also considered to have the greatest impact. Similarly, the activities with the lowest impact are also considered this way in the international sphere. In the comparison between both national and international contexts, one aspect of the Spanish questionnaire stands out: the large number of activities with more than 35% of *no answer*.

Fig 5. The impact of academic activities in strengthening students' comprehension of principles related to (a) sustainability, (b) cultural heritage or (c) both

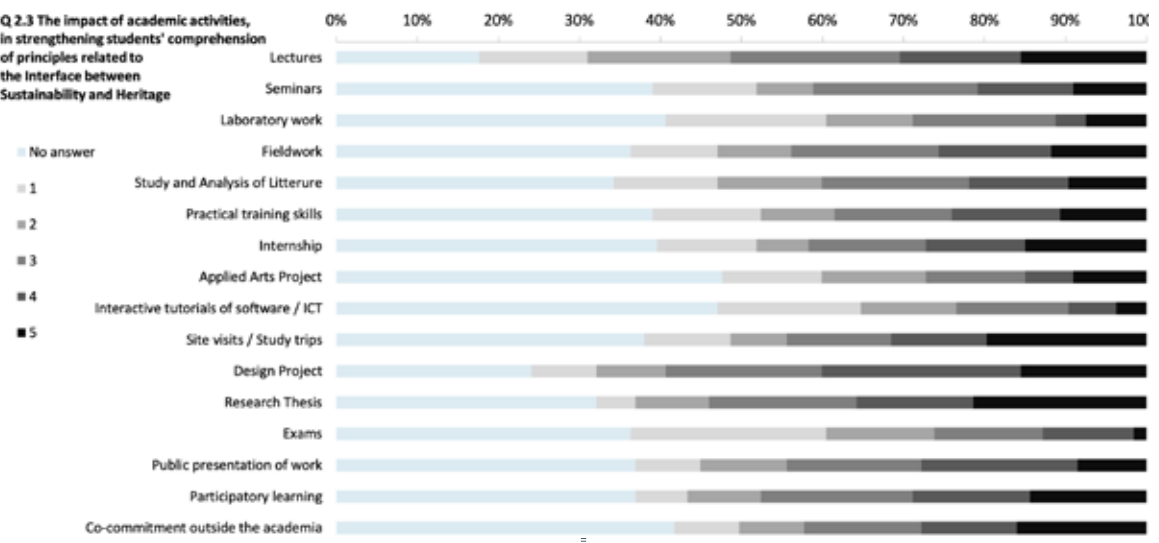
Q 2.3 The impact of academic activities, in strengthening students' comprehension of principles related to Cultural Heritage



Q 2.3 The impact of academic activities, in strengthening students' comprehension of principles related to Sustainability



Q 2.3 The impact of academic activities, in strengthening students' comprehension of principles related to the Interface between Sustainability and Heritage



# APPLICABILITY OF KEY CONCEPTS RELATED TO SUSTAINABILITY AND CULTURAL HERITAGE IN RELATION TO DIFFERENT SCALES

The results of the questionnaires regarding the three scales show a high consideration of all the concepts, with most of them having more than 50%, rated between 3 and 5. Of the 20 proposed concepts, only 7 are below this 50% in some of the scales. Only *Green Blue Infrastructure*, *Whole-Lifecycle Design* and *Circular economy* are valued, with less than 50%, between 3 and 5 in the three proposed scales.

No concept stands out as the main one in the three scales, however there are several concepts with high ratings. Each one of the scales has a different classification, so we will proceed to highlight the main concepts related to them.

In the scale associated with construction, the main terms (more than 50% between 4-5) are: *Conservation*, *Restoration*, *Refurbishment* and *Thermal, Visual & Acoustic Comfort*.

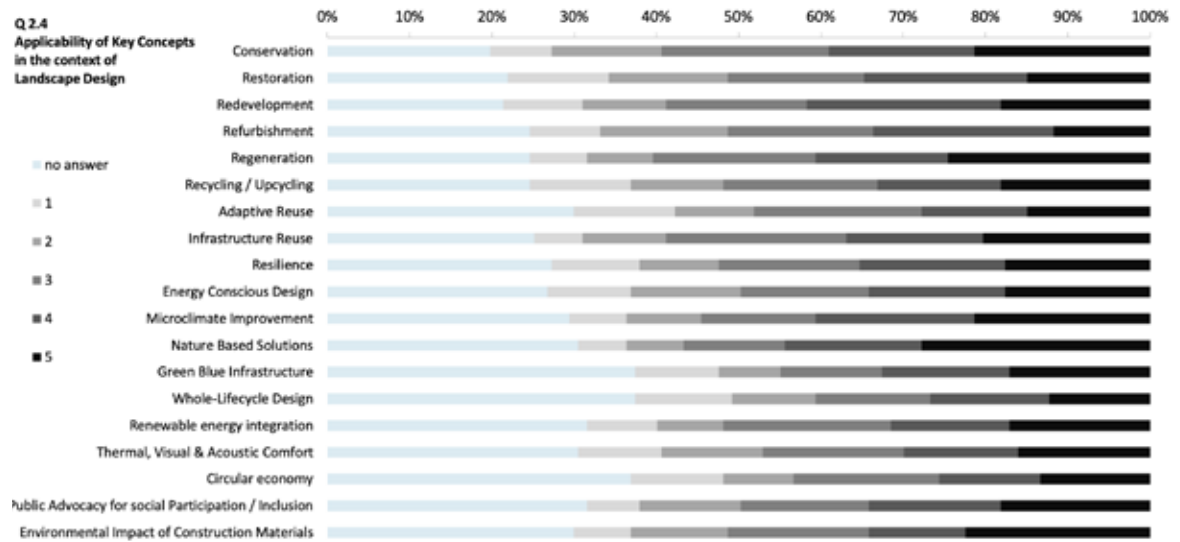
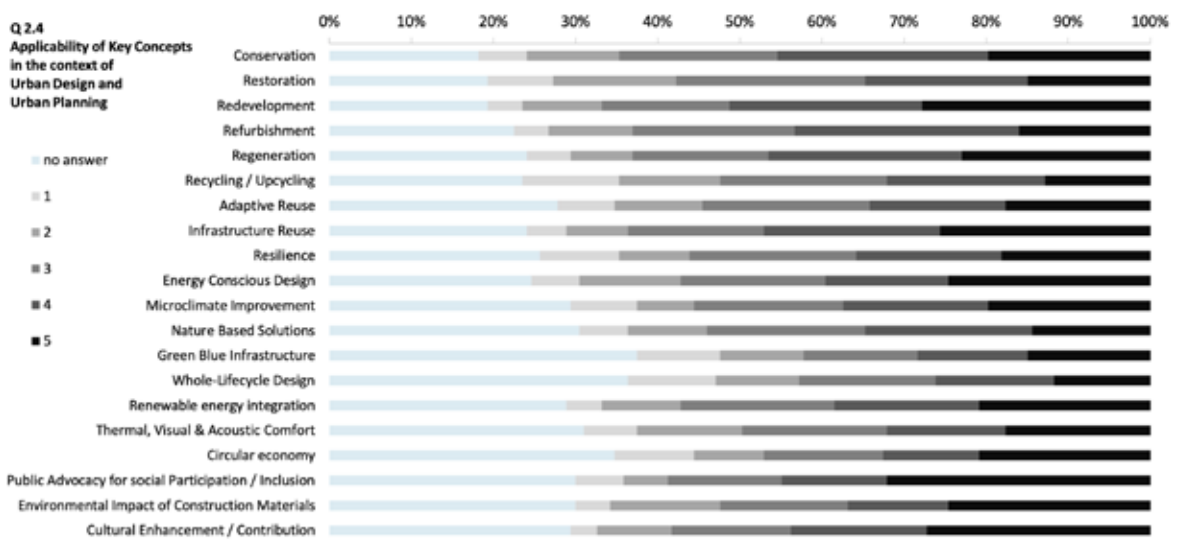
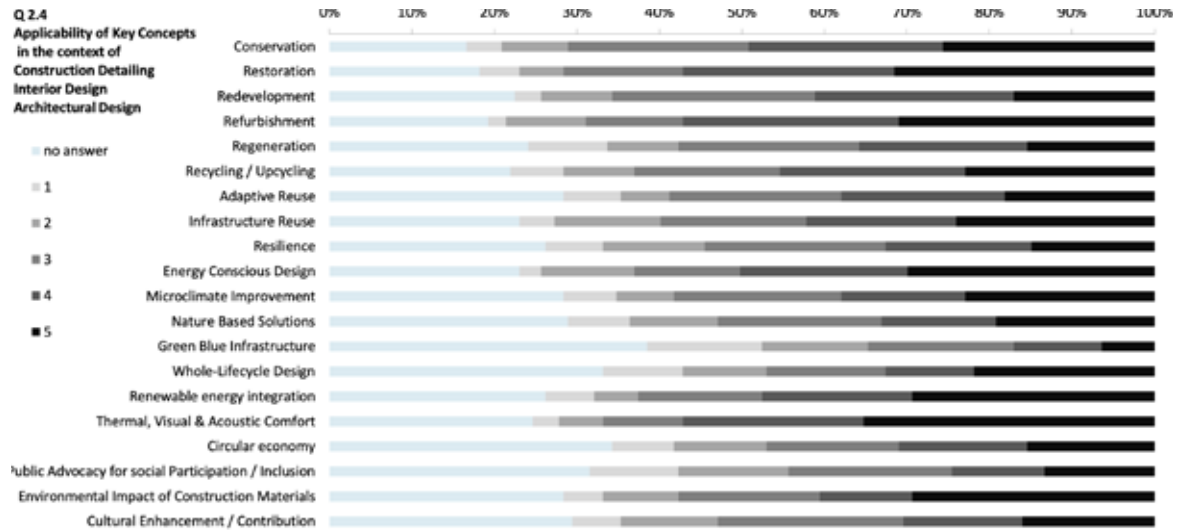
In the urban scale, there are seven terms with very similar high ratings (more than 40% between 4-5): *Conservation*, *Redevelopment*, *Refurbishment*, *Regeneration*, *Infrastructure Reuse*, *Public Advocacy for social participation / Inclusion*, and *Cultural Enhancement / Contribution*.

In reference to landscape, the terms with high ratings (more than 40% between 4-5) are: *Redevelopment*, *Regeneration*, *Microclimate Improvement*, *Nature Based Solutions*, and *Cultural Enhancement / Contribution*.

In the international context, the results are similar to the ones obtained from the Spanish questionnaires. Most of the concepts present a high valuation, being

generally higher than that of the national questionnaire. In both questionnaires there is a variation between the most valued concepts depending on the scales. However, at both, international and national level, there is not a great difference in the rating of the concepts, having all a uniform distribution.

Fig 6. Applicability of Key Concepts related to sustainability and cultural heritage in the context of different scales of design practice



# STUDENTS' SELF-EVALUATION IN TERMS OF THE SKILLS AND KNOWLEDGE

Despite the variations related to the different concepts, the results of the graphs are similar. Therefore, a parallel reading is performed in relation to the aspects self-evaluated by the students about Skills and Knowledge in relation to Sustainability and Heritage.

A fairly equal rating of *skills and knowledge* is observed, although some aspects can be highlighted. *Fundamentals* is clearly the term with the highest acknowledgement, more than 55% of the students rated it with a value between 3 and 5, associated to the different concepts. After this, *state of the art*, *technical competences*, *presentation communication* and *awareness raising*, are the *skills and knowledge* with the highest value, always with more than 45% of the answers between 3 and 5.

*Practical experience* stands out as the *skill and knowledge* with low average, between 2 and 5. The lowest considered also are: *specialist environmental design skills* and *managerial administrative skills*, both with less than 15% of values between 4 and 5 in the three graphs.

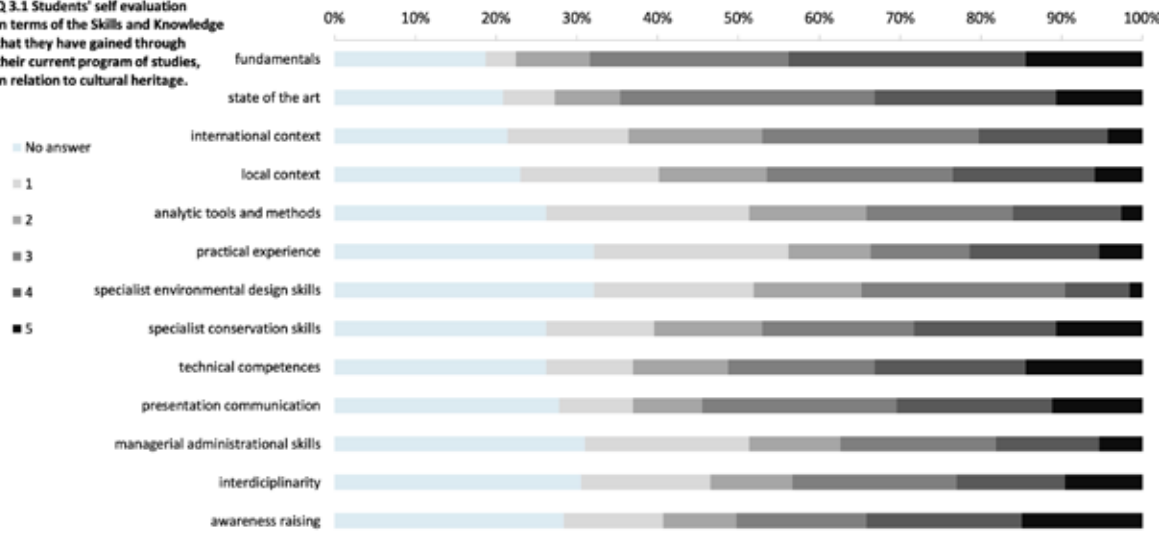
The low percentage of *skills and knowledge* rated with the maximum scale (5) stands out from the graphs, most of them being below 5%. This approach may reflect a view of these *skills and knowledge* as a process that goes beyond the *program of studies*.

In reference to the international context, very similar results are obtained, highlighting the same aspects as at the national level. It should be observed that, compared to the results of the national questionnaire, the international graphs show higher values.

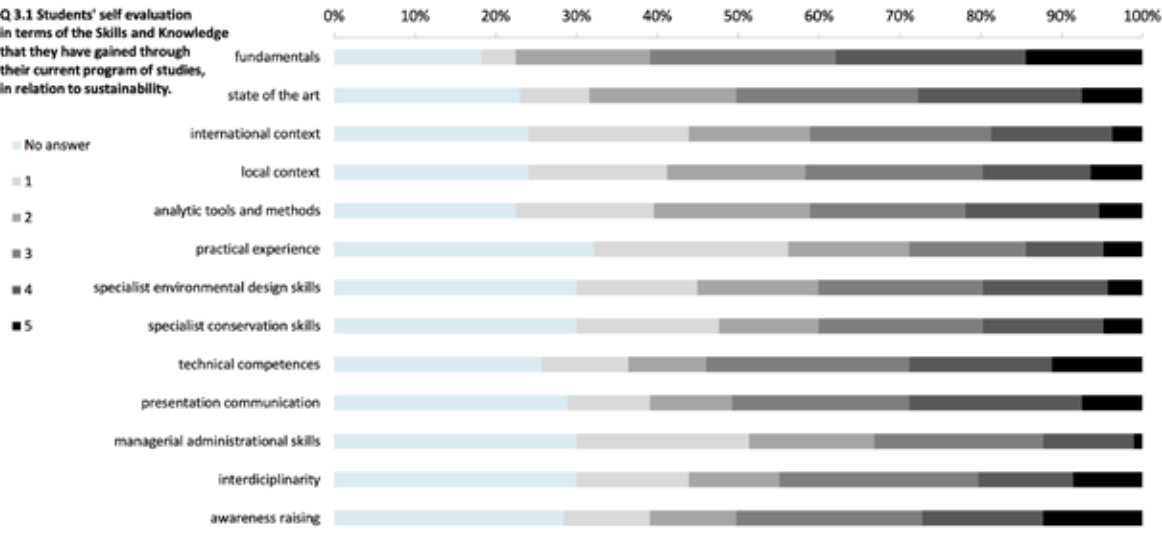
Fig 7. Students' self-evaluation in terms of the Skills and Knowledge that they have gained through their current program of studies in relation to (a) sustainability, (b) cultural heritage or (c) both



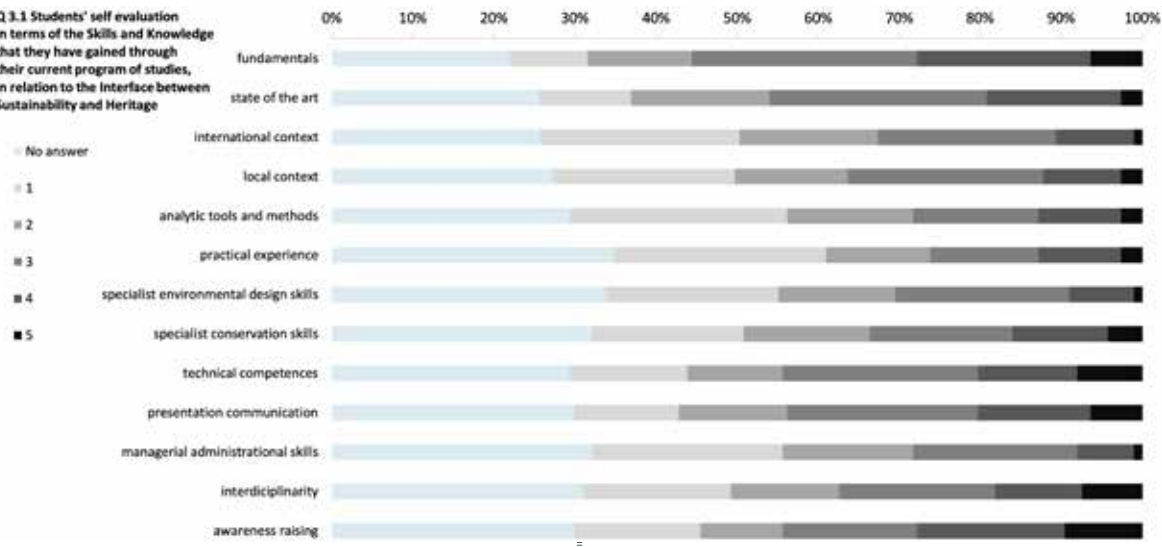
Q 3.1 Students' self evaluation in terms of the Skills and Knowledge that they have gained through their current program of studies, in relation to cultural heritage.



Q 3.1 Students' self evaluation in terms of the Skills and Knowledge that they have gained through their current program of studies, in relation to sustainability.



Q 3.1 Students' self evaluation in terms of the Skills and Knowledge that they have gained through their current program of studies, in relation to the Interface between Sustainability and Heritage



# THE IMPORTANCE OF SKILLS AND KNOWLEDGE THAT STUDENTS THINK WILL IMPROVE THEIR EMPLOYABILITY

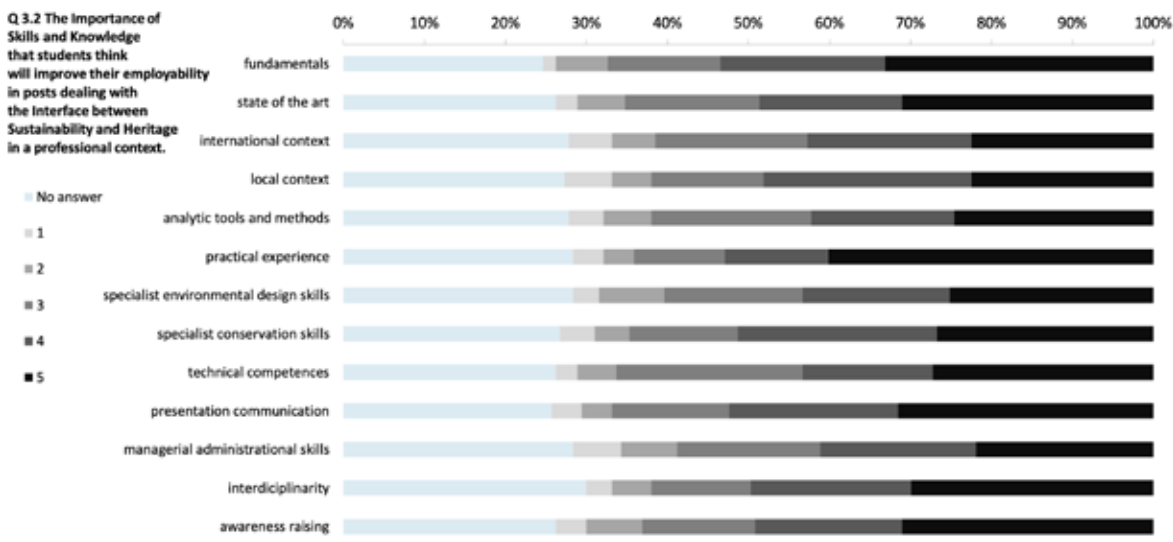
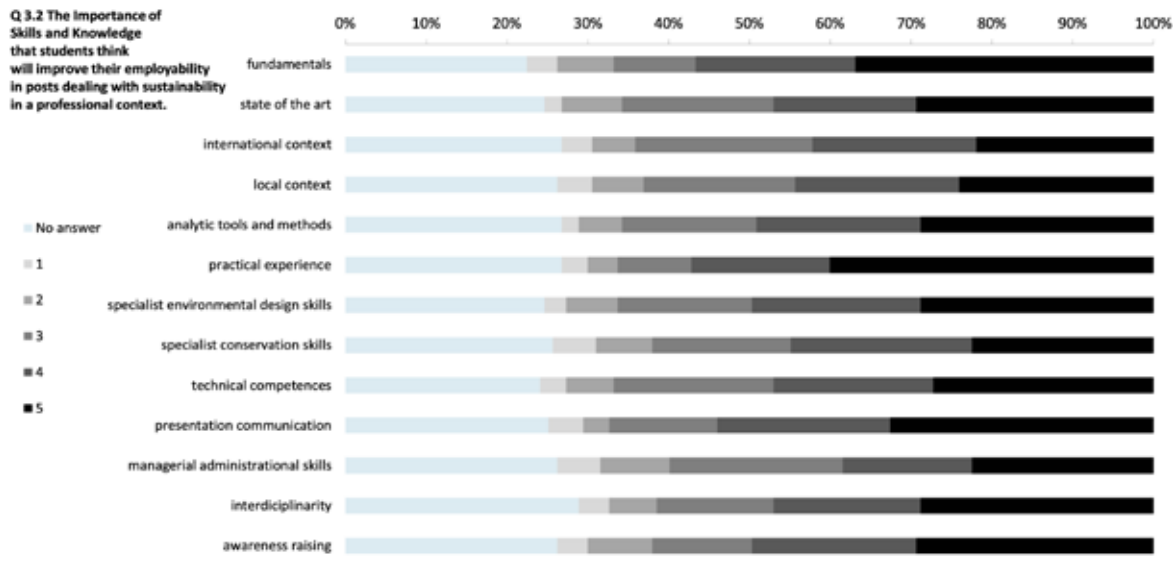
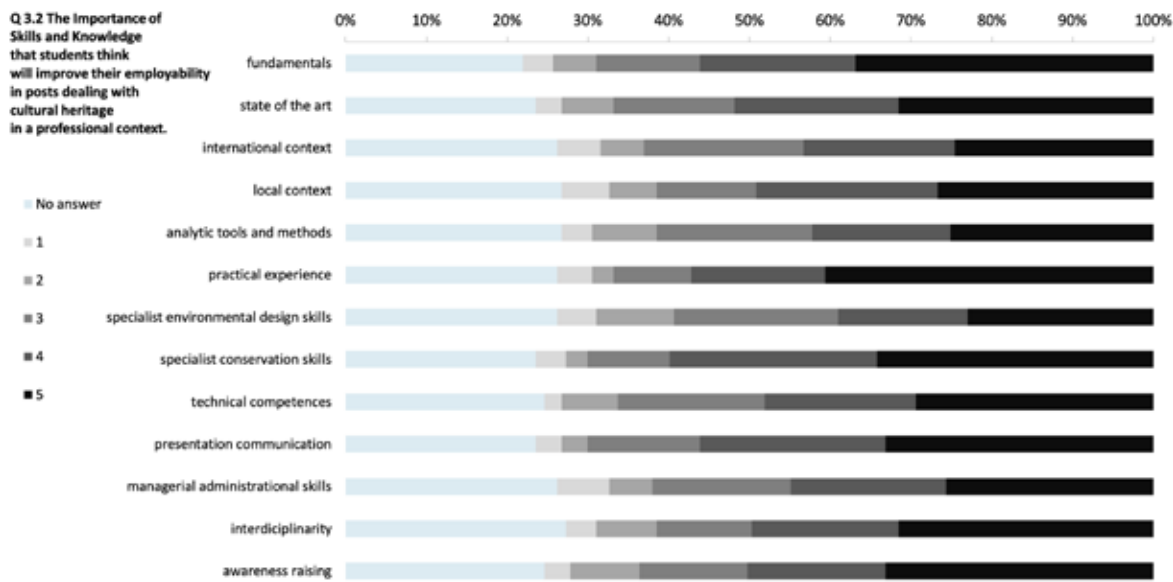
In reference to the *importance of Skills and Knowledge in a professional context*, the results of the graphs are uniform in the three referenced levels (sustainability, cultural heritage or both). All the proposed fields receive more than 20% of the maximum rating and more than 40% of those between 4 and 5 in each graph. In this context, the only *Skills and Knowledge* that can stand out from the rest are: *Fundamentals* and *Practical experience* both with more than 35% of the responses with the highest rating (5).

From these results it can be deduced that, according to the students, all of the *Skills and Knowledge* have an important impact *in a professional context*.

Regarding the results of the previous question focused on *program of studies*, there is an increase in the number of maximum values. From this context, it can be inferred that students might have an appreciation of the acquisition of *Skills and Knowledge* as a continuous learning process that is completed in the professional stage.

In relation to the international results, a clear parallelism can be observed. The values maintain a high rating, however, the most valued *Skills and Knowledge* do change with instead of the national results. *Fundamentals* continuous being the most valued *Skills and Knowledge* at international questionnaire, but followed by: *Technical competences*, *state of art* and *presentation competences*.

Fig 8. The Importance of Skills and Knowledge that students think will improve their employability in posts dealing with (a) sustainability, (b) cultural heritage or (c) both, in a professional context



# DISCUSSION / CONCLUSIONS

The group of participants in the Questionnaire is representative of University of Seville, with undergraduate students, Master degree and PhD students, as well as architects who are former students. However, the highest participation was obtained from the 4th and 5th year of the architecture diploma. This explains that the predominant "main focus" has been Architecture/built environment, followed by Heritage/Conservation/Restoration/Cultural Management, which corresponds to the Master and PhD. Students.

The active participation of the course and programs coordinators, involving their students and helping with the dissemination indicates the true interest and committed of the Andalusian academic context with the integration of cultural heritage and sustainability in the academic training of architects.

Participation by gender was fairly evenly balanced although we can point out a slightly higher number of women who made the questionnaire. The great variety







|||||

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# EXPERTS QUESTIONNAIRE STUDY RESULTS



Serbia (Belgrade)



Italy (Venice)



Cyprus (Nicosia)



Greece (Thessaloniki)



Spain (Seville)



Jelena Živković  
Nataša Ćuković Ignjatović

SERBIA

01

## ABSTRACT / SERBIA / UBFA



*The survey covered 12 experts from various fields of expertise as defined at the consortium level. The responses were informative and detailed in most cases.*

*The section on presence/awareness of issues of sustainability and heritage in practice have revealed an imbalance between the two issues. While sustainability was well recognised and often thoroughly discussed, heritage remained less visible in experts' responses.*

*The responses referring to competences in practice indicated that the general knowledge and theoretical background obtained during academic education were rather good and need to be maintained and further improved. Interdisciplinarity, practical knowledge and internationalisation were stressed as areas in which graduates' competencies should be enhanced. Experts' responses in the last section regarding requirements in the context of academic programs were consistent with the statements and evaluations of competences and have provided a valuable feedback that should be taken into consideration when designing a new study module.*

### **Academics**

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Associate professor, University of Belgrade,  
Faculty of Architecture

Dr. Ružica Bogdanović  
Professor emeritus, Faculty of Architecture and  
Urbanism, UNI Union Nikola Tesla

Dr. Milica Jovanović Popović  
Full professor, University of Belgrade, Faculty of  
Architecture

### **Practitioners**

Dobrivoje Lale Erić,  
Head of Department of International Cooperation,  
Center for the Promotion of Science

arch. Rade Mrlješ, ,  
Senior conservator, Institute for the Protection of  
Cultural Monuments of the City of Belgrade

Vladimir Đorić,  
Partner, COO, Zabriskie d.o.o

Martin Elezović,  
Director REENG

### **Policy Makers**

Dr. Žaklina Gligorijević,  
Senior urban consultant in WBG Belgrade

Dr. Ratka Čolić,  
Assistant professor, University of Belgrade,  
Faculty of Architecture

Petar Tufegžić, ,  
Advisor, Ministry of Construction, Transport and  
Infrastructure

### **Decision Makers in Public administration**

/

### **Decision Makers in NGO / Professional society**

Dr. Iva Čukić,  
Director, collective Ministry of Spatial Planning

Dragana Korica,  
Executive Director, Green Building Council of  
Serbia



Ksenija  
Lalović



Ružica  
Bogdanović



Milica  
Jovanović  
Popović

# A1

Researcher Academic  
Educator



Dobrivoje  
Lale Erić



Rade  
Mrlješ



Vladimir  
Đorić



Martin  
Elezović

# A2

Practitioner



Žaklina  
Gligorijević



Ratka  
Čolić



Petar  
Tufegdžić

# A3

Policy Maker  
(Government or local  
authorities members or  
consultants)



# A4

Decision Maker in  
Public Administration  
(Ephorates, Ministries,  
Devolved Administration)



Iva  
Čukić



Dragana  
Korica

# A5

Decision Maker in  
NGO / Professional  
Society

# INTRODUCTION



This report presents the results of analysis of the Expert Questionnaire on the State of the Art in the field of urban and architectural design education in Serbia in relation to sustainability and heritage, conducted by UBFA HERSUS team. It is based on methodological framework provided by AUTH HERSUS team and agreed by all HERSUS members.

The targeted profiles of Serbian experts and their projected relevant participation were chosen so as to reflect the different tiers of engagement with issues of sustainability and heritage. Since the required number of responses for the HERSUS surveys was agreed to at least 10 experts from each country, in order to ensure the adequate response, UBFA team invited 13 experts to participate in survey and fill the expert questionnaire.

The individual experts were selected based on their references and previous collaboration with members of the research team, and in accordance to the proposed profiles of participants for the experts' survey: 2 +1 *Researchers / Academic Educators* (20%), 2 + 1 *Practitioners* (20%), 2 *Policy Makers* (20%), 2 *Decision Makers in Public Administration* (20%), 2 *Decision Makers in NGO / Professional Society* (20%).

Each expert was first personally contacted by the members of the UBFA team, and informed about the HERSUS project and its purpose. After receiving their informal confirmation to participate in the survey, UBFA team sent the personalised official invitation letters to individual experts.

Twelve out of 13 invited experts fully completed the questionnaire. One expert has only partially completed the questionnaire and this case was not included into experts' answers for further analyses.

In relation to how the experts filled the Questionnaire, the representation of the stakeholders engaged doesn't fully achieve the target of 2 per Field of expertise, since the

representation of the experts from Decision Makers in Public Administration is missing. The structure of experts, as they indicated their main field of expertise (Q2\_1.2), is: A1 *Researcher, Academic, Educator* (3), A2 *Practitioner* (4), A3 *Policy Maker* (3), A5 *Decision Maker, NGO* (2). The imbalance observed in the profiles can be attributed to the "role" that the experts themselves chose for this question, which may be different from how the UBFA HERSUS teams envisaged their "role" based on their previous professional position as Decision Makers in Public Administration.

The distribution of results reveals balanced gender representation, since the experts group consists of 5 men and 7 women.

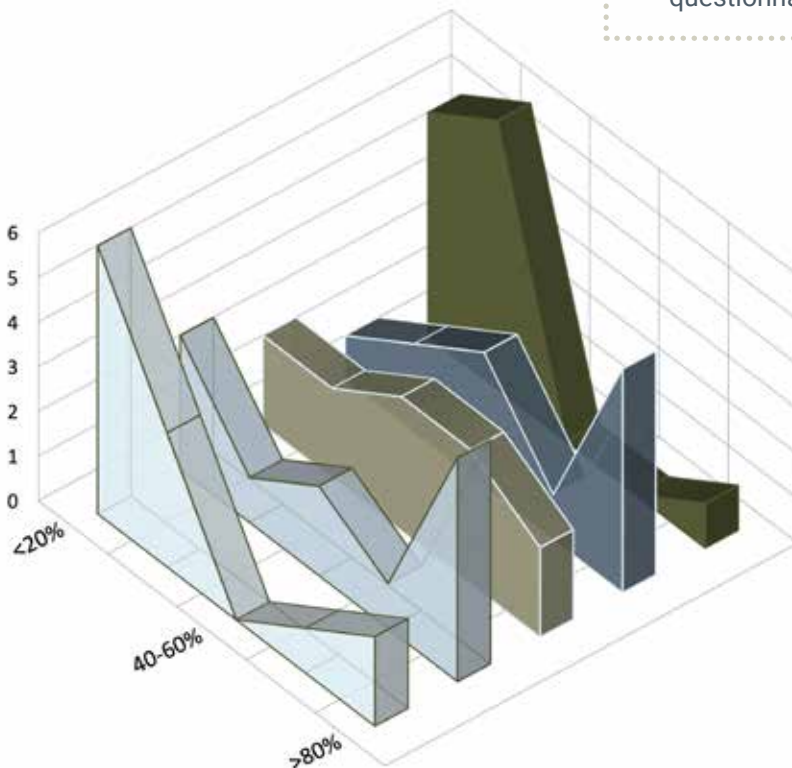
Experts have different academic and professional backgrounds and a high level of formal education. Most of them (7 out of 12) are educated in the field of *Arts and Humanities* (Architecture, Arts, History, Cultural Studies, Archaeology), while small number of experts have *Technology and Engineering* (Construction & building technology, Civil Engineering, Environmental Engineering, Materials Sciences) (3 out of 12) and *Social Sciences* (Urban studies, Planning and Development, Geography, Political and Economics, Management, Law, Environmental studies, Sociology) (2 out of 12) as their studies/professional background. In relation to academic education and titles experts' background also vary: one half of experts (6) hold PhD (SQ004), 4 experts have Masters Degree (SQ003) and 3 experts have 5-year integrated Diploma (SQ002). All of this sets the ground for their diverse, high quality and relevant view of the state of art in the field of urban and architectural design education in relation to sustainability and heritage issues.

Although the general experts experience in the field of work covers the entire spectrum from 5 to more than 20 years, the majority of experts (58,33%) have more than 20 years of experience, which ensures the high quality feedback. This is also supported by the high quality of experts CVs, as well as by the fact that most of them (8 of 12) have participated

in the academic programs in different ways: as professors, as invited lecturers, guest critics, through workshops, and other forms of collaborations. Therefore, it can be said that they are well informed about state of art in A+U design education at UBFA.

The answers that experts provided are relevant and reflect their field of expertise, years of experience, and specific professional and decision-making profile as expressed in their CVs. Most of experts are / have been on leading positions (as directors, professors, heads of departments, national level consultants/ senior experts/ specialists) and have a substantial and high impact on their field of expertise and work.

Fig 1. Mapping of the various design scales of practice (urban planning, landscape, urban design, architectural design, construction detailing) that the experts are engaged in (responses to Q2.3)



**Q2.3**  
**Proportion of Different Scales of Design in the Experts' Workfield**

- Construction detailing
- Architecture
- Urban design
- Urban planning
- Landscape design

respondents' studies or professional background

Experts are engaged in all five scales of design practice, but at different levels (Fig 01). The results indicate that three groups of relevance can be identified. The relevance of the *Construction Detailing and interior Design* as well as *Landscape scale* is low in the work field of most experts (only 3 experts recognised *Construction Detailing*, and only 1 recognised *Landscape scale* as very relevant for their work). On the other hand, the relevance of the *Architecture and Urban and regional planning scale* vary between experts, and is to certain level polarized. Almost all of the experts recognise them as important but for one half it is of high importance while for the other half it is of low importance. As opposed to that, *Urban design scale* is relevant but at moderate level to almost all experts. These observations have been taken into account while analysing the results of the questionnaire.

# PRESENCE/AWARENESS OF ISSUES OF SUSTAINABILITY AND HERITAGE IN PRACTICE

## THE IMPORTANCE / AWARENESS OF SUSTAINABILITY AND HERITAGE IN PRACTICE/RESEARCH



The concept of sustainability is very important in everyday practice of majority of experts, regardless their field of practice. On the other hand, the concept of heritage seems to be of less importance to experts. Although several of them recognised the importance of both concepts, only two experts related the concept of heritage to their work.

This is also reflected in the character and type of projects the experts have participated in. Even though there are differences among experts in relation to the level of their participation in projects that focus on sustainability or heritage or both, most of these projects are related to variety of sustainability issues. The type of these projects also varies, and includes research and professional projects at local, national or European level. For experts that have participated in these projects, the focus on sustainability and/or heritage was mostly based on strict requirements and restrictions, but almost equally on experts' initiative. The latter is especially characteristic for the experiences of Decision-makers NGO's and Academics. On the other hand, the Practitioners mostly recognised Client and public sensitivity as additionally important to strict requirements and legislation as basis for HER/SUS in these projects.

Great majority of experts think that their colleagues, collaborators, and other associates are highly aware and familiar with the key concepts and principles of sustainability and/or heritage, but most of

them actually refer only to the concept of sustainability. They also point out to that, although high level of awareness of these concepts exists, there are problems when it comes to their application in practice. Besides that, some experts stress that their associates are not fully aware on the relationship between sustainability and heritage.

Experts opinion on whether these concepts are adequately integrated in the main corpus of architectural academic studies vary from those that think that both concepts are appropriately integrated, those that recognise certain level of integration but think that it is not sufficient, to those that think that concepts are not well integrated. Significant difference is also made between heritage and sustainability in relation to the level of their integration in architectural academic studies. It has been recognised that while principles of sustainable development are well represented, this couldn't be claimed for heritage.





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THE CONCEPT OF SUSTAINABILITY IS ESSENTIAL TO US, AND WE APPLY IT IN ALMOST ALL PROJECTS WE DEAL WITH. HOWEVER, THE FOCUS OF THE MINISTRY OF SPACE IS MORE ON SOCIAL, ENVIRONMENTAL, AND CULTURAL SUSTAINABILITY THAN ON ECONOMIC. WE GENUINELY TRY TO MAKE SUSTAINABILITY THE BACKBONE OF OUR WORK ”

**Iva Čukić, Director, collective Ministry of Spatial Planning**



”

THE URBAN AND NATURAL HERITAGE WAS IN THE FOCUS OF WORK IN TOWN PLANNING INSTITUTE OF BELGRADE BY THE RULE OF LAW, EITHER RELATED TO MEASURES OF PROTECTION, IN THE CASE OF NATURAL CORE OF BELGRADE STUDY, OR POSSIBILITIES FOR THEIR PROMOTION AND REPRESENTATION: IN STRATEGIC PLANS, REGULATION PLANS FOR THE TRANSFORMATION OF INDUSTRIAL HERITAGE OR PLANS FOR CONTEMPORARY HOUSING/ COMMERCIAL ZONES, ESPECIALLY IN THE MODERN CITY OF NEW BELGRADE. ”

**Žaklina Gligorijević, senior urban consultant in WBG Belgrade**

## RELEVANCE OF KEY CONCEPTS IN PRACTICE/ACADEMIA/DECISION MAKING/POLICY MAKING



In relation to sustainability and heritage, all three key concepts of *reuse*, *restoration* and *resilience* are relevant to experts, regardless of their work field. Several experts stressed the importance of all three concepts, but when specified, the concepts of *reuse* and *resilience* were more frequently recognised than *restoration* as the most relevant to experts practice.

Experts' opinion on the relevance of Key concepts of Sustainability and Heritage in the context of the different scales of design practice is presented in Figure 02, and shows the difference between experts engagement in design scales (landscape scale is least relevant for their work), and that different concepts are of different relevance for different scales of design practice. Some concepts which are of high importance to one scale are of least importance to another scale. This refers to the concepts of *Whole-Lifecycle Design* and *Nature based solutions*. The former is very important for *Construction/Interior/Architecture scale* and of low importance for *Landscape scale*, and the reverse is true for the latter.

Besides that, there are concepts that are of high relevance for all scales of design practice. This refers to the general concepts, such as *Regeneration* and *Cultural Enhancement/Contribution*. But it also refers to the concept of *Public Advocacy for social Participation/Inclusion*, revealing the ever growing importance of social dimension of sustainability in Serbian context.

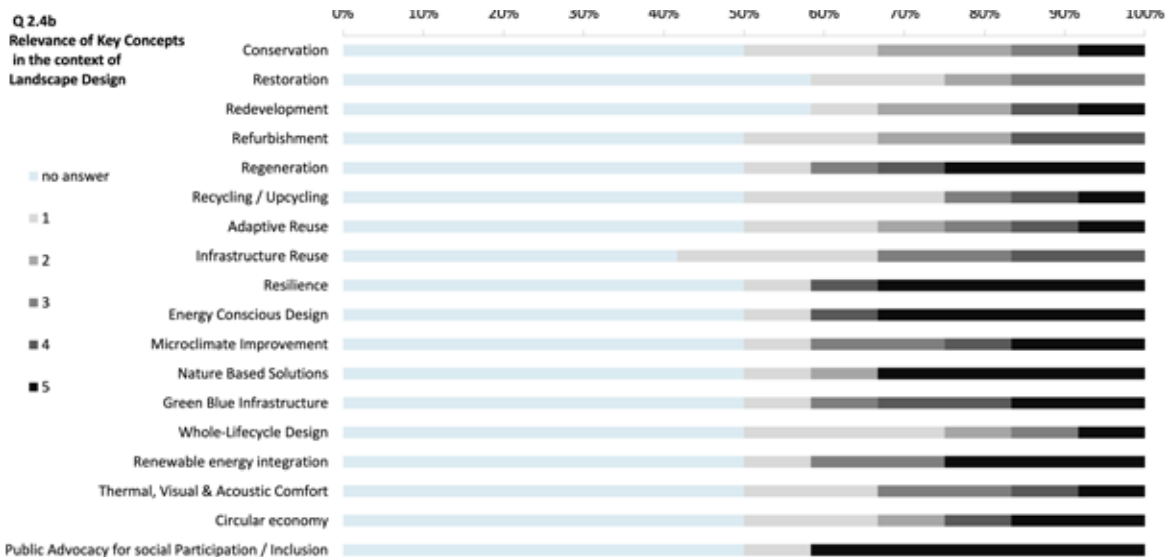
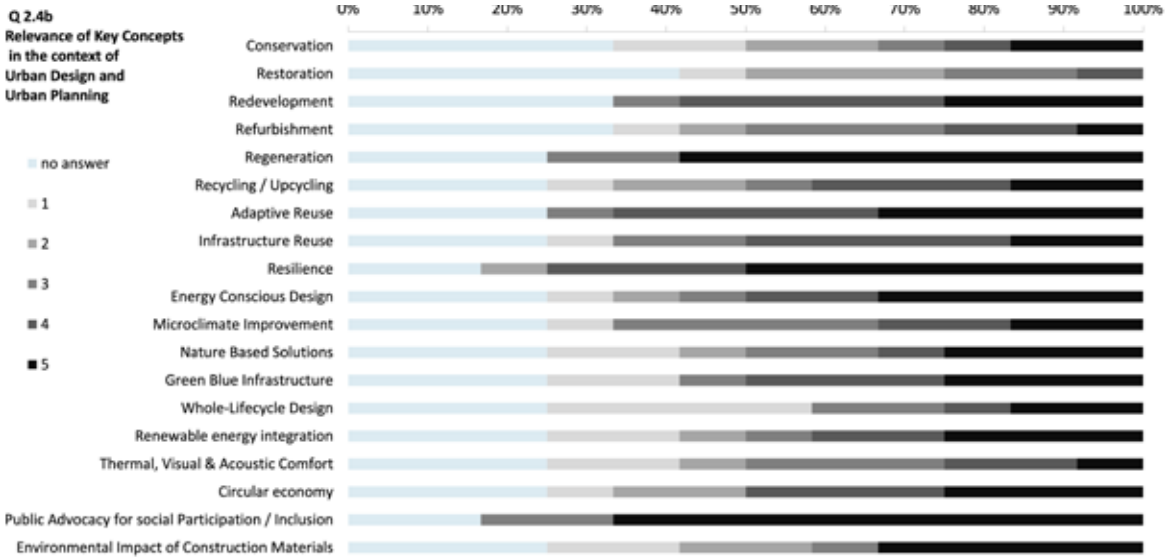
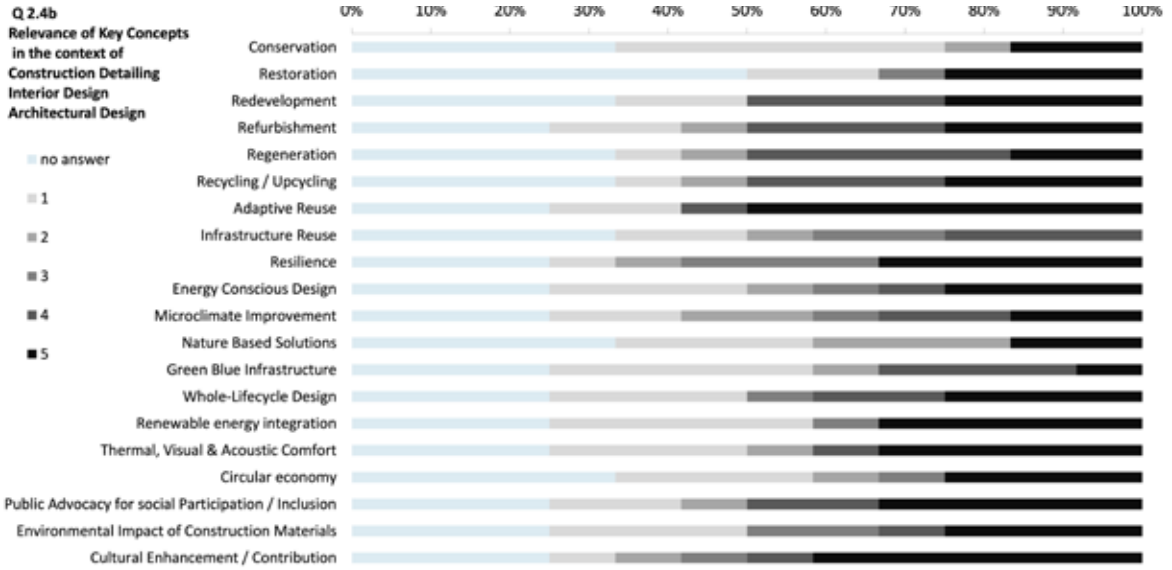
• For *Construction Detailing, Interior Design and Architectural Design scale*, the most important are the concepts of: *Adaptive reuse, Resilience* and *Cultural Enhancement/Contribution*, while also of high importance are the concepts of *Redevelopment, Refurbishment, Regeneration Recycling/Upcycling, Whole-Lifecycle Design, Renewable Energy Integration, Thermal, Visual & Acoustic Comfort* as well as *Public*

*Advocacy For Social Participation/Inclusion*. The concepts of *Conservation, Infrastructure reuse* and *Nature Based Solutions* have the least significance for this scale of design.

• For *Urban Design and Urban Planning scale*, most of concepts seem to be of high relevance. The most important are the concepts of: *Regeneration, Resilience, Public Advocacy for social Participation/Inclusion* and *Cultural Enhancement/Contribution*, and to little less extent concepts of *Redevelopment* and *Adaptive Reuse*. The concepts of: *Restoration, refurbishment* and *Thermal, Visual & Acoustic comfort* have the least significance for this scale.

• For *Landscape design scale*, the most important are the concepts of: *Resilience, Energy Conscious Design, Nature Based Solutions, Public Advocacy for Social Participation/Inclusion* and *Environmental Impact Of Construction Materials*, and to little less level- *Regeneration, Microclimate improvement, Green Blue Infrastructure, Renewable energy integration, and Cultural enhancement/contribution*. The concepts of: *Whole-lifecycle design* and *Restoration*, have the least significance for this scale.

Fig 2. Mapping of Key Concepts' relevance in the context of Design



## PILLARS OF SUSTAINABILITY IN THE DECISION MAKING PROCESS



The analysis of Experts' opinion reveals that all pillars of sustainability (Society / Economy / Environment / Culture) are at certain level important in decision making process, and should be further emphasized. Almost half of the researchers recognised that all aspects of sustainability are equally important and "mostly intertwined and inseparably linked when it comes to practical actions". In addition, several experts indicated that it is "balance of all 4 pillars" that should be emphasized since "the goal is to unite all these aspects and thus provide a sustainable concept that provides a better quality of life, both now and in future".

For experts that identified specific pillars of sustainability as the most important Social and Economic pillars were slightly more valued than others, and this, for them, reflects the specific development problems of Serbia. Besides that, these pillars are also seen in the complex relations with Environment and Culture, recognising that they should further be improved. Experts that recognised Environmental pillar as the most important, mostly focused on energy transition, environmental problems and damage related to both natural and cultural heritage, and suggested that "mitigation of natural disasters, consequences of climate changes, or general environment vulnerability might be the strongest argument in affirmation of sustainability". On the other hand, while Cultural aspect is recognised as important, only two experts recognised it as the most important. In relation to heritage, the problem of domination of passive regime of cultural heritage protection is recognised as an obstacle to be surmounted.

It is not possible to strongly conclude that any of pillars of sustainability is more important for the specific field of practice, but some variations among fields exist. For instance, Academic/researchers mostly recognised importance of all aspects of

sustainability, while economic aspect is recognised as more important for Practitioners, and social aspect for NGO decision makers.



**IN MY PRACTICE, THE MOST IMPORTANT THING FOR ACTING AND DECIDING IS THE LEGAL ASPECT. IN ORDER FOR A STATE BODY TO BE ABLE TO ACT, A LAW MUST BE PASSED, WHICH IS A COMPLEX PROCEDURE.**



**Petar Tufegdžić, Advisor,  
Ministry of Construction,  
Transport and Infrastructure**

# COMPETENCES IN RELATION TO SUSTAINABILITY AND HERITAGE IN PRACTICE

## AWARENESS OF SKILL LEVEL OF GRADUATES FROM ACADEMIC STUDY PROGRAMS DEALING WITH SUSTAINABILITY AND/OR CULTURAL HERITAGE



The extent and nature of experts' cooperation with graduates from academic study programs dealing with sustainability and/or cultural heritage during the last 10 years varied significantly. While some of the experts had rather insignificant professional contact with young graduates, others have occasional collaborations, while several of them work constantly with the graduates from relevant study programs.

The professional engagement in sustainability and/or cultural heritage requires wide scope of knowledge and competences that is related both to theoretical background and practical knowledge. This is also the common denominator that can be derived from the experts' responses: their comments refer to either one or both aspects. The theoretical background seems to be rather adequate at the level of general academic knowledge and a starting base for further improvements. The importance of continuous learning was stressed throughout the responses and the experts believe that constant improvements are necessary due to the very nature of the expertise as well as the pace and involvement of the sustainability issues in all areas of practice and research. The actual knowledge is not expected from the graduates it is believed that the most relevant practical skills are obtained through professional engagements. Such knowledge and skills are often closely related to the very specific issues that are not necessarily covered by particular academic curricula.

The experts that collaborate with graduates who remain involved in academic and/or research activities had quite positive evaluations of graduates' readiness and capability to advance their skills and improve knowledge. Such approach to professional engagement is highly appreciated, since the experts have recognized the multilayered and multidisciplinary character of work in this field.



**I HAVE COLLABORATED WITH SEVERAL. KNOWLEDGE IS AT THE GENERAL ACADEMIC LEVEL. SUSTAINABILITY JOBS, WHICH ARE MULTIDISCIPLINARY, REQUIRE A LOT OF PRACTICAL EXPERIENCE, AS WELL AS INDEPENDENT LEARNING IN AREAS THAT ARE NOT THE SUBJECT OF UNIVERSITY STUDIES.**



**Martin Elezović, Director REENG**

## QUALITY AND LEVEL OF SKILLS AND KNOWLEDGE OBTAINED FROM ACADEMIC EDUCATION IN RELATION TO THOSE EXPANDED IN THE WORK ENVIRONMENT



The experts' responses given in free form emphasized the importance of multidisciplinary and keeping up with advancements in relevant technology and methodology. The lack of knowledge and skills regarding technical and analytical tools and methods, knowledge of specific software, evaluation and life-cycle assessment (LCA) tools as well as soft skills is mentioned throughout the answers.

The evaluation of quality and level of specific skills and knowledge have revealed four distinctive groups of skills:

- a) Skills obtained in significant level through academic programs and further strongly improved through practice: primarily *Technical competences* and *Fundamentals*, and *Interdisciplinarity* (with somewhat weaker base in the academic education);
- b) Skills obtained through academic programs up to certain extent and further strongly improved through practice: *State of the art* and *Presentation communication*;
- c) Skills obtained mainly through practice, with rather weak base in academic education: *Local context*, *Managerial and administrative skills* and *Practical experience*;
- d) Skills and knowledge with rather weak base in academic education with limited improvements through practice: *International context*, *Analytic tools and methods*, *Specialist environmental design skills* and *Specialist conservation skills*.

Skills and knowledge stated in the last group (d) can be enhanced through formal academic education and are rather compatible with methodologies applicable in design studio and theoretical courses whereas the ones from groups (c) and (b) can be improved mainly through design studio, workshops and extracurricular activities. Skills and knowledge from group

(a) shall maintain and further improve in quality since they are recognized as highly important in experts' open form answers.

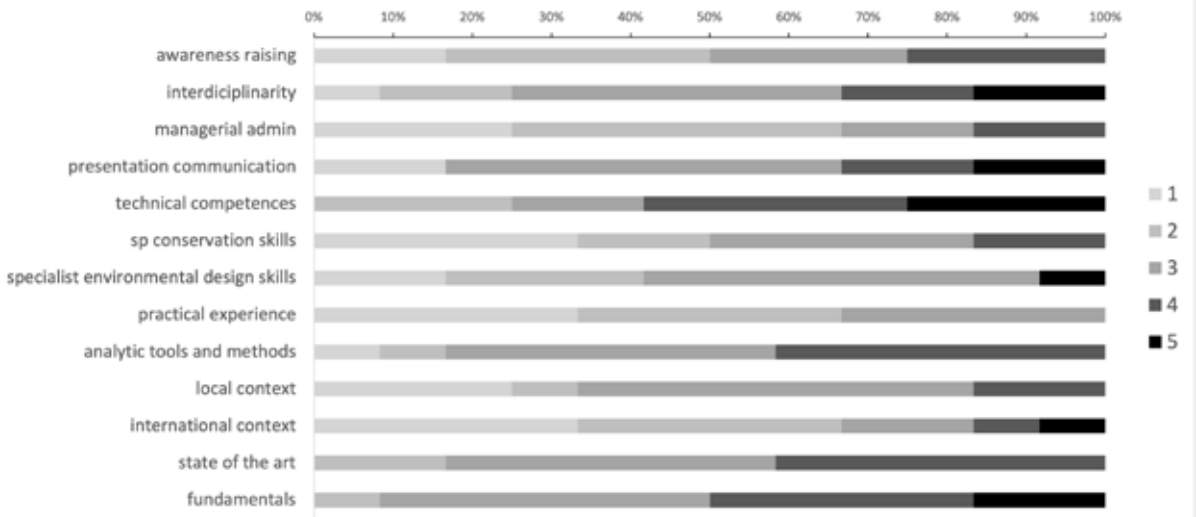


THROUGH PARTICIPATION IN PREVIOUS ERASMUS PROJECTS, SOME INSIGHTS ON GAINING NEW KNOWLEDGE AND SKILLS WERE ACHIEVED THROUGH THE ASSESSMENT OF THE RESULTS OF THE APPLICATION OF PRACTICE-ORIENTED AND COLLABORATIVE LEARNING TO INTEGRATE SUSTAINABILITY INTO HIGHER PLANNING EDUCATION. SUGGESTED APPROACH AIMS TO FOSTER COMPETENCES SUCH AS SYSTEMIC THINKING, ANTICIPATORY, NORMATIVE, STRATEGIC, AND INTERPERSONAL COMPETENCES



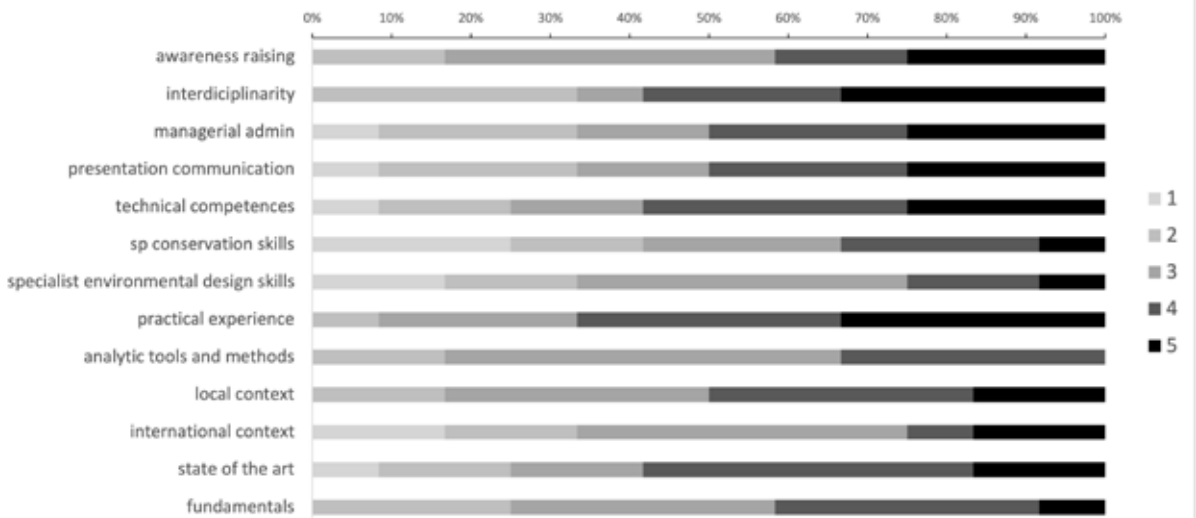
Ratka Čolić, Assistant professor  
University of Belgrade, Faculty  
of Architecture

**Q3.2a Skills obtained through academic programs**



ACADEMIC PROGRAMS

**Q3.2a Skills obtained through practice**



PRACTICE

Fig 3. Mapping of the quality and level of skills and knowledge of graduates.



# REQUIREMENTS IN THE CONTEXT OF ACADEMIC PROGRAMS ON SUSTAINABILITY AND HERITAGE

## IDENTIFYING AND OVERCOMING KNOWLEDGE GAPS IN EXISTING ACADEMIC PROGRAMS



Most experts that were not involved in academic activities didn't feel comfortable and/or qualified to discuss knowledge gaps since they did not have direct knowledge regarding the content and methodology of relevant study programs. Hence, they could only identify the lack of certain knowledge/skills but can't identify the cause – graduate's individual interest or inadequate academic curriculum. The more elaborated responses referred mainly to the issues of knowing and understanding legal framework and practical and formal constraints that arise in practice. The suggestions for overcoming knowledge gaps corresponded with the abovementioned context and offered a series of practical ideas and concepts regarding exposing students to real-life aspects of work within the field of sustainability and built heritage and variety of proposals for institutional engagement. The proposals for students' engagements included dealing with bad practice case studies, interdisciplinary cooperation and mutual leaning, professional practice/ internships etc. Stronger institutional engagement and involvement in series of legislative, civic and practical activities was also mentioned in several responses, implying that the academic institutions themselves should be more active; one of the experts stated that "stronger and more direct penetration of academic institutions into state bodies and public services through legislative engagement, which would condition the replacement of technocracy with meritocracy (an example of this is the engagement of experts from the Faculty of Architecture in Belgrade in the context

of enacting regulations to increase energy efficiency)". Closer links and continuous collaboration between the Faculty of Architecture and various non-academic stakeholders were suggested throughout the experts' comments.



**WHILE WORKING WITH STUDENTS FOR MANY YEARS, THE NECESSITY OF INTEGRATING STUDY PROGRAMS WITH PRACTICE AND WITH OTHER CENTERS FROM OTHER COUNTRIES EMERGES, WHICH WOULD PROVIDE NEW INSIGHTS WHILE DIFFERENT VALUE ASPECTS IN THIS AREA COULD BE ACCEPTED THROUGH COOPERATION.**



**Milica Jovanović Popović,  
Full professor, University of  
Belgrade, Faculty of Architecture**



## BALANCING THEORY, TOOLS AND PRACTICAL TRAINING IN ACADEMIC PROGRAMS



The questions Q4.3a and Q4.3b referred directly to teaching methodology and most experts (8 out of 12) didn't provide any additional comments in the open form (Q4.3a) and mostly referred to the answers given in the Q4.3b.

The prevailing proposed share of knowledge transfer was either 20-40% or 60-80% (each was suggested by 5 experts). No experts suggested share of knowledge transfer higher than 80%, and one suggestion was to reduce it below 20%. The additional comments in the open form question implied that the good balance is needed, which is consistent with the dominant answers and indicate that about a half should be allocated to the knowledge transfer.

The expected share of practical and technical training was the same - 20-40% or 60-80% (each was suggested by 4 experts).

It is interesting that no experts suggested the share lower than 20%, while there were 2 suggestions for share higher than 80%. This is mainly consistent with experts' comments throughout the questionnaire since the importance of practical and technical training (and the lack of a good one in current education system) was addressed in several sections.

Experts' suggestions regarding the share of evaluation methods varied: four suggested 20-40%, three proposals were for more than 80%, two proposed less than 20% or 40-60%, while there was one suggestion for 60-80%. These answers are not coherent nor consistent with previous answers and experts' comments. The reason might be the rather wide scope of activities listed in the description of this category and the fact that most experts are not involved in academic education processes and methodologies. Some experts have provided valuable feedback and advises regarding the methods and tools that might be used when designing a well-balanced curriculum (see responses A124, A142, A164) and they could be probably contacted again later in the project.

**Q4.3b appropriate proportion of activities in academic education**

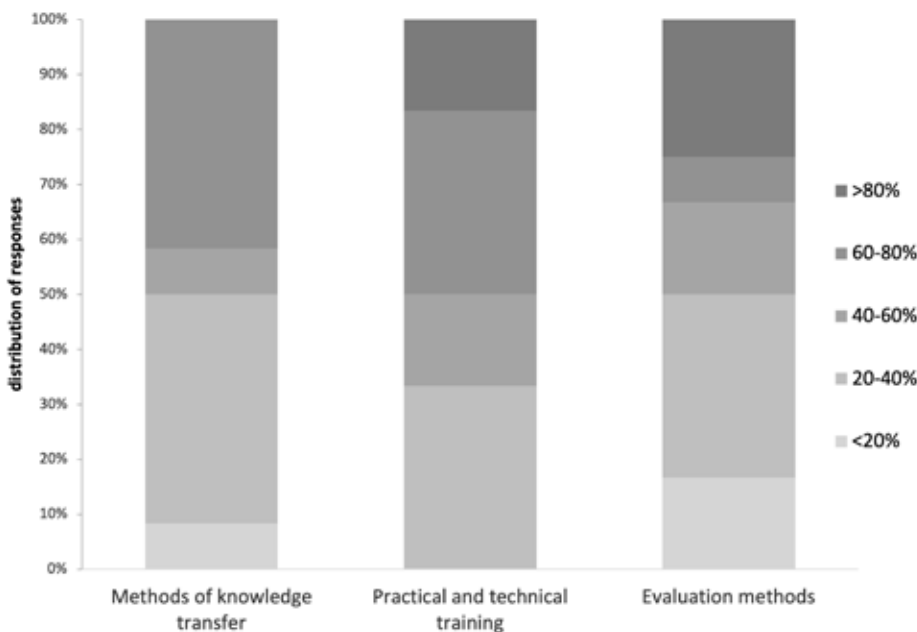


Fig 4. Mapping the proportion of activities in academic education.

## IDENTIFYING AND OVERCOMING KNOWLEDGE GAPS IN EXISTING ACADEMIC PROGRAMS



Experts recognise almost all key concepts as very significant for educational programs, and half of them highly valued (score 4 or 5) their importance. The only exception is the concept of *Circular economy* which was recognised as very important by only 40% of experts. But even in this case all other experts recognised at least its moderate significance (score 3). Analysis of the intensity and distribution of significance among experts reveals different levels of significance of key concepts:

a) High significant concepts: *Regeneration, Recycling/Upcycling, Adaptive reuse, Resilience, Energy conscious design, Public advocacy for social participation/inclusion, Environmental impact of construction materials, Cultural Enhancement/Contribution, and Redevelopment.*

*Energy conscious design, Resilience and Environmental Impact of Construction Materials* are the most significant for all experts

b) Moderate significant concepts: *Refurbishment; Renewable energy integration; Thermal, Visual & Acoustic Comfort, Infrastructure Reuse, Microclimate Improvement, Nature Based Solutions, Green Blue Infrastructure*

c) Low significant concepts: *Conservation, Restoration, Whole-Lifecycle Design, Circular economy*

It is interesting to acknowledge some specifics of each of these groups. Low significant group of concepts includes either concepts that maybe considered well-integrated in existing programs (*Conservation and Restoration*), or new concepts (*Whole-Lifecycle Design, Circular economy*) where their relation with architecture and urban design is not yet clear in Serbian context. Moderate significant group of concepts includes two groups of concepts: a) those related to building quality (*Refurbishment; Renewable energy integration; Thermal, Visual & Acoustic Comfort*) and those more related to

landscape and urban design (*Infrastructure Reuse, Microclimate Improvement, Nature Based Solutions, Green Blue Infrastructure*). High significant group of concepts includes general, multidimensional concepts (*Regeneration, Resilience*) and also reflects that for experts all dimensions of sustainability are significant: environmental (*Recycling/Upcycling, Adaptive reuse, Energy conscious design*), social (*Public advocacy for social participation/inclusion*), economic (*Redevelopment*) and cultural (*Cultural Enhancement/Contribution*).



**STRONGER AND MORE DIRECT PENETRATION OF ACADEMIC INSTITUTIONS INTO STATE BODIES AND PUBLIC SERVICES THROUGH LEGISLATIVE ENGAGEMENT, WHICH WOULD CONDITION THE REPLACEMENT OF TECHNOCRACY WITH MERITOCRACY (E.G. THIS IS THE ENGAGEMENT OF EXPERTS FROM THE FACULTY OF ARCHITECTURE IN BELGRADE IN THE CONTEXT OF ENACTING REGULATIONS TO INCREASE ENERGY EFFICIENCY).**

Rade Mrlješ, Architect, senior conservator, Institute for the Protection of Cultural Monuments of the City of Belgrade



**Q4.4**  
**The Significance of**  
**Key Concepts of**  
**Sustainability and Heritage**  
**which should be addressed**  
**in the context of Academic Education**

- 1
- 2
- 3
- 4
- 5

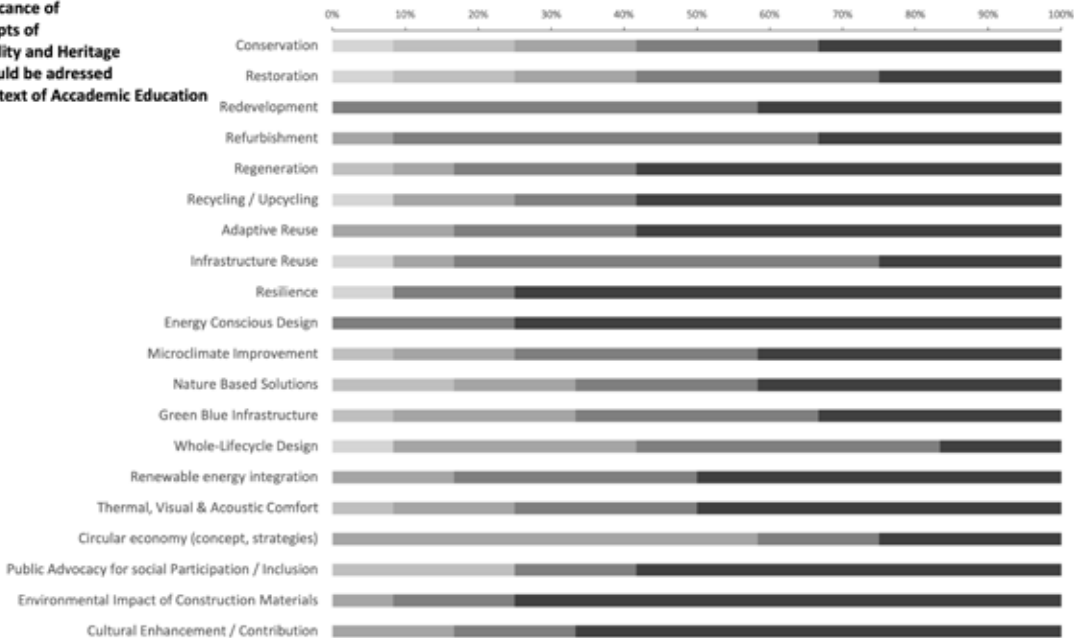


Fig 5. Mapping the significance of Key Concepts of Sustainability and Heritage in academic education.



”

AS IN GENERAL, I THINK THAT INTERNSHIP DURING STUDIES IS OF GREAT IMPORTANCE, OFTEN INTERNSHIP IS ONLY FORMAL AND COMES DOWN TO FORMAL ASPECTS RATHER THAN SUBSTANCE. EXPANDING KNOWLEDGE AND MASTERING AGILE METHODOLOGIES USED IN OTHER INDUSTRIES (IT ABOVE ALL) IS AN ABSOLUTE PRIORITY.

”

**Vladimir Đorić,**  
 Partner, COO, Zabriskie d.o.o



”

IT IS NECESSARY TO EDUCATE STAKEHOLDERS AS WELL AS DECISION MAKERS, IN ORDER TO BRIDGE THE GAP BETWEEN KNOWLEDGE AND APPLICATION IN PRACTICE. EXAMPLES OF NOT UNDERSTANDING THE MEANING AND PROTECTION OF THE STRICTEST DEGREE OF PROTECTION OF CULTURAL AND HISTORICAL HERITAGE ARE NOT ISOLATED IN PRACTICE. SUCH INCLINATIONS ARE DEMORALIZING.

”

**Ružica Bogdanović,** Professor  
 emeritus, Faculty of Architecture and  
 Urbanism, UNI Union Nikola Tesla

## KEY FACTORS FOR THE IMPROVEMENT OF ARCHITECTURAL EDUCATION IN TERMS OF SUSTAINABILITY AND CULTURAL HERITAGE AWARENESS AND TRAINING



Experts recognised several factors for the improvement of architectural education in terms of sustainability and cultural heritage awareness and training in Serbia.

These are:

- **INTERDISCIPLINARITY** is strongly suggested by experts, assuming that use of interdisciplinary approach, methods and practices would significantly enhance architectural education.
- **INTERNATIONALISATION** refers to the exchange of knowledge and experiences with international academic institutions, exchange of students and active use of EU funding mechanisms.
- **MORE PRACTICAL WORK and WORK ON REAL PROBLEMS.** Practical training and providing an understanding of the local/national/regional context is recognised as one of the most important factors for the improvement by many experts. In order to achieve this, they suggested: learning about best practices, involvement of experts from practice and representatives of institutions, and “calibrating expectations”.
- **NETWORKING AND COLLABORATION.** Experts stressed the importance of more collaboration with local institutions, organisation and stakeholders in solving real context problems, horizontal collaboration at different educational levels; linking with public programs involving citizens and general audience, different forms of sharing of knowledge, but also different forms of networking and “exit from “archicentric” action and point of view, expansion and interaction with commercial business sector”.
- **WORK ON DIVERSITY OF SCALES and INTEGRATION OF DIFFERENT ASPECTS OF DEVELOPMENT** are recognised as important factors for improvement of architectural education, for which new knowledge and competencies are needed.

- **RAISING AWARENESS ABOUT THE IMPORTANCE OF HERITAGE and MOTIVATION OF STUDENTS** to work on the topic, as well as **INTEGRATION of SUSTAINABILITY ASPECT** to almost all courses. Sustainability should be basis of all scales of design, and good knowledge of the principles, monitoring of good practices and innovative solutions, networking and work out of your box are important to achieve this goal.
- **INNOVATIVE METHODOLOGICAL APPROACHES and CONTINUAL ADAPTATION** of the program to new achievements in research are needed in dynamic and complex educational environment.
- **STRENGTHENING THE SCIENTIFIC APPARATUS, FINANCIAL RESOURCES and MULTILATERAL ENGAGEMENTS** of the faculty.



”

THE ASPECT OF SUSTAINABILITY MUST BE PERMEATED THROUGH ALMOST ALL COURSES IN ORDER TO BE ABLE TO ACHIEVE THE EXPECTED RESULT - THE NECESSARY SUSTAINABILITY. GOOD KNOWLEDGE OF THE PRINCIPLES OF GREEN-SUSTAINABLE CONSTRUCTION, MONITORING OF GOOD PRACTICES AND INNOVATIVE SOLUTIONS, AS WELL AS GOOD NETWORKING AT A MULTIDISCIPLINARY LEVEL; WORK OUT OF YOUR BOX.

”

**Dragana Korica, Executive Director, Green Building Council of Serbia**



”

MUCH MORE INTERDISCIPLINARY (EVEN TRANSDISCIPLINARY) METHODS AND PRACTICES; HORIZONTAL COLLABORATION AT DIFFERENT EDUCATIONAL LEVELS; PUBLIC PROGRAMS INVOLVING CITIZENS AND GENERAL AUDIENCE; SHARING OF KNOWLEDGE, EGG. OPEN AND TRANSPARENT METHODOLOGIES, DATA AND RESULTS/FINDINGS (FAIR PRINCIPLES); INTERNATIONALISATION OF LEARNING PROCESS, ACTIVE USE OF EU FUNDING MECHANISMS AND EXCHANGE OF STUDENTS.

”

**Dobrivoje Lale Erić, Head of Department of International Cooperation, Center for the Promotion of Scienc**



”

THE KEY FACTOR OR THE IMPROVEMENT OF ARCHITECTURAL EDUCATION IN TERMS OF SUSTAINABILITY AND CULTURAL HERITAGE AWARENESS AND TRAINING IS A COLLABORATION WITH LOCAL INSTITUTIONS, ORGANISATION AND STAKEHOLDERS IN SOLVING REAL CONTEXT PROBLEMS.

”

**Ksenija Lalović, Associate professor, University of Belgrade, Faculty of Architecture**

# DISCUSSION / CONCLUSIONS

*The participating experts were selected and questioned according to the general methodology established at the consortium level. The survey included 12 experts from all targeted fields of expertise, covering a variety of educational backgrounds and practicing disciplines. The selection of experts seems to be well balanced in terms of age, gender, years of professional experience and scale/scope of their work.*

*The section on presence/awareness of issues of sustainability and heritage in practice have revealed an imbalance between the two issues. While sustainability was well recognised and often thoroughly discussed, heritage remained less visible in experts' responses. This is notable throughout questions 2.1, 2.2, 2.4 and 2.5 in terms of professional contacts, projects, recognising of key concepts, etc. While the importance of heritage is recognised, the awareness of the actual connections between the heritage and sustainability issues seems to be rather weak. Fields of expertise and scale of design in professional engagement did not reflect significantly on questions 2.1 and 2.2. The scale of design in expert's area of work reflected on the answers regarding relevance of key concepts while the expert's field of work reflected on their views on key pillars of sustainability in decision-making process. "Reuse" and "resilience" are*



ITALY

✕

Sofia Tonello  
Emanuela Sorbo

ITALY

02



ABSTRACT / ITALY / Iuav



*The collected data will be crucial for the implementation of higher education programs. The qualitative analyses of the experts' questionnaires highlight the central and innovative perspective of Sustainability and Cultural Heritage learning in urban and architectural design.*

*The report aims to collect the information from the expert questionnaires and relate it to a wide cultural and theoretical frame. The primary references for Sustainability and Cultural Heritage learning are: the increase of the awareness from the Cultural Heritage awareness of the communities, the sharing of quality principles for interventions on Cultural Heritage and the importance of cultural debate concerning Heritage values and Sustainability in our contemporary world.*

## **Academics**

Professor Chiara Occeili

Councillor of National University Council and professor at the Politecnico di Torino

## **Practitioners**

Arch. Elisa Brusegan

Architect, Correspondent - Treviso Order of Architects magazine "Pièra Magazine", charge of the Iuav Alumni Association Board of Directors

Arch. Mario Gemin

Architect and Treasurer of Professional Order of architects, urban planners, landscape designers and conservators of Treviso Province

## **Policy Makers**

Arch. Giovanna Battista

Architect - Superintendency for Architectural Heritage and Landscape in Verona, Rovigo e Vicenza

Arch. Marco Chiuso

Architect - Superintendency for Architectural Heritage and Landscape in Lucca

## **Decision Makers in Public administration**

Dott.ssa Luisa Cattozzo

Council member / Assessor - Municipality of Rovigo

Arch. Raffaella Gianello

Architect in Charge of the technical office - Municipality of Verona

## **Decision Makers in NGO / Professional society**

Ing. Mariano Carraro

President - Engineers Order of Venice

Elena Jachia

Director of the Environment Area – Cariplo Foundation



Chiara  
Occelli

Researcher Academic  
Educator

# A1



Elisa  
Brusegan



Mario  
Gemin

# A2

Practitioner



Giovanna  
Battista



Marco  
Chiuso

# A3

Policy Maker  
(Government or local  
authorities members or  
consultants)



Luisa  
Cattozzo



Raffaella  
Gianello

# A4

Decision Maker in  
Public Administration  
(Ephorates, Ministries,  
Devolved Administration)



Mariano  
Carraro



Elena  
Jachia

# A5

Decision Maker in  
NGO / Professional  
Society

## INTRODUCTION



The Experts Questionnaires dissemination targeted selected experts and practitioners. This activity involved local experts, except Chiara Occelli from the Italian National University Council (Consiglio Universitario Nazionale - CUN) and professor at the Politecnico di Torino, Marco Chiuso from SABAP-Lucca (Superintendence for Architectural Heritage and Landscape in Lucca), Giovanna Battista from SABAP-VR (Superintendence for Architectural Heritage and Landscape in Verona) and Elena Jachia from Cariplo Foundation.

The link to the questionnaires and the interactive document were sent by e-mail to more than ten experts and practitioners (15 in total).

The luav Team contacted experts and practitioners with multiple e-mail starting from the 6th April.

### 6th April 2021:

- Arch. Giovanna Battista (Architect - Superintende for Architectural Heritage and Landscape in Verona)
- Arch. Elisa Brusegan (Architect, Correspondent - Treviso Order of Architects magazine "Pièra Magazine", charge of the luav Alumni Association Board of Directors)
- Eng. Mariano Carraro (President - Engineers Order of Venice)
- Luisa Cattozzo (Council member / Assessor - Municipality of Rovigo)
- Arch. Gabriella Funaro (Architect – ENEA - Italian National Agency for New Technologies, Energy and Sustainable Economic Development)
- Arch. Mario Gemin (Architect and Treasurer of Professional Order of architects, urban planners, landscape designers and conservators of Treviso Province)
- Arch. Raffaella Gianello (Architect in Charge of the technical office - Municipality of Verona)
- Elena Jachia (Director of the Environment Area – Cariplo Foundation - Cassa di Risparmio delle Province Lombarde)
- Arch. Alberto Muffato (Director Sinergo S.p.a.)
- Professor Francesco Musco (Professor at the Università luav di Venezia)
- Professor Chiara Occelli (councillor of National University Council and professor at the Politecnico di Torino)

### 17th April 2021:

- Arch. Marco Chiuso (Architect - Superintendence for Architectural Heritage and Landscape in Lucca)

### 26th April 2021:

- Professor Davide Del Curto (professor at the Politecnico di Milano)
- Giuseppe Rodighiero (Council member / Assessor - Municipality of Brendola)
- Guido Driussi (Scientific Director Arcadia Ricerche s.r.l.)

Due to the short deadline, the data collected respect the minimum parameter settled (9 questionnaires completed on April 29th). One, Professor Francesco Musco, did not complete the questionnaire on the Limesurvey platform.

Experts and practitioners answered the questionnaire during a recorded interview in Italian language. The data collected were translated and uploaded in English version to the Limesurvey Database. Extracts from the recorded interviews will be available with English subtitles for the dissemination project.

The experts belong to different categories, they were selected in both Cultural Heritage and Sustainability field. The luav Team selected a homogeneous distribution, but each expert chose the area referring to their work. Basing on their CVs, that the number of participants for each category involved is:

### 1 Researcher/ Academic / Educator

- Professor Chiara Occelli (councillor of National University Council and professor at the Politecnico di Torino)

### 2 Practitioners

- Arch. Elisa Brusegan (Architect, Correspondent - Treviso Order of Architects magazine "Pièra Magazine", charge of the luav Alumni Association Board of Directors)
- Arch. Mario Gemin (Architect and Treasurer of Professional Order of architects, urban planners, landscape designers and conservators of Treviso Province)

### 2 Policy Makers (Government or local authorities' members or consultants)

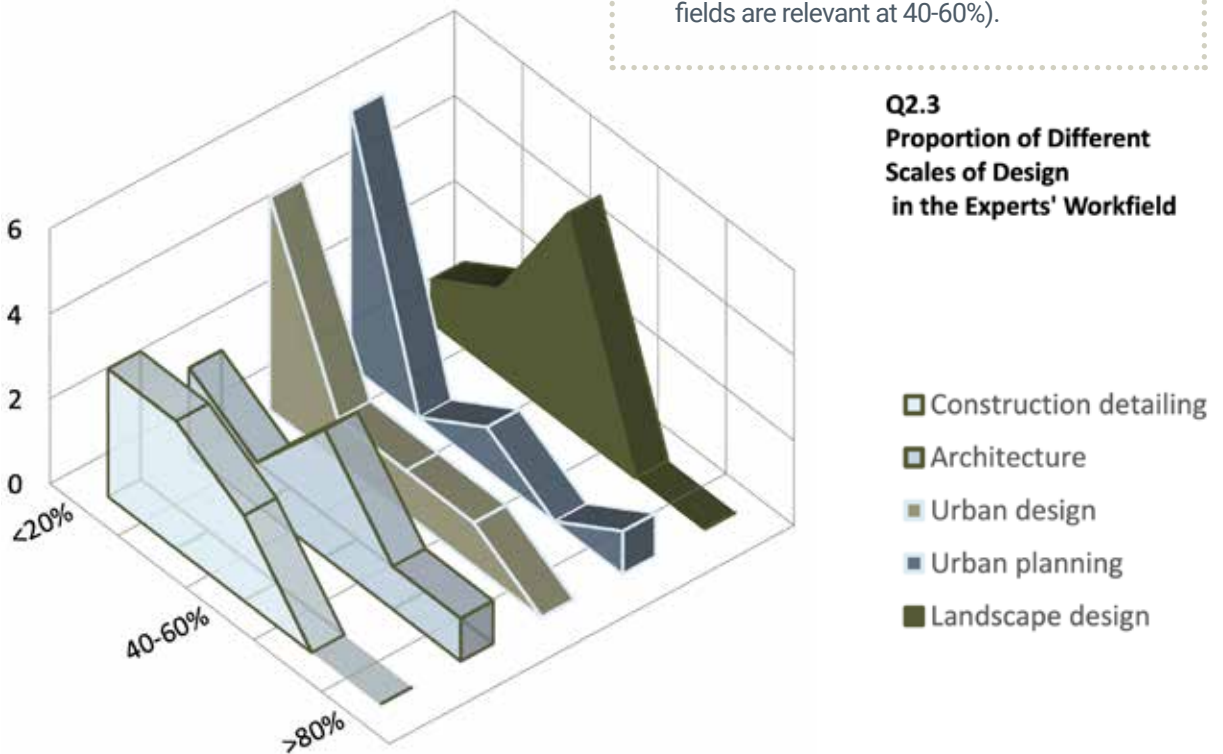
- Arch. Giovanna Battista (Architect - Superintendence for Architectural Heritage and Landscape in Verona)

- Arch. Marco Chiuso (Architect - Superintendence for Architectural Heritage and Landscape in Lucca)
- 2 Decision Maker in Public administration (Ephorates, Ministries, Devolved Administration)
- Luisa Cattozzo (Council member / Assessor - Municipality of Rovigo)
- Arch. Raffaella Gianello (Architect in Charge of the technical office - Municipality of Verona)
- 2 Decision Makers (in NGO / Professional Society)
- Eng. Mariano Carraro (President - Engineers Order of Venice)
- Elena Jachia (Director of the Environment Area –Cariplo Foundation)

Fig 1. Mapping of the various design scales of practice (urban planning, landscape, urban design, architectural design, construction detailing) that the experts are engaged in (responses to Q2.3)

respondents' studies or professional background

The group of experts is heterogeneous for what concern working fields, genders, specialisations, and academic backgrounds. Most of the interviewees have a 5-year integrated Diploma, and five of them have a PhD. They all have solid experience (all more than five years) in architecture (six of them), engineering practice (Mariano Carraro), or the planning and environmental field (Luisa Cattozzo and Elena Jachia). At the same time, some of them have collaborated or worked in academic institutions as tutors (Arch. Elisa Brusegan, Arch. Marco Chiuso), as guests and critics (Arch. Giovanna Battista, Arch. Raffaella Gianello), as adjunct professor (Arch. Mario Gemin) or associate professor (Professor Chiara Ocelli). Sustainability and/or Cultural Heritage issues focus on their academic and professional activities. The more relevant primary scales of architectural and urban design in their working field are the Architectural and the Landscape design (five experts said these fields are relevant at 40-60%).



# PRESENCE/AWARENESS OF ISSUES OF SUSTAINABILITY AND HERITAGE IN PRACTICE

## THE IMPORTANCE / AWARENESS OF SUSTAINABILITY AND HERITAGE IN PRACTICE/RESEARCH



The practitioners express a common consideration about a good understanding regarding the general topics of the awareness about Sustainability and Cultural Heritage in the architectural practice. The most relevant ideas are:

- the Sustainability issues are widely spread and understood problem because of a consolidated debate;
- Cultural Heritage is a wide concept that should be addressed not only from an architectural perspective but also in a systemic context of territorial and landscape relations;
- the idea of an interdisciplinary approach between different disciplines involved in the field of architectural academic programs and practice;
- the Sustainability/Cultural Heritage relationship is a pivotal issue from a theoretical, educational and practice perspective.

Almost all the experts share the idea that legislative guidelines lead to Cultural Heritage and Sustainability issues. The analysis highlights how authorities, practitioners and clients have different perspectives about these themes. The former two have a shared awareness of enhancing what is already built and try to do so with a sustainable approach. In contrast, the last ones do not share experts' perspective and consider a less extensive idea of the theme of Sustainability. Professor Chiara Ocelli reminds the Universities' central role (Third Stream) to increase the awareness of Cultural

Heritage and Sustainability issues through local communities' inclusion in research, regeneration and enhancing projects.

About the awareness of colleagues, collaborators, and other experts, the Government or local authorities' members and Decision Makers in Public administration think that their colleagues and collaborators are aware of these themes and can deal with them properly. There is the necessity of a better understanding of the themes regarding Cultural Heritage (Giovanna Battista, Marco Chiuso) and a more sensibility towards Sustainability (Luisa Cattozzo, Raffaella Gianello).

All the experts and practitioners agree to raise the attention on Sustainability and Cultural Heritage themes in educational programs. They suggest developing Sustainability and Cultural Heritage topics in academic practice and specific activities such as internship, workshop, seminars etc.



”

REUSE AND RESILIENCE ARE THE MAIN THEMES IN MY PROFESSIONAL ACTIVITY. REUSE IS A SUBJECT STRONGLY ADVANCED BY THE LATEST ITALIAN AND REGIONAL LAWS. THE CHALLENGE FOR ARCHITECTS IS TO RECONVERT AND REUSE WHAT EXISTS WITH A SUSTAINABLE APPROACH (CONSIDERING SOCIAL, CULTURAL AND ENVIRONMENTAL SUSTAINABILITY)

”

**Arch. Elisa Brusegan**  
Architect, Correspondent - Treviso Order of Architects magazine "Pièra Magazine", charge of the luav Alumni Association Board of Directors



”

REUSE AND CULTURAL HERITAGE VALUES PRESERVATION ARE SOMETIMES IN CONTRAST. THE ITALIAN MINISTRY'S GUIDELINES EXPRESS THE POSSIBILITY TO TRANSFORM HISTORICAL BUILDINGS BY RESPECTING CULTURAL IDENTITY AND HISTORICAL VALUES. IF PARAMETERS (SUCH AS SAFETY PARAMETERS) CHANGE THE ASSET OF THE BUILDING VALUES, THEN THE BUILDING'S FUNCTION SHOULD CHANGE.

”

**Arch. Marco Chiuso**, Architect - Superintendency for Architectural Heritage and Landscape in Lucca



”

THERE IS AN INCREASING AWARENESS CONCERNING CULTURAL HERITAGE INTERVENTIONS, AMONG THE YOUNG PRACTITIONERS. MORE ATTENTION IS PAID TO THE HISTORY AND THE TRADITIONAL CONSTRUCTION TECHNIQUES. ARCHITECTURAL AND ENGINEERING PROPOSAL ON CULTURAL HERITAGE DOES NOT AIM TO RENOVATE BUT IMPROVE THE BUILDING

”

**Ing. Mariano Carraro**  
President - Engineers Order of Venice

## RELEVANCE OF KEY CONCEPTS IN PRACTICE/ACADEMIA/DECISION MAKING/POLICY MAKING



For almost all the experts, the key concepts of *Reuse*, *Restoration*, and *Resilience* represent daily activities issues. The experts consider *Reuse* and *Resilience* as the most suitable key concepts in contemporary architecture.

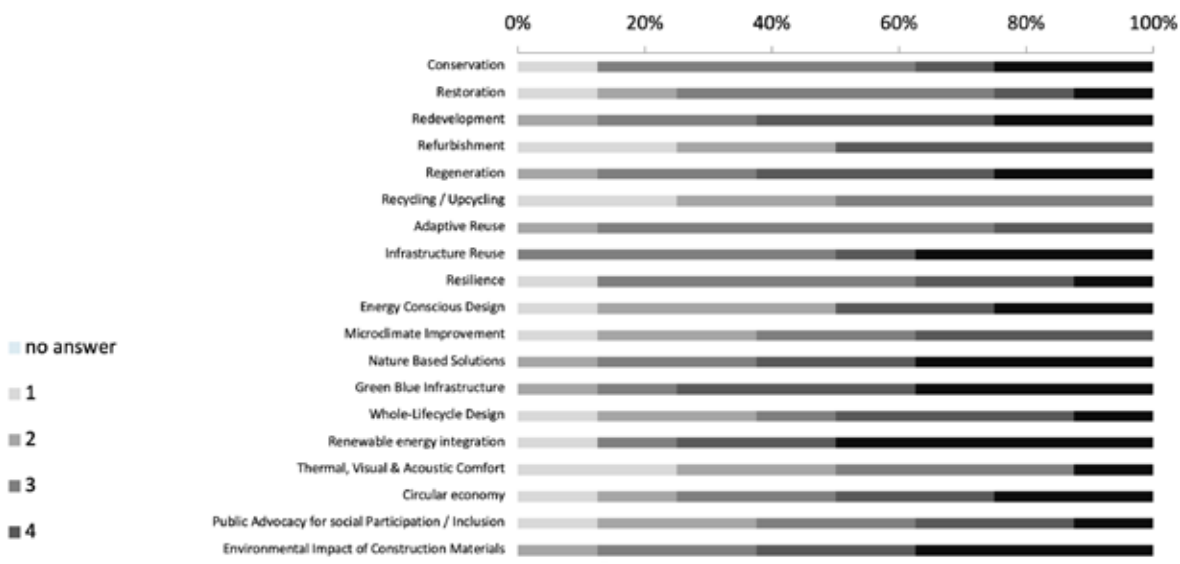
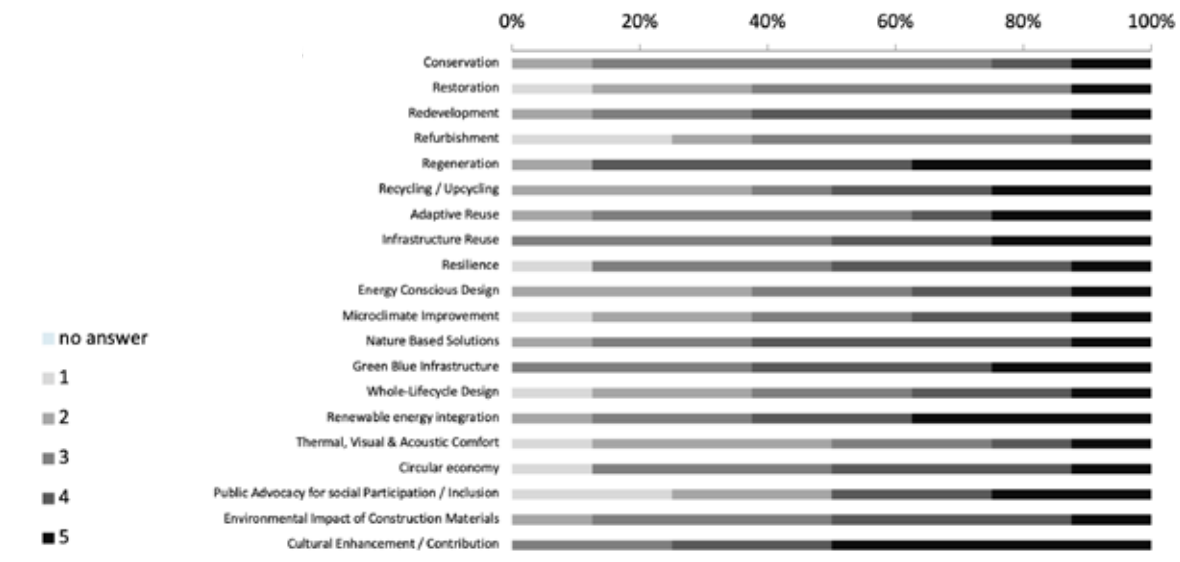
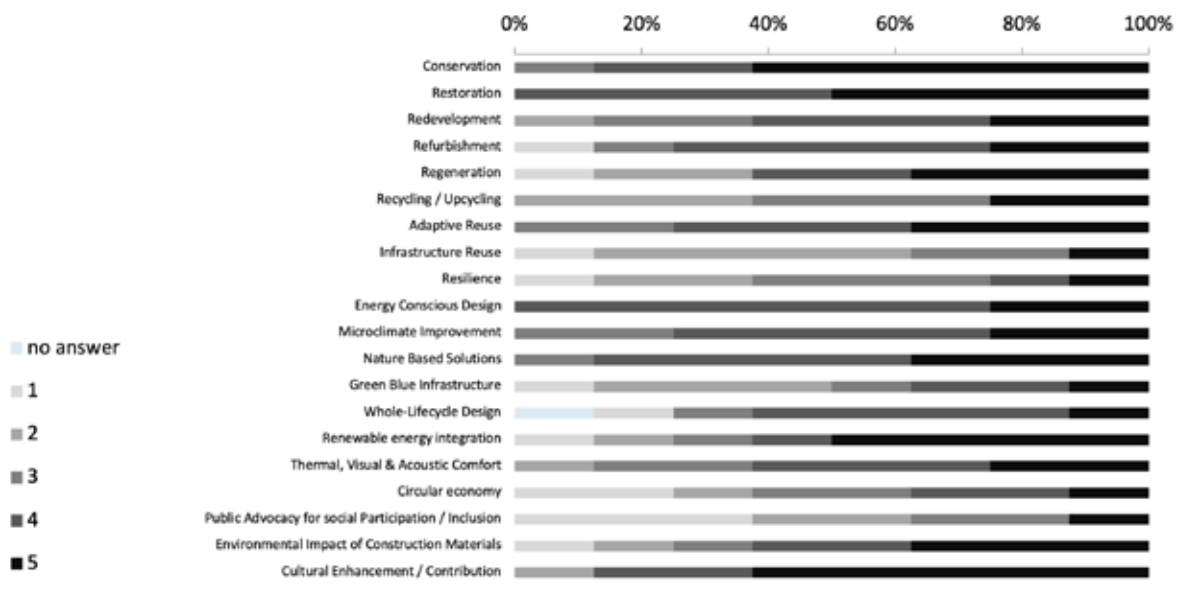
The central and shared idea about these key concepts is related to the Cultural Heritage's need to be reinterpreted in a multifunctional way, capable of adapting to changes in needs and opportunities (Luisa Cattozzo). In these terms, *Reuse* is the most interesting one on a broader meaning, comprehending *Resilience* and *Restoration* concepts (Raffella Gianello). Elisa Brusegan, Mariano Carraro, Mario Gemin, and Elena Jachia report the Veneto Regional Law 14/2017 about soil's exploitation as one of Italy's central themes. The challenge of contemporaneity, in the experts' opinion, is to reconvert and reuse what already exists using cultural assets in respectful ways to safeguard their meanings, values and maintain the role as a source of inspiration for local communities and future generations (Giovanna Battista, Elisa Brusegan, Marco Chiuso, Chiara Occelli). Professor Chiara Occelli and Architect Giovanna Battista observe that *Reuse*, *Restoration*, and *Resilience* are related to different scale projects. On a small scale (historical or monumental architecture), *Restoration* and *Conservation* concern the material data. The designs related to Sustainability are more problematic, while *Resilience*, referring to a system or landscape, is more compatible with Sustainability and Cultural Heritage.

The survey reports (Figure 02) that the key concepts' relevance changes at the different design scales (Architecture, Urban and Landscape design scale). The few key concepts that maintain a high score at all the design scales are *Regeneration* and *Cultural Enhancement*. At the Architectural scale *Conservation*, *Restoration*, *Refurbishment*, *Adaptive Reuse*, *Energy*

*Conscious Design* and *Nature Base Solution* are the most relevant concept. According to this premise, it can be assumed that Cultural Heritage awareness is related to Sustainability and *reuse* at Architecture and detail scale. At the urban and landscape scale, the most evaluated concepts are related to *Regeneration* and *Reuse*.

Fig 2. Mapping of Key Concepts' relevance in the context of Design





## PILLARS OF SUSTAINABILITY IN THE DECISION MAKING PROCESS



Almost all the experts referred to Sustainability as a socio-cultural theme that helps to create society's ideas and design actions. They addressed the Conservation of Cultural Heritage as a strategic action aiming towards Sustainability (Chiara Occelli). On the other hand, it is highlighted that in Italy, it is not easy to reach a widespread consciousness of Sustainability cultural pillar as in other countries for different reasons, such as:

- the labelling and the political exploitation of themes concerning Sustainability, environmental preservation, and Cultural Heritage enhancement (Battista),
- the missing relation between the new buildings and the Social, Cultural and Environmental context where they are built (Mario Gemin),
- the equilibrium between safeguarding and conservation on the one hand, and dynamic approaches to respectful and compatible Reuse and management on the other (Marco Chiuso);
- the absence of quality in the architectural space's demand (Elisa Brusegan).

Despite the awareness of these issues related to the Sustainability pillars, experts state the importance of a "shared Cultural Heritage" (as in the 2018 principles European Year of Heritage), a better social inclusion, and preservation of the environment (avoiding soil exploitation). The main objective for Professor Chiara Occelli is to change people's mindset through a better relationship between academic research and local communities. Architect Marco Chiuso believes that the cultural pillar of Sustainability in Cultural Heritage is pivotal. He affirms the possibility to transform a historical building by respecting its cultural identity and historical value (referring to the Italian Code for Cultural Heritage and Landscape and the Compatibility criteria from the European Quality Principles For Eu-Funded Interventions With Potential Impact Upon Cultural Heritage). And he highlights how the temporary abandonment is always a problem for the building's Sustainability in conservation and transmission to future generations.



**A MULTIDISCIPLINARY APPROACH TO SUSTAINABILITY IS THE MOST IMPORTANT ADDITION IN DESIGN PRACTICE TO CONNECT PEOPLE, TERRITORIES AND RESOURCES. IN THIS CONTEXT, SUSTAINABILITY SHOULD NOT BE A GOAL BUT THE ACHIEVEMENT OF PROPOSITIVE RESULTS**

**SUSTAINABLE PRINCIPLES ARE EFFECTIVE IF CONSIDERED IN A SYSTEMATIC DECISION-MAKING PROCESSES THROUGH THE ACTIVE INVOLVEMENT OF CITIZENS AND STAKEHOLDERS. THE RECOGNITION BETWEEN ACTORS, STAKEHOLDERS, TERRITORIAL ELEMENTS AND RESOURCES IS ESSENTIAL TO ADD VALUE TO THESE DECISION-MAKING PROCESSES."**



**Dott.ssa Luisa Cattozzo  
Council member / Assessor -  
Municipality of Rovigo**

# COMPETENCES IN RELATION TO SUSTAINABILITY AND HERITAGE IN PRACTICE

## AWARENESS OF SKILL LEVEL OF GRADUATES FROM ACADEMIC STUDY PROGRAMS DEALING WITH SUSTAINABILITY AND/OR CULTURAL HERITAGE



All the experts recognise an ever-growing interest and attention in academic study programs towards Cultural Heritage and Sustainability themes. They reported that they had noticed it from the several cooperations with young graduates from academic study programs dealing with Sustainability and/or Cultural Heritage they had in the recent ten years. Mariano Carraro, Luisa Cattozzo, Elena Jachia and Raffaella Gianello underline that the collaboration with graduated students represents continuous professional growth for the whole work team because they have a higher awareness of the latest and newest discoveries in technical and research fields about Sustainability and Cultural Heritage. Architect Elisa Brusegan noticed that experts who graduated in engineering manage Sustainability issues in a more specific and technical aspect while architects manage the inputs from different fields in a holistic perspective.

Architects Elisa Brusegan, Giovanna Battista and Raffaella Gianello and Professor Chiara Occelli state that Sustainability and Cultural Heritage issues are complex. It could be relevant to deal with them at a postgraduate educational level. For example, Specialisation Schools' learning programs guarantee highly qualified specialists in the field of Cultural Heritage, Landscape and Sustainability. These specialists will be able to draw projects and direct the execution of complex commissions. They will have a deep methodological, theoretical, and scientific preparation. These learning programs help young experts during working activities

to understand deeper the compromises between safeguarding and dynamic approaches (Giovanna Battista, Marco Chiuso, Chiara Occelli). Almost all the experts agree to consider the Sustainability and Cultural Heritage issues as interdisciplinary themes, a chance to work and discuss with different professional figures and to understand each field's peculiarity.



**GRADUATED STUDENTS, WHO WORK IN SUSTAINABILITY AND CULTURAL HERITAGE, COULD BENEFIT FROM ATTENDING SPECIALIZATION SCHOOLS TO IMPLEMENT THEIR AWARENESS ABOUT THE ROLE OF CULTURAL HERITAGE IN SUSTAINABLE DEVELOPMENT.**



**Arch. Giovanna Battista  
Architect - Superintendency  
for Architectural Heritage and  
Landscape in Verona, Rovigo e  
Vicenza**

## QUALITY AND LEVEL OF SKILLS AND KNOWLEDGE OBTAINED FROM ACADEMIC EDUCATION IN RELATION TO THOSE EXPANDED IN THE WORK ENVIRONMENT



The analysis of the Q3.2a question confirms the results of the 2.3.2 session. The balancing between Skills obtained through academic programs and Skills obtained through practice respect the ideas express in the question: the educational programs should aim to give the fundamental tools and knowledge: practice should be a continuous learning process implemented during the working activities.

The experts share the idea that University should educate people to a more open-minded approach, capable of discussing and dealing with complex scenarios. Teaching should aim to give students scientific, theoretical, and technological tools to design with a creative/cultural approach and help them develop autonomous and critical thought (Elisa Brusegan, Chiara Occelli). The experts express the necessity of a better understanding of basic knowledge (Mario Gemin) and long-life learning to manage the changing state of the art (Mariano Carraro, Marco Chiuso, Mario Gemin). All experts and practitioners recommend pursuing local, national and international experiences promotion at different academic levels (internship, Erasmus exchanges, Erasmus projects) to broaden students' case studies knowledge and train them to a multiscale and multicultural vision. It is fundamental for students to communicate with the professional world, the local areas, and the institutions to understand Sustainability and Cultural Heritage issues during academic careers (Raffaella Gianello, Elena Jachia).

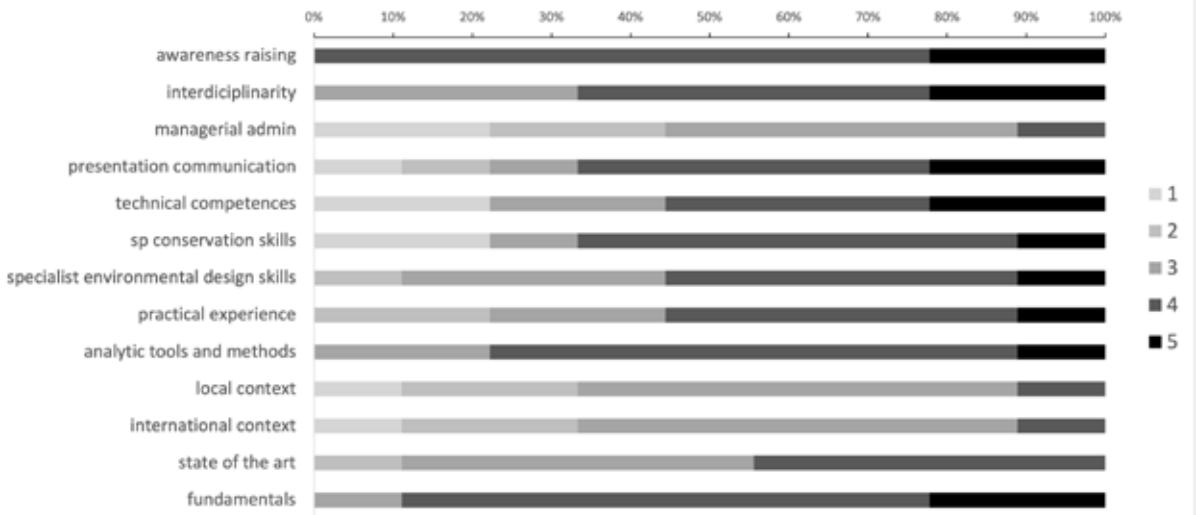


**SINCE SUSTAINABILITY AND CULTURAL HERITAGE DO NOT HAVE A UNIQUE DEFINITION, THEY ARE OPPORTUNITIES FOR DISCUSSION WITH COLLEAGUES, COLLABORATORS, AND PROFESSIONALS FROM DIFFERENT ACADEMIC FIELDS. CULTURAL HERITAGE AND SUSTAINABILITY FIELDS SHOULD DIALOGUE MORE TO SUPPORT AN INFORMED DEBATE AND CREATE SHARED KNOWLEDGE**



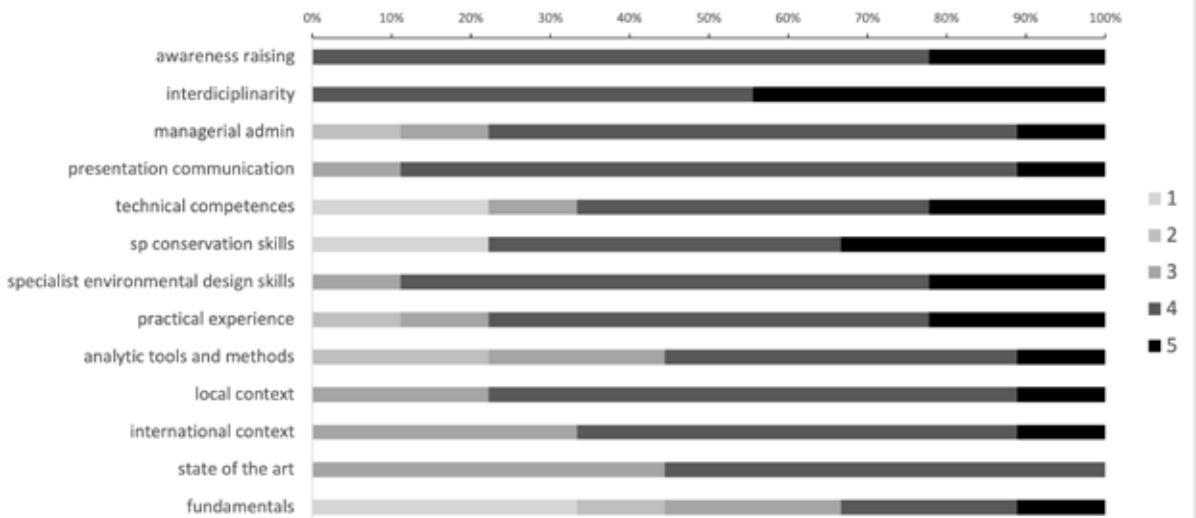
**Professor Chiara Occelli  
Councillor of National University  
Council and professor at the  
Politecnico di Torino**

**Q3.2a Skills obtained through academic programs**



ACADEMIC PROGRAMS

**Q3.2a Skills obtained through practice**



PRACTICE

Fig 3. Mapping of the quality and level of skills and knowledge of graduates.

# REQUIREMENTS IN THE CONTEXT OF ACADEMIC PROGRAMS ON SUSTAINABILITY AND HERITAGE

## IDENTIFYING AND OVERCOMING KNOWLEDGE GAPS IN EXISTING ACADEMIC PROGRAMS



All practitioners and experts acknowledge a distance between the theoretical and practical subjects on the one hand and the systemic analysis and design skills on the other one. During the interviews, emerged the necessity to discuss those topics from different fields to create shared knowledge and, therefore, increase an informed debate (Elisa Brusegan, Mariano Carraro, Chiara Occelli).

The gaps in the knowledge regarding Sustainability and Cultural Heritage are multiple according to different points of view. The Sustainability problem is related to the multiplicity of definitions and the specific functions or specialist technical tools referred to it (Luisa Cattozzo, Mario Gemin). The Cultural Heritage problem is associated with the need for a strong interdisciplinary among the design team (Giovanna Battista, Elisa Brusegan). Architect Elisa Brusegan, Mario Gemin and Giovanna Battista consider manual learning an essential tool in Architectural and Urban Design Higher Education. The most important educational experiences that help students to obtain the ability to face difficult practice situations are:

- educational reference case studies (Giovanna Battista),
- architectural competitions with an interdisciplinary team and international workshops (Elisa Brusegan),
- training internships in professional offices or field-specific companies, perhaps abroad, before and after graduating (Giovanna Battista, Mariano Carraro, Mario Gemin, Raffaella Gianello).

Professor Chiara Occelli involved a third fundamental subject, the Community. She hopes that University will hold an ever-closer

debate about socially relevant themes in contemporaneity. She suggested studios and workshops on relevant issues for local communities with collaborative observation sessions and research result presentations as sharing experiences with the University and society. In line with the principles from Faro Convention - 2005, education programs promote a better understanding of Heritage and its relationship to communities and society. Academic research should recognise the place, the meanings and uses that people assign to them. This approach should help finding solutions to the problematic equilibrium between Cultural Heritage preservation and Sustainability dynamic approaches.



**THEORETICAL FRAME AND WORKING EXPERIENCE ARE EQUALLY IMPORTANT IN ACADEMIC PROGRAMS. EDUCATIONAL PATHS SHOULD AIM TO PREPARE PROFESSIONAL FIGURES AWARE OF CULTURAL HERITAGE'S TRANSFORMATION AND CONVEY PAST-TIME VALUES. INCREASING AND IMPLEMENTING ARCHITECTS' CRITICAL THINKING IS NECESSARY TO GRANT THEM THE OPPORTUNITY TO OBTAIN A RELEVANT ROLE IN SOCIETY.**



**Arch. Mario Gemin, Architect and Treasurer of Professional Order of architects, urban planners, landscape designers and conservators of Treviso Province**

## BALANCING THEORY, TOOLS AND PRACTICAL TRAINING IN ACADEMIC PROGRAMS



Experts and practitioners from the different categories agree that theoretical knowledge and operational tools, and practical abilities should always be present in future architects' education. The experts believe that the architectural field theoretical topics and operative tools should interact in academic programs. All the experts consider theoretical, historical, and technological basic teachings as a shared cultural base, which results especially relevant in the first few years of learning. From the master study course, the education should focus on training professional figures aware of their actions and reliability in the building practice. The universities networks and collaborations with public institutions (such as Municipalities, Provinces and Superintendencies) are important tools to implement higher education students' involvement in complex design exercises.

The survey reports (Figure 04) that experts and practitioners prefer a balanced combination, in terms of academic educational activities, on Heritage Awareness and Sustainability of the Built Environment, among theory, tools and practical applications: 40-60 % of Lectures, Seminars, Study and analysis of literature, Site visits and study trips; 40-60% of Laboratory work, Field work, Practical tutorials, Internship, Applied Art Project, Interactive tutorials on software / ICT skills, and Design Project; and 20-40% of Research Thesis, Exams, Public presentation of work.

Q4.3b appropriate proportion of activities in academic education

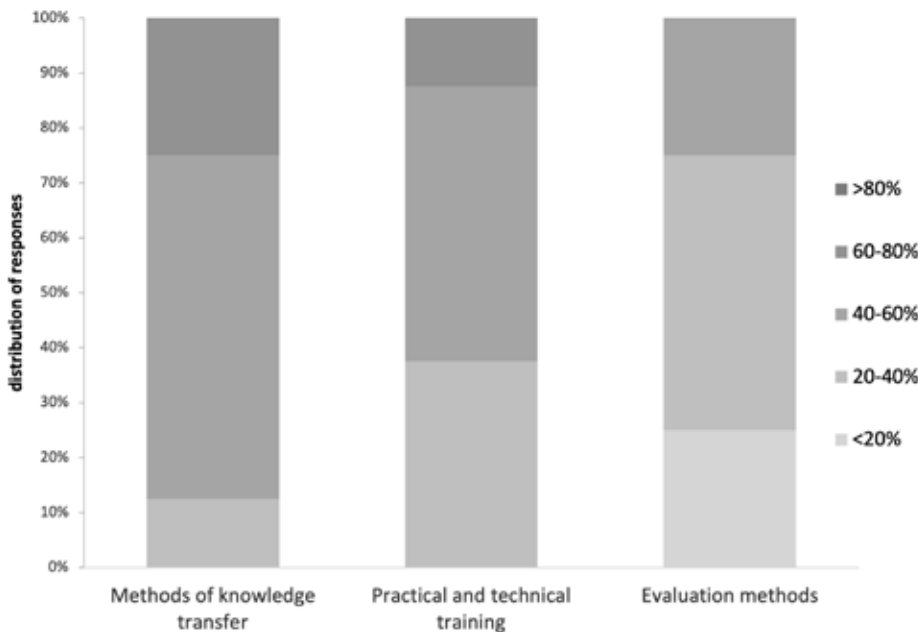


Fig 4. Mapping the proportion of activities in academic education.

## THE SIGNIFICANCE OF KEY CONCEPTS IN EDUCATIONAL PROGRAMS



The survey reports (Figure 05) that experts and practitioners consider *Conservation* and *Cultural Enhancement* as the most relevant key concept in Academical Education (more than 50% with 5). The key concepts related to *Restoration*, *Whole-lifecycle design*, *Regeneration*, and generally about *Reuse* were evaluated with 4 or 5. It results that in educational programs the key concepts related to Cultural Heritage and Sustainability should be integrated.



PARTICIPATORY DESIGN, IN MY OPINION, SHOULD BE DEEPLY INTEGRATED INTO UNIVERSITY EDUCATIONAL PROGRAMS. THE PUBLIC-PRIVATE COLLABORATION AND THE DIALOGUE BETWEEN UNIVERSITIES AND THE THIRD SECTOR ARE CENTRAL THEMES FOR A FUTURE ACADEMIC PERSPECTIVE. THE COOPERATION AND CONTAMINATION BETWEEN SUBJECTS OF DIFFERENT FIELDS WILL PLAY A CENTRAL ROLE IN SUSTAINABILITY AND CULTURAL HERITAGE AWARENESS, AS WELL AS IN DESIGN PRACTICE.



Elena Jachia  
Director of the Environment Area  
– Cariplo Foundation



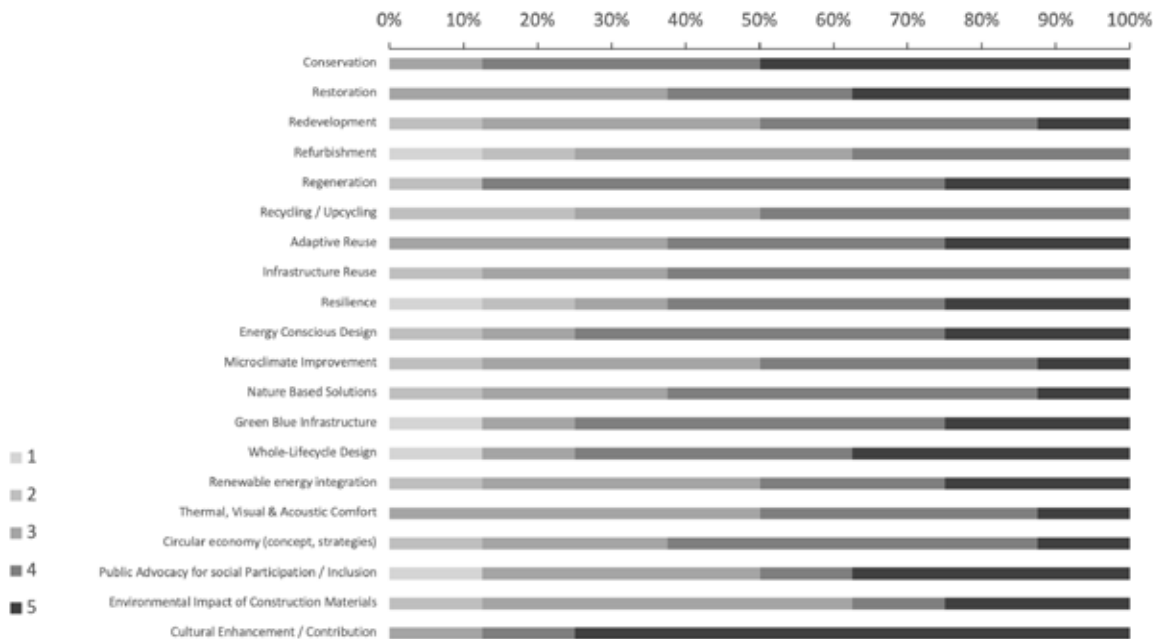


Fig 5. Mapping the significance of Key Concepts of Sustainability and Heritage in academic education.



”

**PRACTITIONERS, WHO WORK WITH CULTURAL HERITAGE, NEED TO DEVELOP INDEPENDENT CRITICAL THINKING. PRACTICE, OPERATIVE TOOLS AND WELL-STRUCTURED ACADEMIC KNOWLEDGE HELP TO FACE WORKING ON BUILDING SITES.**

”

**Arch. Giovanna Battista**  
 Architect - Superintendency  
 for Architectural Heritage and  
 Landscape in Verona, Rovigo e  
 Vicenza



”

**REUSE SHOULD HAVE A WIDER MEANING INCLUDING RESILIENCE AND RESTORATION CONCEPTS. THE CONTEMPORARY PROBLEM OF CITIES WITH SITES NO LONGER SUITABLE FOR THE COMMUNITIES COULD BE SOLVED BY REUSE. THIS APPROACH BECOMES AN OPPORTUNITY TO GIVE BUILDINGS, PLACES AND LANDSCAPES A NEW MEANING, FITTING COMMUNITIES' NEEDS.**

”

**Arch. Raffaella Gianello**  
 Architect in Charge of the technical  
 office - Municipality of Verona

## KEY FACTORS FOR THE IMPROVEMENT OF ARCHITECTURAL EDUCATION IN TERMS OF SUSTAINABILITY AND CULTURAL HERITAGE AWARENESS AND TRAINING



To improve architectural education in terms of Sustainability and Cultural Heritage awareness and training, experts and practitioners suggest different solutions focusing on a synergic perspective of Cultural Heritage and Sustainability. Experimental educational programs should aim to create a more contemporary interdisciplinary approach to improve and facilitate understanding the complex link between communities, territories, resources, and Cultural Heritage. The Interdisciplinary workshops and courses help the students get closer to the professional working situation and enhance the acknowledgement of society's values and local Cultural Heritage.

Architect Elisa Brusegan, Raffaella Gianello and Mario Gemin highlight that the academic environment is a promoter of opportunities for discussions. Students can discuss with local and international experts and practitioners from architecture and other disciplines during academic activities. This opportunity allows students to deal with different methods and develop creative skills through active forms of learning. Among the activities that Universities promote, the experts focus on formative post-graduated experiences, perhaps abroad (such as summer schools), to enlarge and implement their critical ability. In the same way, Architect Giovanna Battista and Marco Chiuso underline how graduated students who work in Sustainability and Cultural Heritage could benefit from attending Specialisation Schools after obtaining their degree to implement their awareness about the role of Cultural Heritage in Sustainable development.



”

**THE RELATIONSHIP BETWEEN ACADEMIC INSTITUTIONS, PROFESSIONAL PRACTICES AND COMMUNITIES IS BUILT THROUGH PARTICIPANTS' COOPERATION AND INVOLVEMENT. LABORATORY ACTIVITIES, COLLECTIVE OBSERVATION SESSIONS AND COMMUNICATION OF RESEARCH RESULTS ARE FUNDAMENTAL TO CREATE CONNECTIONS BETWEEN UNIVERSITIES AND COMMUNITIES.**

”

**Professor Chiara Ocelli  
Councillor of National University  
Council and professor at the  
Politecnico di Torino**

# DISCUSSION / CONCLUSIONS

*The experts share common ideas about some crucial issues, such as the necessity of a multidisciplinary approach in educational programs, the need for a strategical synthesis of Social, Cultural and Environmental themes regarding Sustainability and Cultural Heritage, a better Social Inclusion and Environmental Preservation, and the integration of Third Stream activities in academic courses and programs.*

*According to the experts, Sustainability and Cultural Heritage are complex topics. The practitioners that work with Cultural Heritage ask for a clear educational path to overcome the complexity in architectural design in dealing with Sustainability, Environmental and Cultural Values Preservation.*

*However, there is no clear and univocal definition regarding Sustainability. The meaning of this central issue requires clarification to build common ground and approach different design scales. The interviews enhance the main challenge to consider Cultural Heritage and Sustainability as part of social development.*

*This central topic requires exploring Cultural Heritage's role in sustainable development and integrating cultural values and community concerns with development processes.*

*To face this process, higher educational and post-graduate training courses and programs in the Cultural*



CYPRUS

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## ABSTRACT / CYPRUS / UCY



*This report summarizes the findings of the analysis conducted by the UCY team, in the context of the HERSUS Intellectual Output 2. The analysis is based on 12 questionnaires, prepared by Cypriot experts. The responders can be considered representative for Cyprus as they cover many different professional disciplines (researchers, academic educators, decision makers in NGO or in Professional Society, Practitioners and Policy Makers). They cover the required fields of expertise on Sustainability and Cultural Heritage. The experts' survey has shown that sustainability and heritage seem to play an important role in the experts' everyday practice and research. All the pillars of sustainability (society, economy, environment and culture) are considered to be important by the experts. The experts agree that the key factors for the improvement of architectural education in terms of sustainability and cultural heritage awareness and training are: public awareness, law enforcement, government initiatives and funding. The academics propose the establishment of a closer relationship between the two fields of sustainability and cultural heritage in the curricula of course programs. Furthermore, the experts agree that one of the key factors for the improvement of academic studies in terms of sustainability and cultural heritage training is linking academia and practice through the involvement of stakeholders, governmental bodies and practitioners in graduate programs.*

## Academics

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Nasso Chrysochou

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Michalis Shioulas

Special Teaching Staff member at the  
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of Architecture, Engineering, Land and  
Environmental Sciences

Andreas Savvides

Associate Professor, Department of  
Architecture, University of Cyprus (UCY)

Maria Philokyprou

Associate Professor, Department of  
Architecture, University of Cyprus (UCY)

## Practitioners

Emilia Siandou

Architect (Phd), Associate at UNDP, Cyprus

Maria Costi de Castrillo

Architect Engineer, Practitioner in Conservation  
of Built Heritage

## Policy Makers

Kyriaki Trypiniotou Kalava

Planning officer in the Conservation Sector of  
the Department of Town Planning and Housing

## Decision Makers in NGO / Professional society

Maria Achilleos

Architect Engineer at Cyprus Energy Agency,  
Nicosia

Chrysanthos Pissarides

Architect, President of ICOMOS, Cyprus



Petros  
Lapithis



Georgios  
Artopoulos





Ioannis Ioannou



Nasso Chrysochou



Michalis Shioulas



Andreas Savvides



Maria Philokyprou

Researcher Academic Educator

# A1



Emilia Siandou



Maria Costi de Castrillo

# A2

Practitioner



Kyriaki Trypiniotou Kalava

# A3

Policy Maker  
(Government or local authorities members or consultants)



# A4

Decision Maker in Public Administration  
(Ephorates, Ministries, Devolved Administration)



Maria Achilleos



Chrysanthos Pissarides

# A5

Decision Maker in NGO / Professional Society

## INTRODUCTION



The experts were selected by UCY team according to their professional background in the field of Heritage or/and Sustainability. The coordinator of HERSUS Team of UCY, Prof. Maria Philokyrou contacted 20 experts privately via email and asked them kindly to fill in the questionnaire.

UCY team received 12 responses with complete answers.

The responders can be considered representative for Cyprus as they cover many different professional disciplines. Specifically 7 Researchers and / or Academic Educators (58,88%) , 2 Decision Makers in NGO / or in Professional Society (16, 67%), 2 Practitioners (16.67%) and 1 Policy Maker (local authorities member) (8,33%) participated in the experts' survey .

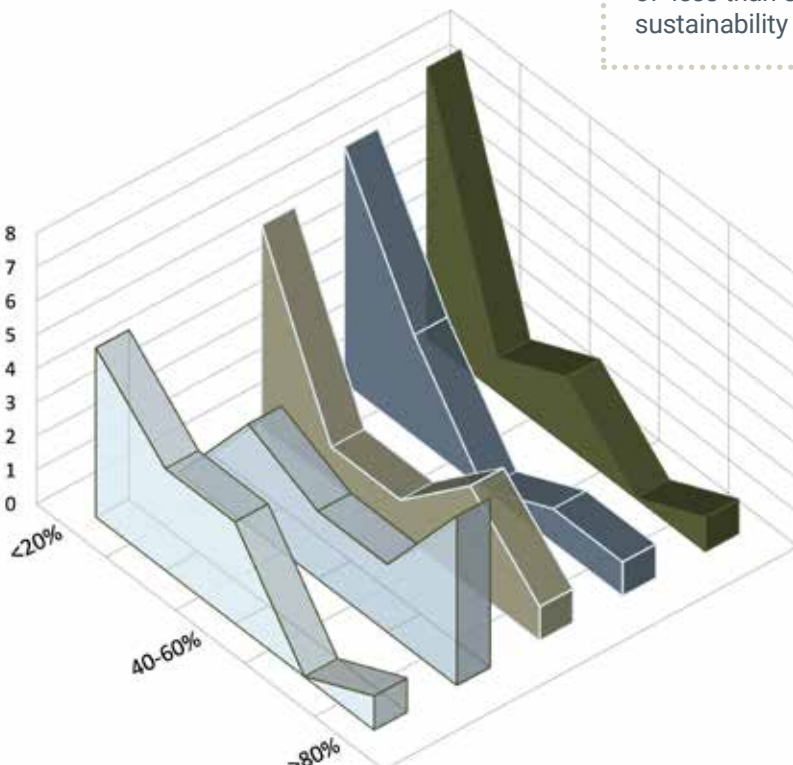
There was a balance in the number of males and females who answered the questionnaire (6 females and 6 males).

57,00 % of the experts possess a PhD , 17,00 % possess a Master Degree, 16,00 % possess a Post Doc degree and only 10,00 % are PhD candidates.

41,67 % of the experts have more than 20 years of experience, 25, 00 % have 15-20 years of experience, 25,00 % have 10-15 years of experience and 8,33 % 0-5 years of experience. 75,00 % have studies in Arts and Humanities, 8,33 % in Technology and Engineering and 16,67 % in other fields. 83,33 % of the experts have made contributions to academic programs while only the rest 16,67 % have no contribution to academic programs.

There is a relevance between the experts' answers with their CVs and their impact on the field of Heritage and/or Sustainability.

Fig 1. Mapping of the various design scales of practice (urban planning, landscape, urban design, architectural design, construction detailing) that the experts are engaged in (responses to Q2.3)



respondents' studies or professional background

There is a diversity of practice that the experts are engaged in. In Construction Detailing/ Interior Design 25% has a range of 20-40% in their practice focusing on sustainability and/ or heritage and the other 25% has a range of 40-60%. Only a small percentage of 8,33% has a range of more than 80% in their practice focusing on sustainability and/or heritage. In Architectural Design 41,67% has a range of more than 80% in their practice focusing on sustainability and/or heritage. In Urban Design 25% of the experts has a range of 60-80% in their practice focusing on sustainability and/or heritage. Only a small percentage of 8,33% noted a range of more than 80% in their practice focusing on sustainability and/ or heritage. In Urban Planning 25% of the experts has a range of 20-40% in their practice focusing on sustainability and/or heritage. Only a small percentage of 8,33% has a range of over 80% in their practice focusing on sustainability and/or heritage. 16.67% of the experts has a range of 40-60% in their practice focusing on sustainability and/ or heritage. Only a small percentage of 8,33% has a range of less than 80% in their practice focusing on sustainability and/or heritage.

**Q2.3  
Proportion of Different  
Scales of Design  
in the Experts' Workfield**

- Construction detailing
- Architecture
- Urban design
- Urban planning
- Landscape design

# PRESENCE/AWARENESS OF ISSUES OF SUSTAINABILITY AND HERITAGE IN PRACTICE

## THE IMPORTANCE / AWARENESS OF SUSTAINABILITY AND HERITAGE IN PRACTICE/RESEARCH



Questions Q2.1a, Q2.1b, Q2.2a, and Q2.2b focus on the importance/awareness of sustainability and heritage in the experts' everyday practice/research. For the majority of the experts, sustainability and heritage play a very important role in their everyday practice/research. The driving force behind the focus on sustainability and heritage in the experts' practice in addition to their own initiatives are the strict requirements and the legislation restrictions. In some cases the client and / or public awareness and sensitivity contributes positively to the outcomes of a project. The funded research projects fill the requirements of the organizations in accordance to sustainability and/or heritage.

The majority of the experts consider that their colleagues are aware of the key principles of sustainability and preservation of heritage. The issues of sustainability and heritage protection became an integral part of historic areas regeneration efforts, planning processes and urban design. However, the majority thinks that these concepts are not adequately integrated in the main body of architectural academic studies.



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THEORY SHOULD BE ADDRESSED IN A MORE APPLIED SETTING AND NOT CONSTITUTE A HUGE PART OF THE EDUCATIONAL CURRICULUM ON ITS OWN. THROUGH PRACTICAL EXPERIENCE ON REAL CASE STUDIES, THE MENTOR/ PROFESSOR MAY THEN PRESENT THE THEORETICAL KNOWLEDGE BASIS NECESSARY FOR THE STUDENTS IN ORDER SO THAT THEY MAY APPROACH THE CASE IN A FOCUSED WAY.

”

**Maria Costi de Castrillo,**  
Architect Engineer, Practitioner in  
Conservation of Built Heritage

ES

”

I CONSIDER IT CRUCIAL TO TAKE A STEP FORWARD FROM THE TRADITIONAL CONCEPTS AND METHODS OF CONSERVATION/HERITAGE TEACHING IN ARCHITECTURAL EDUCATION AND TOWARDS MORE CONTEMPORARY CONSIDERATIONS OF HERITAGE WHICH ARE MORE INTERTWINED WITH THE CONCEPTS OF SUSTAINABILITY, SUCH AS PREVENTIVE CONSERVATION, VALUE-BASED APPROACHES, ADAPTIVE REUSE, PARTICIPATORY APPROACHES IN HERITAGE ETC.

”

**Emilia Siandou, Architect,**  
Associate at UNDP, Cyprus

## RELEVANCE OF KEY CONCEPTS IN PRACTICE/ACADEMIA/DECISION MAKING/POLICY MAKING



Question Q2.4a focuses on HERSUS' key concepts of *Reuse*, *Restoration* and *Resilience* and asks experts to comment on their relevance, in their work environment. Most of the experts consider *Reuse* and *Restoration* as the most relevant concepts in their work environment. Question 2.4 b asks experts to rate, on a scale from 1 to 5, the relevance of 20 key concepts in the context of the different ranges of design/research practice in their work field.

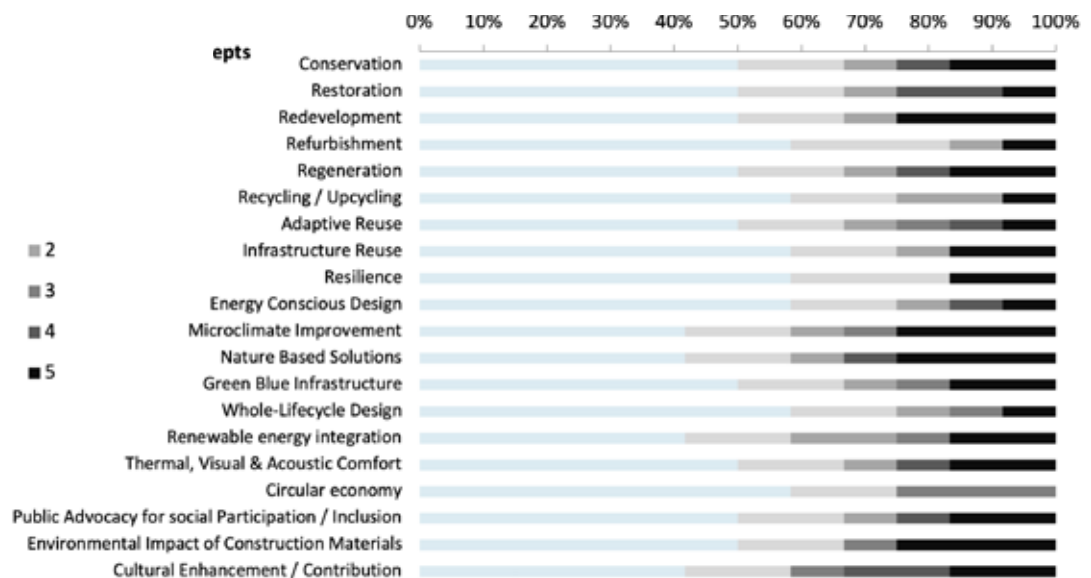
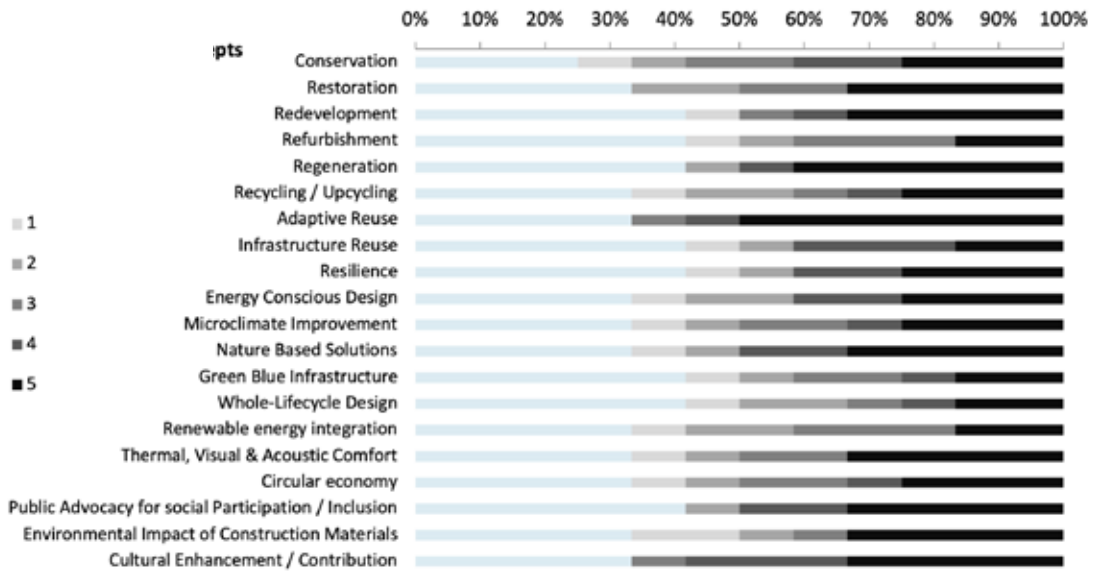
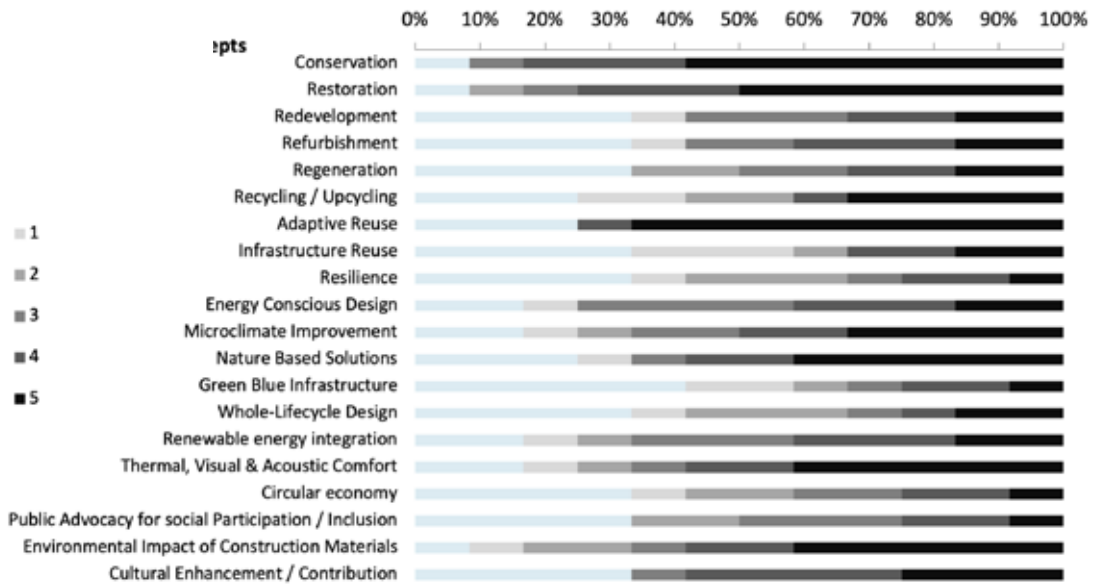
In the context of *Construction Detailing*, *Interior Design & Architectural Design* the relevance of the key concept of *Adaptive Reuse* is of maximum relevance for 66,67% of respondents. *Conservation* is of maximum relevance for 58,33% of the experts. *Restoration* is of maximum relevance for 50,00% of respondents. *Nature Based solution*, *Thermal Visual and Acoustic Comfort*, *Environmental Impact of Construction Materials* are of maximum relevance for 41,67% of respondents. *Recycling/Upcycling* and *Microclimate improvement* are of maximum relevance for the 33,33%. *Cultural Enhancement/Contribution* is of maximum relevance for 25,00% of respondents. *Redevelopment Refurbishment*, *Regeneration*, *Infrastructure Reuse*, *Energy Conscious Design*, *Whole-Lifecycle Design* and *Renewable energy integration* are of maximum relevance for 16,67% of respondents. *Resilience*, *Green Blue Infrastructure* and *Public Advocacy for Social Participation/ Inclusion* are of maximum relevance only for 8,33% of respondents.

In the context of *Urban Design and Urban Planning* the relevance of the key concept of *Adaptive Reuse* is of maximum relevance for 50,00% of the experts. *Regeneration* is of maximum relevance for 41,67% of respondents. *Restoration*, *Redevelopment*, *Nature Based Solutions*, *Thermal, Visual and Acoustic Comfort*, *Circular Economy*, *Public Advocacy for social Participation/Inclusion*,

*Environmental Impact of Construction Materials and Cultural Enhancement/Contribution* are of maximum relevance for 33,33% of respondents. *Conservation*, *Recycling/Upcycling*, *Energy Conscious Design* and *Microclimate Improvement* are of maximum relevance for 25,00% of respondents. *Green Blue Infrastructure*, *Whole-Lifecycle Design*, *Infrastructure Reuse*, *Refurbishment* and *Renewable Energy integration* are of maximum relevance for only 16,67% of respondents.

In the context of *Landscape Design*, the relevance of the key concepts of *Redevelopment*, *Microclimate Improvement*, *Nature Based Solutions*, *Environmental Impact of Construction Materials* are of maximum relevance for 25,00% of the experts. The key concepts of *Conservation*, *Regeneration*, *Infrastructure Reuse*, *Resilience*, *Green Blue Infrastructure*, *Renewable Energy Integration*, *Thermal Visual and Acoustic Comfort*, *Public Advocacy for social participation/ Inclusion* and *Cultural Enhancement/Contribution* are of maximum relevance for 16,67% of respondents. *Restoration*, *Refurbishment*, *Recycling/Upcycling*, *Adaptive Reuse*, *Energy Conscious Design* and *Whole-Lifecycle Design* are of maximum relevance for only 8,33% of respondents. None of the experts consider *Circular economy* of maximum relevance in the context of *Landscape Design*.

Fig 2. Mapping of Key Concepts' relevance in the context of Design



## PILLARS OF SUSTAINABILITY IN THE DECISION MAKING PROCESS



All the pillars of sustainability (society, economy, environment and culture) are considered to be important by the experts. The prevailing opinion is that all of them should be considered together and not as separate entities.



**ALL OF THE PILLARS OF SUSTAINABILITY (SOCIETY / ECONOMY / ENVIRONMENT / CULTURE) ARE IMPORTANT WITH DIFFERENT HIERARCHIES DEPENDING ON A CASE BY CASE BASIS.**



**Andreas Savvides, Associate Professor, Department of Architecture, University of Cyprus**



# COMPETENCES IN RELATION TO SUSTAINABILITY AND HERITAGE IN PRACTICE

## AWARENESS OF SKILL LEVEL OF GRADUATES FROM ACADEMIC STUDY PROGRAMS DEALING WITH SUSTAINABILITY AND/OR CULTURAL HERITAGE



The majority of the experts have marked limited cooperation with graduates from academic study programs dealing with sustainability and/or cultural heritage during the last 10 years. The minority who works often with such graduates expresses the opinion that the graduates have adequate theoretical knowledge but need more experience in practice and training.



BY CREATING OPPORTUNITIES FOR STUDENTS TO CONDUCT SECONDMENTS IN THE INDUSTRY WOULD BE BENEFICIAL IN BRIDGING THE GAP BETWEEN ACADEMIC EDUCATION AND PROFESSIONAL PRACTICE. STUDENTS WILL ACQUIRE TRANSFERABLE SKILLS AND KNOWLEDGE FROM THE FIELD. IN ADDITION, THEIR TEACHERS WILL HAVE TO PROVIDE NECESSARY SUPPORT AND INPUT FOR THE STUDENTS TO BE ABLE TO CAPITALIZE ON THE EXPERIENCES DRAWN FROM PRACTICE.



Georgios Artopoulos. Assistant Professor, The Cyprus Institute

## QUALITY AND LEVEL OF SKILLS AND KNOWLEDGE OBTAINED FROM ACADEMIC EDUCATION IN RELATION TO THOSE EXPANDED IN THE WORK ENVIRONMENT



More than 50% (58,33%) of the experts believe that the graduates obtain a high level (5) of comprehension of the *fundamentals* and a good level (4) of *technical competencies* (drawing-construction) through academic programs. 50 % of the experts consider that the graduates obtain a high level of *presentation and communication skills* through academic programs. 41,67% believe that the graduates obtain a good level (4) of knowledge of *current state of the art*, a medium level (3) of knowledge of *international context*, a good level (4) of knowledge of *analytic tools and methods (+ software)*, a low level (2) of *internship/practice experience*, a medium level (3) of *specialist environmental design skills* and a low level (2) of *interdisciplinary cooperation skills* through academic programs. Moreover 41,67% have the opinion that the academic programs do not train graduates in *managerial and administrative skills*. 33,33% of the experts have the belief that the graduates obtain a medium level (3) of knowledge of *local Legislation/Regulatory framework* and *specialist environmental design skills* through academic programs. As far as *raising awareness* is concerned, some of the experts think that the academic programs do not cultivate awareness whereas some others feel that the academic programs cultivate awareness.

75,00% of the experts believe that the graduates obtain a high level (5) of *internship/practical experience* through the work environment. 58,33% assume that the graduates obtain a high level (5) of knowledge of *local legislation/ regulatory framework* and *practical awareness* through the work environment. 50,00% is convinced that the graduates obtain a high level (5) of *managerial/administrative skills* and *interdisciplinary cooperative skills* through practice. 41,67% believe that graduates obtain a good level (4) of *comprehension of*

*fundamentals* and a high level (5) of *technical competencies* (drawing/construction) and knowledge of *analytic tools and methods (+software)* through practice. 33,33% express the opinion that the graduates acquire a high level (5) of knowledge of *current state of art*, *specialist environmental design skills*, a good level (4) of *specialist conservation/ restoration skills* and *presentation communication skills* but no knowledge of *international content/ legislation/regulation* through the work environment.

Question 3.2 b refers to other skills/ knowledge that could be obtained through the academic programs for sufficiently addressing challenges related to sustainability and heritage in the academic, research, institutional, and/or professional context. The experts express the opinion that academic programs could focus more on promoting more practical and technical skills, developing critical thinking and teaching students to evaluate and assess every case based on practical and theoretical aspects from a holistic point of view.

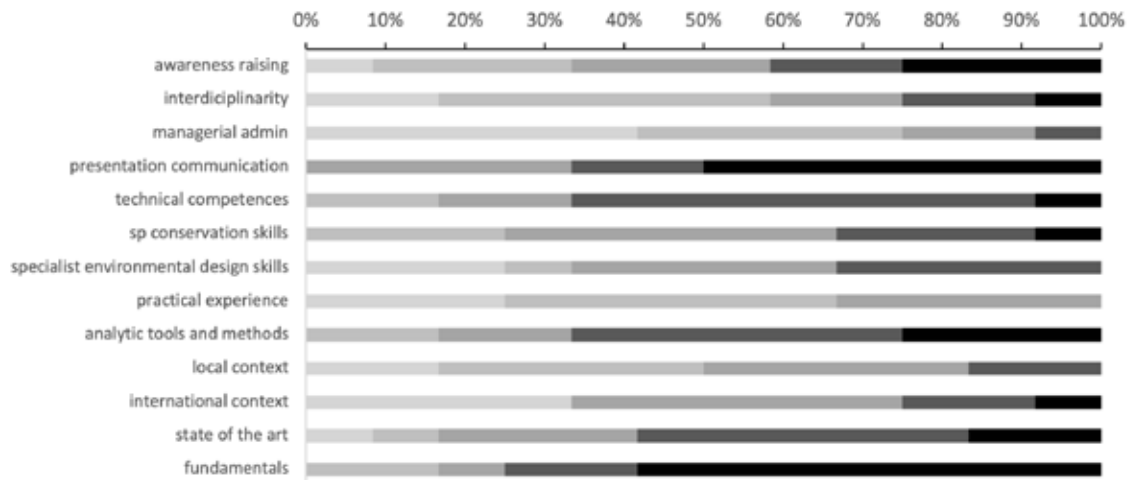


**AWARENESS AND TRAINING AROUND SUSTAINABILITY AND CULTURAL HERITAGE CAN BE IMPROVED BY INTEGRATING THESE CONCEPTS INTO A WIDE RANGE OF COURSES WHICH ARE NOT DEDICATED SPECIFICALLY TO THEM. SUCH AN APPROACH WOULD HAVE VERY STRONG RESULTS BY EFFECTIVELY IMPROVING AWARENESS AND TRAINING AROUND SUSTAINABILITY AND CULTURAL HERITAGE.**



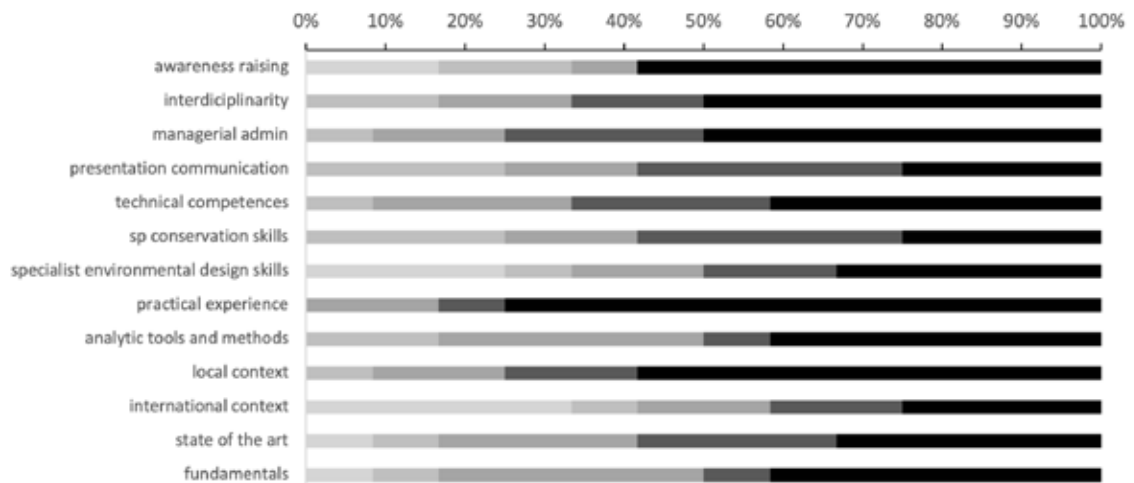
**Michalis Shioulas, Special Teaching Staff member at the Neapolis University Paphos (NUP) School of Architecture, Engineering, Land and Environmental Sciences**

**Q3.2a Skills obtained through academic programs**



ACADEMIC PROGRAMS

**Q3.2a Skills obtained through practice/ work environment.**



PRACTICE

Fig 3. Mapping of the quality and level of skills and knowledge of graduates.

# REQUIREMENTS IN THE CONTEXT OF ACADEMIC PROGRAMS ON SUSTAINABILITY AND HERITAGE

## IDENTIFYING AND OVERCOMING KNOWLEDGE GAPS IN EXISTING ACADEMIC PROGRAMS



According to the experts, the main knowledge limitation / problem in the existing academic programs of Cyprus in the context of sustainability of the built environment and/ or heritage awareness is the absence of close interrealation between sustainabiliy and heritage in the curricula of the two existing graduate courses on conservation and sustainability of the University. The courses on conservation focus on cultural heritage whereas courses on sustainability focus on energy and sustainable development. Despite the fact that there are some interrelations, there is room for even more interconnections.



A CLOSER RELATIONSHIP BETWEEN THE TWO TERMS SUSTAINABILITY AND CULTURAL HERITAGE IS VERY IMPORTANT. THE TWO TERMS SHOULD BE COMBINED IN GRADUATE STUDIES. WITH THIS COMBINATION THE STUDENTS WILL BE BETTER PREPARED TO DEAL WITH THE CURRENT PROBLEMS AND TO GIVE SOLUTIONS THAT ARE FRIENDLY TO THE ENVIRONMENT AND AT THE SAME TIME EXHIBIT RESPECT TO THE ARCHITECTURAL HERITAGE.



**Maria Philokyprou**  
Associate Professor, Department  
of Architecture, University of  
Cyprus (UCY)

## BALANCING THEORY, TOOLS AND PRACTICAL TRAINING IN ACADEMIC PROGRAMS



The majority of the experts agree that the gap between academic education and professional practice in the fields of sustainability of the built environment and cultural heritage can be overcome with the introduction of courses with a practical orientation, more visits to construction sites to view work in progress and more involvement in the teaching process of professionals in the field of conservation and sustainability, structured internships coupled with continued professional development activities.

66,67% of the experts believe that the appropriate proportion of the Methods of knowledge transfer are the following: *Lectures, Seminars, Study and analysis of literature, site visits, study trips* in academic programs focusing on sustainability and heritage should be around 20-40% of the academic program. 33.33% of the experts

express the opinion that Practical and technical training such as: *Laboratory work, Field work Practical tutorials, Internship, Applied Art Project, Interactive tutorials on software / ICT skills, Design Project* should be in a 40-60% ratio and 33.33% believe that the proportion should be more than 80% of the program. Half of the experts believe that the Evaluation methods such as: *Research Thesis, Exams, Public presentation of work* should constitute 20-40% of the academic program.

Q4.3b appropriate proportion of activities in academic education

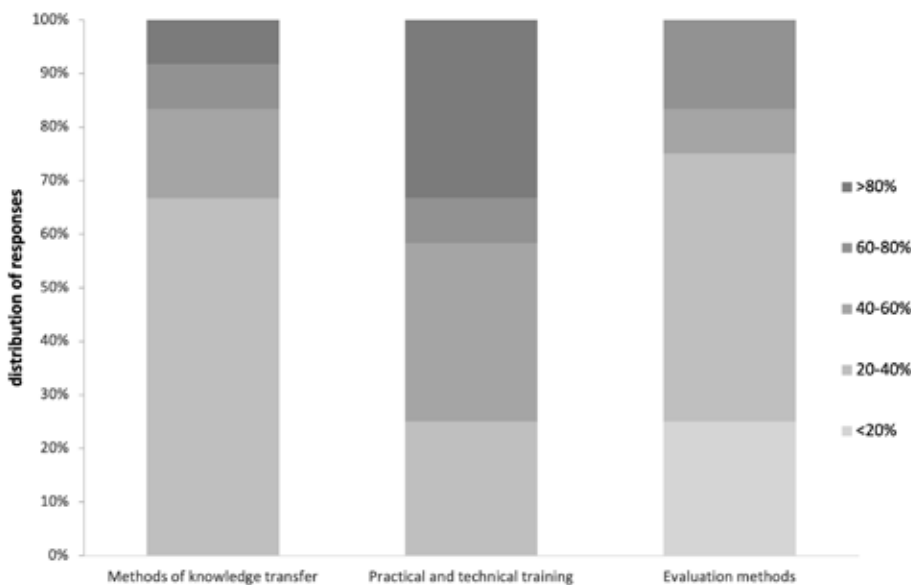


Fig 4. Mapping the proportion of activities in academic education.

## THE SIGNIFICANCE OF KEY CONCEPTS IN EDUCATIONAL PROGRAMS



This question states the significance of Key concepts of sustainability and heritage which should be addressed in the context of academic education. 83,33 % of the experts believe that the key concept of *restoration* should be of utmost importance (5) in the context of academic education. 75,00% assume that *adaptive reuse* and *cultural enhancement/ contribution* should be of utmost importance (5) in the context of academic education. 66,67% think that *conservation* should be of utmost importance (5) in the context of academic education. 58,33% express the opinion that the key concepts of *redevelopment, regeneration and energy conscious design, microclimate improvement and nature based solutions* should be of utmost importance (5) in the context of academic education. Half of the experts are convinced that *thermal, visual and acoustic comfort, recycling/ upcycling and circular economy* (concept, strategies) should be of utmost importance (5) in the context of academic programs. 41.67% consider *refurbishment, whole-lifecycle design* as well as *public advocacy for social participation/inclusion and environmental impact of construction materials* should be of utmost (5) and high (4) importance respectively in the context of academic education. *Infrastructure reuse, resilience and renewable energy integration* are marked by 33,33% of the experts to be of medium importance (3). Only the 25,00% consider *green blue infrastructure* as an important pillar of academic programs.

CP

”

**ACADEMIC EDUCATIONAL ACTIVITIES SHOULD PLACE THE SAME EMPHASIS ON ALL LEARNING OUTCOMES, BY LINKING THEORY TO REAL-WORK ENVIRONMENTS AND FIRST-HAND EXPERIENCES.”. THE IMPACT OF EDUCATION IN MAKING STUDENTS AWARE AS TO THE PRESERVATION, PROMOTION AND SUSTAINABLE DEVELOPMENT OF CULTURAL HERITAGE, CAN PERHAPS BE STRENGTHENED BY ENGAGING STUDENTS IN CULTURAL EVENTS AND VISITS TO MUSEUMS, HERITAGE SITES, HISTORICAL CENTERS ETC**

”

**Chrysanthos Pissarides**  
Architect, President of ICOMOS,  
Cyprus

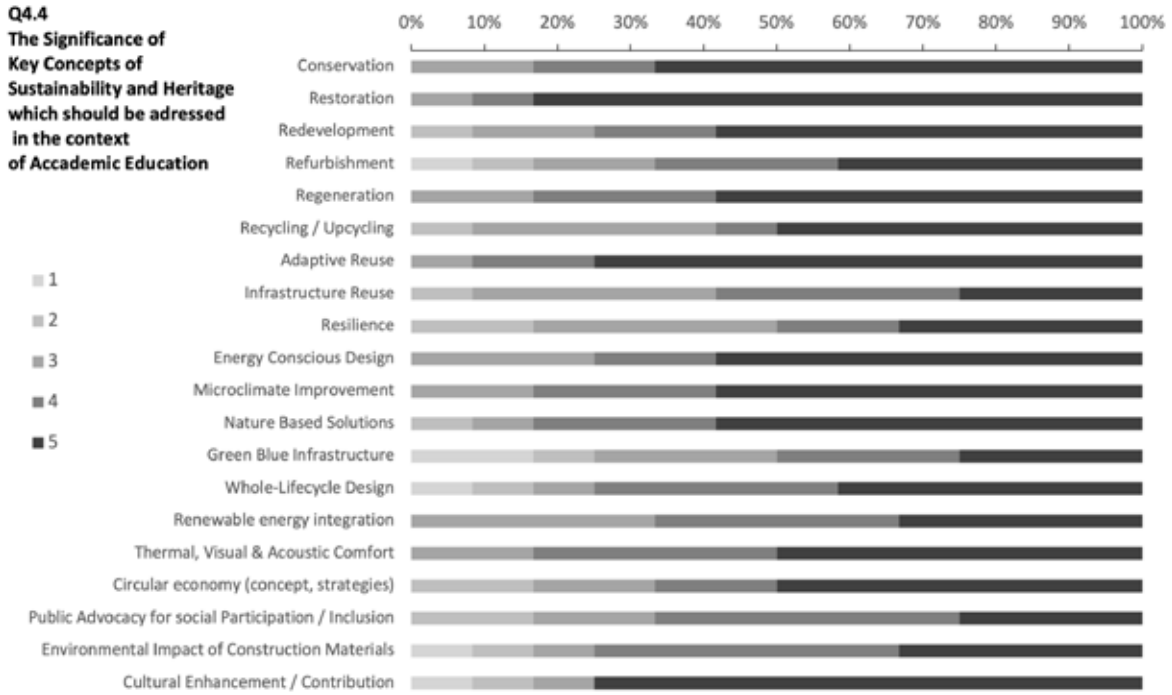


Fig 5. Mapping the significance of Key Concepts of Sustainability and Heritage in academic education.



”

THERE IS A NEED TO MENTION AND PRESENT THE INTERCONNECTIONS BETWEEN SUSTAINABILITY AND HERITAGE. IF YOU HAVE A SUSTAINABILITY/ENVIRONMENTAL/ENERGY PROGRAM, IT IS IMPORTANT TO MENTION THE HERITAGE ASPECTS THAT MIGHT BE ENHANCED OR AFFECTED BY THIS, AND VICE VERSA. THIS CAN BE ACHIEVED NOT BY CHANGING THE WHOLE CURRICULUM BUT BY DEDICATING A FEW HOURS TO PRESENT GOOD PRACTICES/REAL LIFE CASE STUDIES.

”

**Maria Achilleos, Architect Engineer at Cyprus Energy Agency**

KEY FACTORS FOR THE  
IMPROVEMENT OF  
ARCHITECTURAL EDUCATION  
IN TERMS OF SUSTAINABILITY  
AND CULTURAL HERITAGE  
AWARENESS AND TRAINING



The experts agree that the key factors for the improvement of architectural education in terms of sustainability and cultural heritage awareness and training are: public awareness, law enforcement, government initiatives and funding. As far as the current course programs in Cyprus are concerned, the academics propose a closer relationship between the two terms – sustainability and cultural heritage – in graduate studies. The combination of cultural heritage, conservation and sustainability is of great importance. With this combination the students will be more ready to deal with current challenges and give solutions friendly to the environmental and at the same time with respect to architectural heritage.





”

AS ENVIRONMENTAL AND SOCIAL PROBLEMS BECOME EVER MORE PROMINENT IN OUR GLOBAL COMMUNITY, THERE IS AN INCREASING NEED FOR ATTENTION TO THE PRINCIPLES OF SUSTAINABILITY, DECISION MAKING, DESIGN AND CONSTRUCTION OF BUILT SPACE. THE MA-PROGRAM ADDRESSES THIS NEED BY DEVELOPING A PRO-ACTIVE APPROACH TO CHANGE, INFORMED BY THE VALUES OF SOCIO-ENVIRONMENTAL, ECONOMIC AND CULTURAL SUSTAINABILITY AND BY EMPLOYING GOOD DESIGN AND APPROPRIATE TECHNOLOGY. ”

**Petros Lapithis, Professor at the Architecture Department, University of Nicosia**

KTK

”

THE PILLAR OF SOCIETY IS THE MOST IMPORTANT PILLAR OF SUSTAINABILITY. WE TEND, MORE AND MORE, TO GIVE SOCIETY THE OPPORTUNITY TO DECIDE WHAT TO PRESERVE, WHY TO PRESERVE IT AND HOW TO PRESERVE IT, IN ORDER TO ACHIEVE SUSTAINABLE DEVELOPMENT, ECONOMIC GROWTH AND PROTECTION OF THE ENVIRONMENT.

”

**Kyriaki Trypiniotou Kalava**  
Working as a planning officer in the Conservation Sector of the Department of Town Planning and Housing, dealing solely with preservation of listed buildings issues

# DISCUSSION / CONCLUSIONS

*The UCY team received 12 complete responses from various professional fields (academia, research, governmental bodies, etc.). The Experts Survey gave indications of the experts' background, the presence/ awareness of issues of sustainability and heritage in practice, the competencies in relation to sustainability and heritage in practice and the requirements in the context of academic programs on sustainability and heritage.*

*As far as the background of the experts is concerned, the majority of the experts are researchers / academics, with background in Arts and Humanities, they are holders of a PhD, and have more than 20 years of relevant experience and with high contribution to academic programs.*

*Sustainability and heritage seem to play an important role in the experts' everyday practice and research. The driving force behind the focus on sustainability and heritage in contemporary practice, for most of the experts is their own initiative, as well as the strict requirements and legislation restrictions. They consider most of their colleagues and collaborators well aware of key concepts and principles of sustainability and heritage. However, the majority express the opinion that the concepts of sustainability and heritage are not adequately integrated in the*



GREECE

✕

Konstantinos Sakantamis  
Alkmini Paka  
Maria Dousi  
Kleio Axarli  
Sofoklis Kotsopoulos  
Angeliki Chatzidimitriou

GREECE

04

ABSTRACT / GREECE / AUTH



*The present report displays the findings of the analysis of the Greek experts' questionnaires, in the context of the HERSUS IO2 survey. The ten respondents, representing adequate variety and experience in the fields of sustainability and heritage also have a high degree of involvement in academia. Based on the findings, all experts agree that the concepts of sustainability and heritage should be integrated in the context of a single corpus that transcends both undergraduate and postgraduate academic programs. Special emphasis should be further put on interdisciplinarity, and on linking education and practice through the involvement of relevant stakeholders, institutions, and professionals in postgraduate studies.*

## **Academics**

Eleftheria Tsakanika

Civil Engineer, Assistant Professor, School of Architecture, National Technical University of Athens

Katerina Tsikaloudaki

Civil Engineer, Associate professor School of Civil Engineering, Laboratory of Building Construction & Building Physics - L.B.C.P., Aristotle University of Thessaloniki

## **Practitioners**

Morpho Papanikolaou

Founding Partner & Senior Architect at MP SPARCH Architects

Michael Konstantinos Nomikos

Architect, Emeritus Professor, School of Architecture, Aristotle University of Thessaloniki

## **Policy Makers**

Natalia Pantelidou

Deputy Mayor of Public Works, Municipality of Kalamaria

Polyxeni Adam Veleni

General Director, General Directorate of Antiquities ' Cultural Heritage, Greek Minister of Culture and Sports

## **Decision Makers in Public administration**

Paraskevi Kourti

Managing Director of Strategic Planning, Urban Development & Funding of Pavlos Melas Municipality (Thessaloniki)

Dimitrios Zygomas

Deputy Director and Head of Department, Ephorate of Modern Monuments and Technical Works of Central Macedonia, Hellenic Ministry of Culture and Sports

## **Decision Makers in NGO / Professional society**

Kleopatra Theologidou

President of the Thessaloniki Branch, Greek Society for the Environment and Cultural Heritage

Prodromos Nikiforidis

Architect, Chairman of the Standing Committee on Architectural Issues of the Technical Chamber of Greece / Department of Central Macedonia



# A1

Eleftheria  
Tsakanika

Katerina  
Tsikaloudaki

Researcher Academic  
Educator



# A2

Morpho  
Papanikolaou

Michael  
Konstantinos  
Nomikos

Practitioner



# A3

Natalia  
Pantelidou

Polyxeni  
Adam  
Veleni

Policy Maker  
(Government or local  
authorities members or  
consultants)



# A4

Paraskevi  
Kourti

Dimitrios  
Zygomalas

Decision Maker in  
Public Administration  
(Ephorates, Ministries,  
Devolved Administration)



# A5

Kleopatra  
Theologidou

Prodromos  
Nikiforidis

Decision Maker in  
NGO / Professional  
Society

# INTRODUCTION



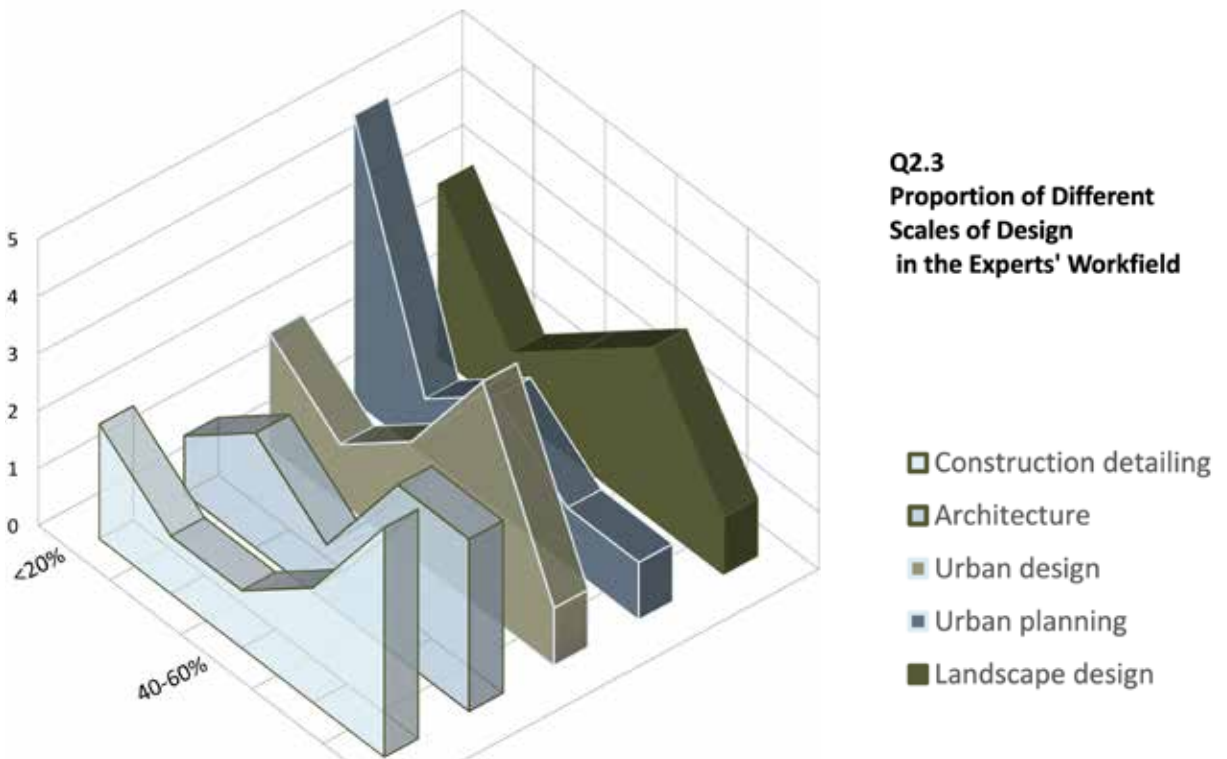
The research sought to engage a wide variety of experts as specified in Part 1 of this report. These were identified through consecutive meetings among all the Hersus AUTH team members who nominated a large number of experts to be contacted. After an initial selection process, twelve experts were contacted to provide feedback and ultimately ten submitted complete responses to the questionnaire. Overall, the experts represent the desired ratio of 20% from each category. Moreover, in terms of their gender, there is an imbalance favouring female respondents (70%) over male (30%). Most of them (70%) are very experienced, declaring to have more than 20 years of experience in the field, while only one respondent declared having 1-5 years of experience. Out of the ten experts, five are holders of PhD titles, while out of the remaining five three hold Masters' degrees in either heritage or sustainability. Furthermore, eight out of ten experts declare to have made contributions to academic programs in the past, possibly indicating a sufficient understanding of current academic practices and procedures.



respondents' studies or professional background

As for the experts' professional activity (figure 1), they seem to deal with a wide range of design scales, confirming the variety of expert profiles that the research sought to engage. It is only in the case of urban planning that almost half of the respondents claim that the field constitutes less than 20% of their activity. Overall, the responses received in section 1 of the Experts' Questionnaire confirm the variability in profiles, the high degree of involvement in academia and considerable experience in the field, which are all considered important parameters for the evaluation of the quality and results of the survey.

Fig 1. Mapping of the various design scales of practice (urban planning, landscape, urban design, architectural design, construction detailing) that the experts are engaged in (responses to Q2.3)



# PRESENCE/AWARENESS OF ISSUES OF SUSTAINABILITY AND HERITAGE IN PRACTICE

## THE IMPORTANCE / AWARENESS OF SUSTAINABILITY AND HERITAGE IN PRACTICE/RESEARCH



Reviewing the experts' answers it appears that, depending on their professional practice and their educational background, the emphasis on the importance of the two concepts (sustainability and heritage) varies from a balanced relationship of 50-50% to a heterogeneous relationship of 80-20% while even in the most imbalanced condition neither one is totally ignored.

According to the respondents' views, the heritage-related projects that involve legal provisions or guidelines related to sustainability issues are quite rare. It is mainly through the experts' initiative that parameters related to sustainability are considered in heritage-related projects and due to by public sector's service requirements or initiatives of the clients involved. However, experts declare an optimistic prospect that such correlations of sustainability and heritage will dominate the respective projects.

In terms of their colleagues and collaborators, most of the experts' answers converge on the view that they are mostly specialized through postgraduate programs – a prerequisite for their selection – but they are considerably lacking practical experience and training. Architect-engineers appear to be more well-informed than graduates of other fields of engineering, like civil engineers or electrical engineers. According to the experts' views, employees or supervisors of Public Services appear to be less competent or not even aware of sustainability and/or heritage key issues.

Depending on the respondents' professional practice (academics, freelancers, practitioners etc.) there are quite diverse answers to this specific question. They seem to agree that there are differences between the existing undergraduate curricula of the Greek Schools of Architecture in relation to these concepts. However, it is generally accepted that the concepts of sustainability and heritage are better addressed in relevant postgraduate programs but not in relation to each other. All experts express the wish for a more systematic effort to correlate these two concepts, both at undergraduate and postgraduate levels.



”

THE CORRELATION OF HISTORIC BUILDINGS RESTORATION TO SUSTAINABILITY DOES NOT USUALLY FORM PART OF PROJECT BRIEFS. THIS WAS MADE MAINLY ON OUR INITIATIVE. ESPECIALLY IN PUBLIC PROJECTS, A PERSISTENT EFFORT WAS NEEDED, WHILE IN PRIVATE PROJECTS IT WAS A WISH OF THE OWNERS. ONLY RECENTLY, 2021 THE COMPETITION: INTEGRATION OF UNIVERSITY BUILDINGS IN OLD TANNERIES, CORRELATED THE 2 CONCEPTS IN THE PROJECT BRIEF.

”

**Michael Konstantinos Nomikos**  
Architect, Emeritus Professor,  
School of Architecture, Aristotle  
University of Thessaloniki



”

USUALLY THE APPROACH ON THE ARCHITECTURAL CONCEPT FOCUSES ON THE PROGRAMMING, THE ARCHITECTURAL IDENTITY AND THE SPATIAL ATMOSPHERE OF EACH PROJECT. AT THE SAME TIME VENTILATION, INSULATION, SHADING AS WELL AS LIGHTING ARE EQUALLY USED IN THE ARCHITECTURAL DESIGN PROCESS. DURING THE PAST DECADE OUR PRACTICE HAS WORKED ON MORE THAN TEN PROJECTS FOLLOWING SUSTAINABILITY GUIDELINES AND WITH A SPECIAL FOCUS ON ARCHITECTURAL HERITAGE

”

**Morpho Papanikolaou**  
Founding Partner & Senior  
Architect at MP SPARCH Architects

## RELEVANCE OF KEY CONCEPTS IN PRACTICE/ACADEMIA/DECISION MAKING/POLICY MAKING



According to the respondents' views, as shown in figure 02a, the key concepts of *Conservation, Restoration* and *Cultural Enhancement / Contribution* are the most relevant in the specific context. Specifically, at least 70% of the experts consider these concepts as being absolutely essential. At a second level, more than 40% of the experts have evaluated the key concepts of *Refurbishment* and *Adaptive Reuse* as absolutely essential. On the contrary, the concepts of *Green Blue Infrastructure* and the *Integration of renewable energy sources* are considered to be minimal relevance.

Regarding the key concepts in the context of *Landscape Design* (figure 02b), the answers differ. The dominant concepts are *Regeneration, Resilience, Microclimate Improvement* and *Nature Based Solutions*. The only common key concept with the context of *Architectural Design* is *Cultural Enhancement / Contribution*, receiving high relevance marks (above 4) by 70% of the respondents. A remarkable element stemming from the answers of the experts is that no concept has an absolute relevance of more than 50-60%. Receiving the lowest percentages are the concepts of *Recycling / Upcycling, Energy Conscious Design* and *Circular economy*, as well as *Conservation* and *Restoration*.

Finally, as seen in figure 02c, referring to the scale of *Urban Design and Planning*, the key concept of *Cultural Enhancement / Contribution* receives the largest percentage, on par with *Redevelopment* and *Regeneration*. The concepts of *Microclimate Improvement, Nature Based Solutions* and *Thermal, Visual & Acoustic Comfort* also receive relatively high ratings. According to experts, least relevant are the key concepts of *Refurbishment, Recycling / Up-cycling, Infrastructure Reuse, Energy Conscious Design, Whole-Lifecycle Design* and *Circular economy*.



THANKS TO OUR EXPERIENCE AND THROUGH OUR ARCHITECTURAL PRACTICE WE APPLY THE CONCEPTS OF REUSE AS A "RECYCLING" APPROACH AND RESTORATION AS MEMORY OF SPACE, MORPHOLOGY AND MATERIALITY.



**Morpho Papanikolaou**  
Founding Partner & Senior Architect at MP SPARCH Architects

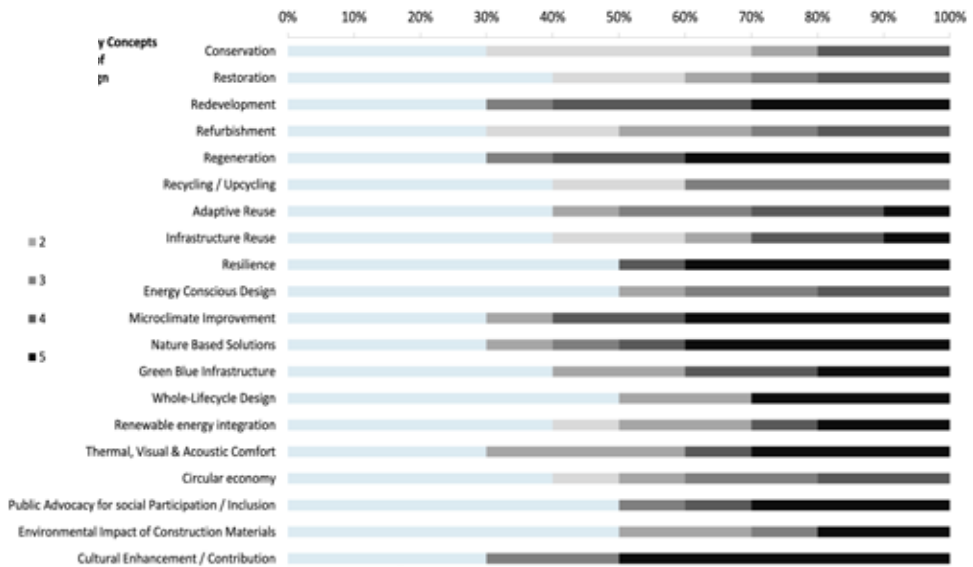
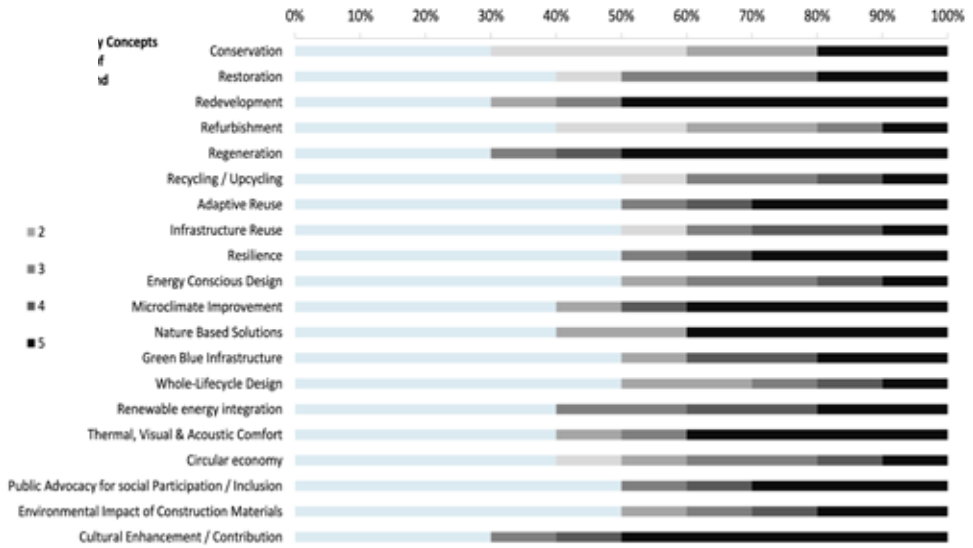
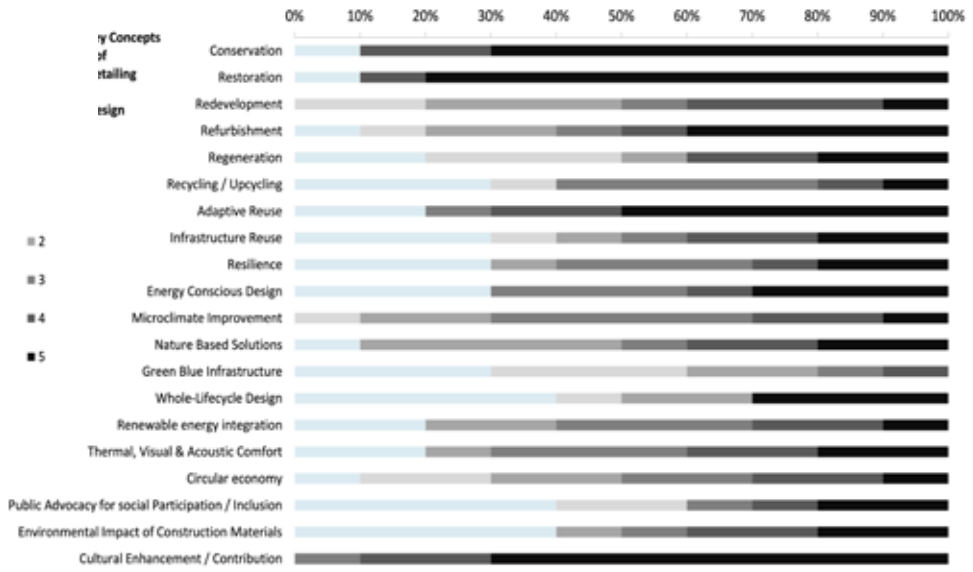


... THE GENERAL OUTLINE OF SUSTAINABILITY IS PROVIDED DURING THE UNDERGRADUATE STUDY PROGRAM IN TERMS OF BIOCLIMATIC DESIGN. HOWEVER, THERE IS A NEED TO PUT MORE EMPHASIS ON THE ASSESSMENT OF SUSTAINABILITY, BUILDING PHYSICS AND BUILDING ENERGY PERFORMANCE WITH THE USE OF CALCULATING TOOLS AND METHODS.



**Katerina Tsikaloudaki**  
Civil Engineer, Associate professor  
School of Civil Engineering,  
Laboratory of Building Construction & Building Physics - L.B.C.P.,  
Aristotle University of Thessaloniki

Fig 2. Mapping of Key Concepts' relevance in the context of Design



## PILLARS OF SUSTAINABILITY IN THE DECISION MAKING PROCESS



It is striking that despite the different perspectives of experts, everyone agrees on the need to balance these pillars as a necessary condition for serving the needs and achieving the goals of contemporary societies. The differences in the answers refer mainly to the ways of achieving this balance. Most experts also point out the need to improve education at all levels, in order to shape the conscience of citizens who will be invited to participate in this effort in the future.



**SOCIETY CONNECTIONS  
NEED TO BE EMPHASIZED  
IN ORDER TO PROMOTE  
RESPONSIBLE CITIZENS THAT  
RESPECT AND EMBRACE  
THEIR ENVIRONMENT.  
ENVIRONMENTAL ISSUES  
NEED TO BE FURTHER  
COMMUNICATED IN ORDER  
TO GET INDICATORS DURING  
DECISION MAKING**



**Natalia Pantelidou**  
Deputy Mayor of Public Works,  
Municipality of Kalamaria

# COMPETENCES IN RELATION TO SUSTAINABILITY AND HERITAGE IN PRACTICE

## AWARENESS OF SKILL LEVEL OF GRADUATES FROM ACADEMIC STUDY PROGRAMS DEALING WITH SUSTAINABILITY AND/OR CULTURAL HERITAGE



In their answers, the experts appear satisfied from the cooperation with graduates of undergraduate and related postgraduate programs. However, they often point out that graduates of undergraduate programs have a fragmentary knowledge on these issues while lacking a more thorough understanding of the wider context they have to address. Most of the respondents though, clearly emphasize that graduates of relevant postgraduate programs are well educated but lack skills needed for management, formulating strategies and implementing their knowledge. Graduates of the schools of architecture appear to have the most complete education on these issues.



**I HAVE COLLABORATED MORE THAN TEN TIMES IN MY PROFESSIONAL ACTIVITIES WITH GRADUATES OF ACADEMIC PROGRAMS RELATED TO SUSTAINABILITY AND CULTURAL HERITAGE AND I FOUND THAT THEIR EDUCATION WAS ADEQUATE**



**Prodrimos Nikiforidis  
Architect, Chairman of the  
Standing Committee on  
Architectural Issues of the  
Technical Chamber of Greece /  
Department of Central Macedonia**

## QUALITY AND LEVEL OF SKILLS AND KNOWLEDGE OBTAINED FROM ACADEMIC EDUCATION IN RELATION TO THOSE EXPANDED IN THE WORK ENVIRONMENT



Most experts believe that, at undergraduate level, students are provided with sufficient general knowledge about sustainability and heritage. However, they underline that these two fields should be combined and not taught as individual subjects. At postgraduate level, they propose an interdisciplinary cooperation as practiced in professional domains. Some experts also point out the lack of training in terms of management and legislation issues, as well as, social parameters and hands-on training.

Drawing from figures 3a and 3b, experts' answers about collaborators' skills differ significantly according to the procedure through which they have been acquired. Specifically, with regards to figure 3a, *presentation-communication skills*, and *analytic tools and methods* receive a higher than 4 rating by 70% of the experts while *interdisciplinarity*, *fundamental knowledge* and *awareness raising* are also considered as important skills to be gained through academic education. On the other end of the spectrum, *managerial/administration* and *specialist environmental design skills* receive low ratings, implying a small contribution of academic education in consolidating these skills.

With regard to figure 3b, the experts rate highly the contribution of practice in consolidating most of the skills of their collaborators. Specifically, almost half of the skills receive a higher than 4 rating from at least seven out of ten experts, with *interdisciplinarity*, *presentation communication*, *practical experience*, *analytical tools and methods* and the *local context* leading the way. Receiving relatively high ratings are skills related to *technical competencies*, *specialist conservation skills*, *the international*

*context* and *the state of the art*. *Managerial/administration* and *specialist environmental design skills* receive significantly low ratings.



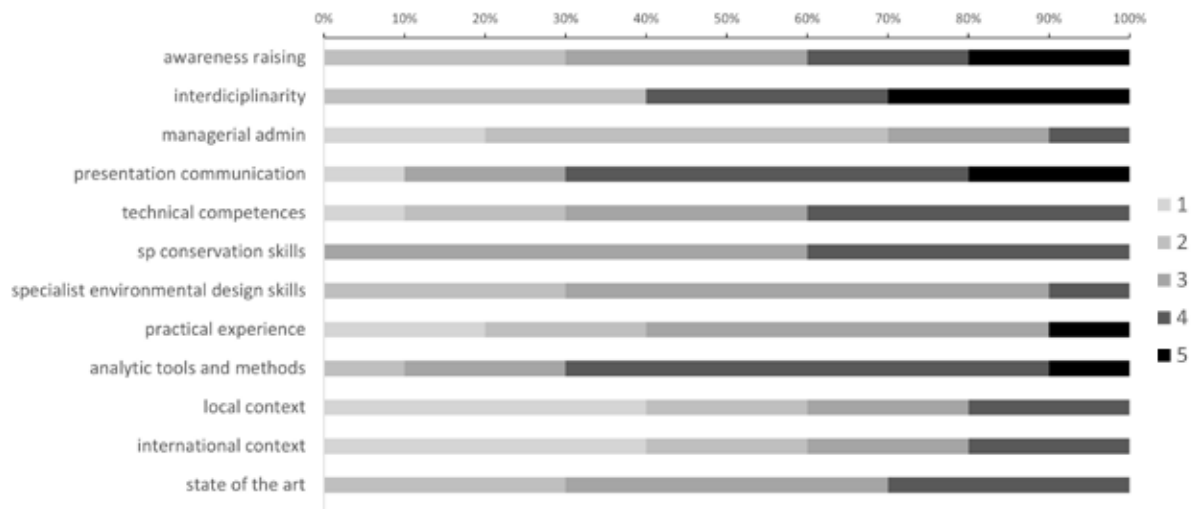
**FOR ARCHITECTS IS CRITICAL THEIR TRAINING ON MATERIALS (MODERN AND NATURAL ONES) AND BUILDING CONSTRUCTION TOPICS, NOT JUST AESTHETICS, MORPHOLOGY ETC... RESEARCH ACTIVITY IN ARCHITECTURE SCHOOLS MUST BE IMPROVED TOO ON THESE TOPICS. PARTICIPATION IN INTERNATIONAL COLLABORATIONS IS VERY IMPORTANT. HANDS ON TRAINING (WORKSHOPS) IS VERY USEFUL.**



**Elefteheria Tsakanika, Civil Engineer, Assistant Professor, School of Architecture, National Technical University of Athens**

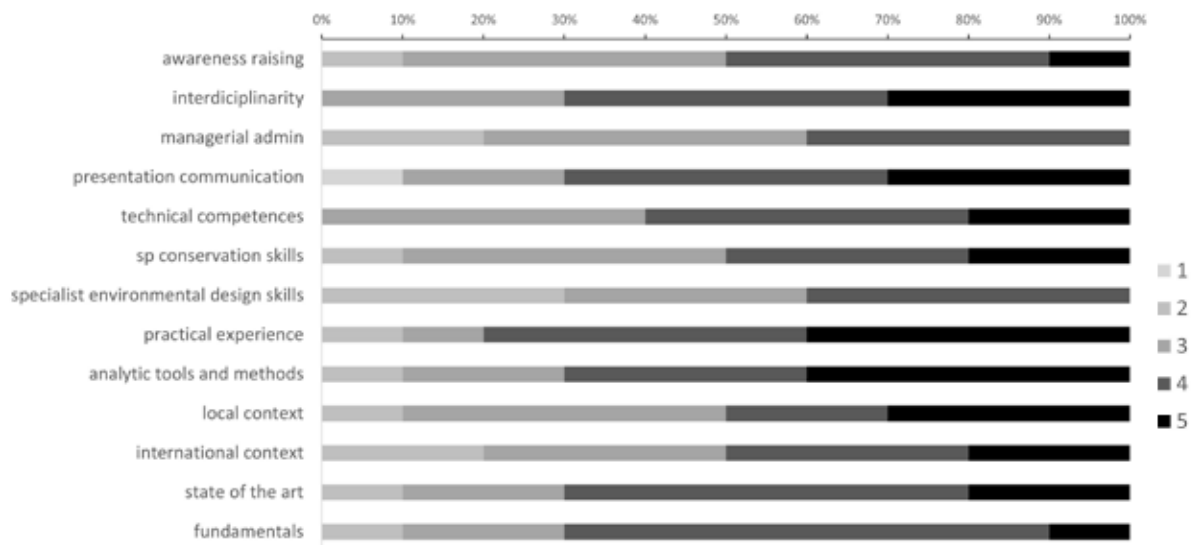


**Q3.2a Skills obtained through academic programs**



ACADEMIC PROGRAMS

**Q3.2a Skills obtained through practice**



PRACTICE

Fig 3. Mapping of the quality and level of skills and knowledge of graduates.

# REQUIREMENTS IN THE CONTEXT OF ACADEMIC PROGRAMS ON SUSTAINABILITY AND HERITAGE

## IDENTIFYING AND OVERCOMING KNOWLEDGE GAPS IN EXISTING ACADEMIC PROGRAMS



Most of the experts find that, at undergraduate level, students are provided with a general background on these issues, especially in the schools of architecture, but not with a holistic approach and global understanding, due to the character of the undergraduate studies. Most experts also point out the lack of knowledge in terms of management and legislation issues together with inadequate practical training. In other words, there is a gap between theoretical background and its application within the existing limitations of professional practice. Most experts point to the interdisciplinary perspective that is required in order to approach such issues at all levels of design. It is also stressed that knowledge on issues of heritage and sustainability should be mandatory and not optional in the academic curricula, because they consider them essential, in particular for the education of architects. At postgraduate level, they underline the necessity of an interdisciplinary approach and the correlation between heritage and sustainability. Most experts express the need to link academic education with professional practice. In order to achieve this, teaching through studio courses and specialized intensive workshops should be enhanced in academic curricula. Proposed project briefs –relevant to sustainability and heritage – should address real problems concerning local communities, while promoting synergies with Public Bodies (Ephorates of Monuments' Protection, Local Governments, etc). Throughout the academic program of studies it would be positive to encourage the participation of professionals to share their experience. This gap could also be overcome by involving students in the preparation of relevant studies and projects in the context of their internships. Although interdisciplinarity is

indispensable within the professional practice, the experts point out once more the lack of such adequate training in the context of academic programs. It is therefore necessary for students, from diverse disciplines to share a common language, especially at the postgraduate level, in order to be well prepared for accomplishing their role in the professional field. In conclusion, this gap can be addressed through interdisciplinary education and the involvement of relevant stakeholders, institutions and professionals. For the preparation of restoration and reuse projects it would be extremely positive to enrich the brief with a specific section related to the sustainability and environmental upgrading of the architectural heritage.



**MY EXPERIENCE WITH FELLOW GRADUATES SUGGESTS THAT THERE IS DIFFICULTY IN INVENTING - INTEGRATING - MODIFYING SPECIALIZED TECHNICAL SOLUTIONS THAT SUPPORT SUSTAINABILITY IN CULTURAL HERITAGE PROTECTION INTERVENTIONS. THIS ARISES FROM THE VERY NATURE AND DEGREE OF PROTECTION OF HISTORICAL REMAINS BUT ALSO FROM ACADEMIC APPROACHES THAT TREAT SUSTAINABILITY AND HERITAGE STUDIES AS DISTINCT OBJECTS OF KNOWLEDGE. I THINK THAT A NEW CORPUS OF HOLISTIC-INTEGRATED APPROACHES NEEDS TO BE PRODUCED.**



**Paraskevi Kourti, Managing Director of Strategic Planning, Urban Development & Funding of Pavlos Melas Municipality (Thessaloniki)**

## BALANCING THEORY, TOOLS AND PRACTICAL TRAINING IN ACADEMIC PROGRAMS



Most experts adopt a balanced and complementing relationship between theoretical knowledge, tools and practical training required for the composition of new academic programs. The importance of an adequate theoretical background in combination with the knowledge of methodological and other tools, as well as, their practical application in specific projects is well underlined. Once again, social issues and the connection of academic education to practice are highlighted.

According to figure 04 Methods of Knowledge transfer should form the highest proportion of academic studies focusing on the two fields (rated above 60% as very important by 8 out of 10 experts). Practical and technical training are indicated to be also important while evaluation methods are required to form a smaller proportion of new academic programs focusing on sustainability and heritage.



I ESTIMATE THAT TOWARDS THE END OF THEIR STUDIES THE STUDENTS SHOULD BE TRAINED IN MONUMENT RESTORATION SERVICES BUT ALSO IN PRIVATE OFFICES THAT UNDERTAKE RESTORATION WORKS OF BUILDINGS AND URBAN COMPLEXES



**Polyxeni Adam Veleni**  
General Director, General Directorate of Antiquities and Cultural Heritage,  
Greek Minister of Culture and Sports

Q4.3b appropriate proportion of activities in academic education

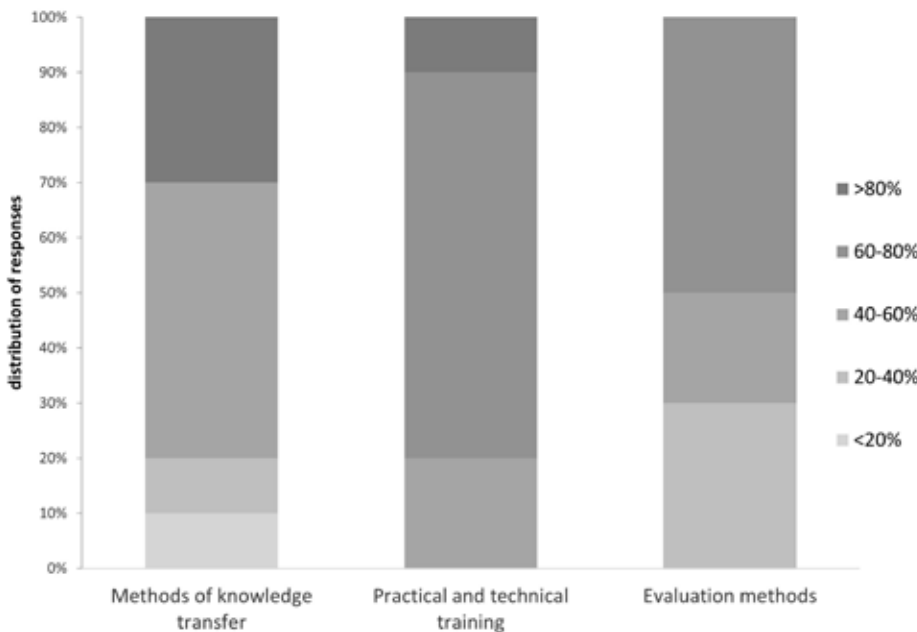


Fig 4. Mapping the proportion of activities in academic education.

## THE SIGNIFICANCE OF KEY CONCEPTS IN EDUCATIONAL PROGRAMS



According to experts, all the key concepts included in the questionnaire are important for academic education. However, the importance of *Restoration, Energy Conscious Design* and *Thermal, Visual & Acoustic Comfort* stands out, as they are rated with 5 by 8 out of 10 experts. The key concepts of *Regeneration, Adaptive Reuse, Infrastructure Reuse, Renewable Energy Integration* and *Cultural Enhancement / Contribution* are considered very important for education. Among the comparatively lowest in importance, but receiving the highest rating by at least 30% of the experts, is the *Environmental Impact of Construction Materials*.

## Q4.4

The Significance of Key Concepts of Sustainability and Heritage which should be addressed in the context of Academic Education

- 1
- 2
- 3
- 4
- 5

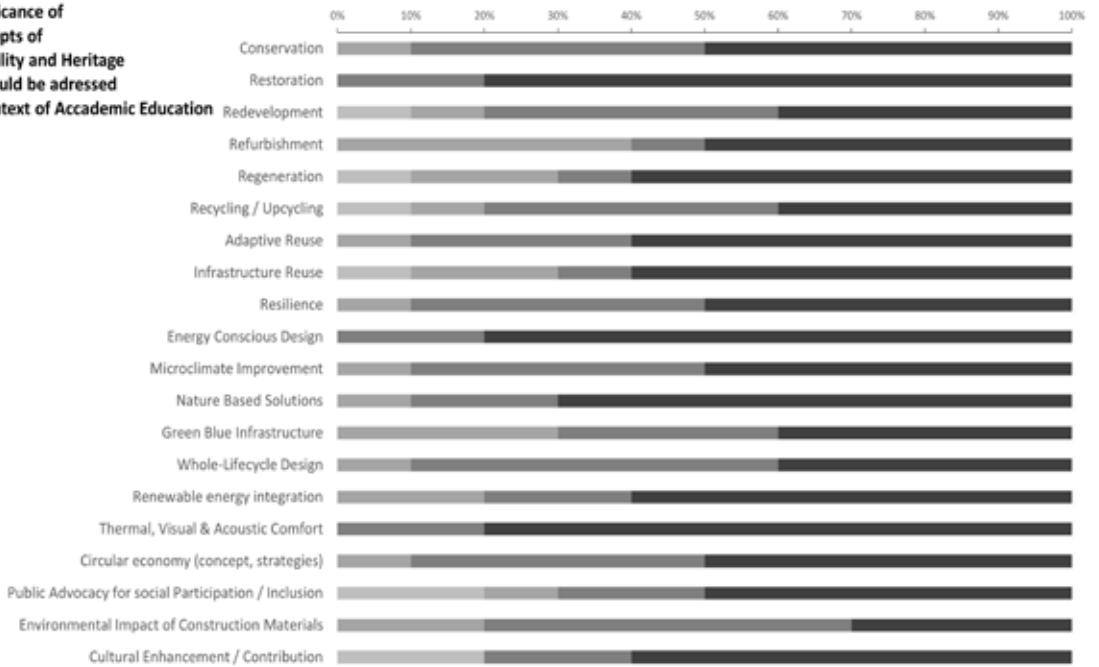


Fig 5. Mapping the significance of Key Concepts of Sustainability and Heritage in academic education.



”

THE THEORETICAL BACKGROUND IS SUFFICIENTLY PROVIDED. WHAT IS MISSING IS THE APPLICATION OF THE KNOWLEDGE IN REAL PROJECTS, WHICH WOULD ALLOW THE STUDENT TO FIND THE WAYS TO SOLVE THE PROBLEMS, STARTING FROM THE OBJECTIVES, THE PERFORMANCE EVALUATION TOOLS, THE LEGISLATION REQUIREMENTS, THE CONSTRUCTION DETAILS, THE MATERIALS, ETC.

”

**Katerina Tsikaloudaki**, Civil Engineer, Associate professor School of Civil Engineering, Laboratory of Building Construction & Building Physics - L.B.C.P., Aristotle University of Thessaloniki

## KEY FACTORS FOR THE IMPROVEMENT OF ARCHITECTURAL EDUCATION IN TERMS OF SUSTAINABILITY AND CULTURAL HERITAGE AWARENESS AND TRAINING



Experts seem to agree that the curricula of the schools of architecture should be adapted to the new environmental conditions that will concern societies in the future. That is to say that a more balanced development within which the restoration and reuse of the architectural heritage should be considered is required in the light of sustainability. Proposals by the experts attempt to redefine a balance between theoretical knowledge and methodological tools with the aim of promoting the development of critical thinking, understanding and evaluating key factors that contribute to a sustainable development of architectural heritage, resulting in adequately documented proposals for the pursuit of the latter.

Furthermore, experts suggest that there must be a connection between theory and practice, while heritage and sustainability should be linked in order to form a single corpus of knowledge. A necessary condition towards this goal is the constant training of the teaching staff and the establishment of interdisciplinary synergies in common studio courses included in both undergraduate and postgraduate level.

Moreover, they suggest that there should be more courses on ecological construction, use of natural materials, as well as courses that approach traditional/vernacular architecture.

Experts find internships as particularly important – either in public bodies or in private professional offices – through which students have the possibility to participate in the study or implementation of heritage and sustainability projects, thus being in a position to comprehend holistically the scope of each subject and various possible approaches. In the same vein, intensive

workshops, educational trips in Greece and abroad are proposed to be included in the curricula of architectural schools, in order to broaden the horizons of teachers and students.

Finally, experts note the importance of publications including the results of work carried out in the Schools of Architecture in order to disseminate knowledge and raise awareness on these issues within public Institutions and the society in general



**RESEARCH FROM ACADEMIA AND RELEVANT INSTITUTIONS THAT WILL PROVIDE EACH COUNTRY'S REGULATIONS WITH DATA COMPATIBLE WITH TRADITION (LOCAL TRADITIONAL AND EXISTING ARCHITECTURE) AND LOCAL ENVIRONMENTAL CONDITIONS. SEMINARS AND WORKSHOPS ORGANIZED BY CERTIFIED AND SCIENTIFIC INSTITUTIONS/ ORGANIZATIONS, AND MOST IMPORTANTLY, COLLABORATION AND COMMON COURSES AND PROJECTS OF ARCHITECTS, CIVIL ENGINEERS AND MECHANICAL ENGINEERS DURING UNDER-GRADUATE AND POST-GRADUATE STUDIES**



**Eleftheria Tsakanika**  
Civil Engineer, Assistant Professor,  
School of Architecture, National  
Technical University of Athens



”

HERITAGE AND SUSTAINABILITY COURSES SHOULD BE INCLUDED IN ACADEMIC STUDIES OF ALL FACULTIES OF ARCHITECTURE AND ESPECIALLY HERITAGE, AS THE INTEREST ON SUSTAINABILITY SEEMS TO BE INCREASING. A COLLABORATION BETWEEN THE TEACHING STAFF OF HERITAGE AND SUSTAINABILITY IS CRUCIAL, SO THAT INTERACTION AND INTERRELATION OF THE COURSES ON HERITAGE AND SUSTAINABILITY IS ENSURED.

**Kleopatra Theologidou**  
President of the Thessaloniki Branch, Greek Society for the Environment and Cultural Heritage

”

”

A KEY FACTOR FOR THE AFOREMENTIONED IMPROVEMENT WOULD BE THE INTRODUCTION IN ACADEMIC PROGRAMS OF THEORY AND PRACTICAL TOOLS REGARDING THE IDENTIFICATION AND EVALUATION OF FACTORS CONTRIBUTING TO THE SUSTAINABLE DEVELOPMENT OF HERITAGE ASSETS, AS WELL AS FOR THE DRAFTING OF ADEQUATELY DOCUMENTED PROPOSALS FOR THE PURSUIT OF THE LATTER

”

**Dimitrios Zygomalas**  
Deputy Director and Head of Department, Ephorate of Modern Monuments and Technical Works of Central Macedonia, Hellenic Ministry of Culture and Sports

# DISCUSSION / CONCLUSIONS

*Based on the respondents' background, the required variability of their roles, the high degree of their involvement in academia and their considerable experience in practice /research is confirmed indicating the validity and quality of the survey. The main findings of the analysis of the Greek experts' views are:*

- depending on the experts' professional practice and their educational background, the emphasis on the importance of sustainability and heritage varies, while neither one is totally ignored*

- despite the different perspectives of experts, they all agree on the need to balance the pillars of sustainability as a necessary condition for serving the needs and achieving the goals of contemporary societies*

- most of the experts' answers converge on the view that their colleagues and collaborators are mostly specialized through postgraduate programs. However, it is generally accepted that the concepts of sustainability and heritage are better addressed in relevant postgraduate programs but not in relation to each other*

- experts suggest that interdisciplinarity, indispensable within the professional practice, is lacking in the context of academic programs, and should be enhanced through cooperation between diverse postgraduate programs*







María F. Carrascal Pérez  
Mar Loren-Méndez  
Roberto F. Alonso-Jiménez  
In collaborative discussion  
with the whole USE Team

SPAIN

05

## ABSTRACT / SPAIN / USE



*This analysis conducted by USE team is based on 13 questionnaires developed by 13 experts who work in the Spanish-Andalusian-Seville context, implicating all required fields of expertise on Cultural Heritage and Sustainability:*

- Three research academic educators (Masters – MCAS, MARPH – and PhD Program coordinators).*
- Two policy makers (Seville Town Council and EQUO political party).*
- Three decision makers in public administration (Infrastructure of Spatial Database - Seville Town Council, Instituto Andaluz de Patrimonio Histórico).*
- Two NGO decision makers (Industrial Heritage Lab, ITACA Education for Development Project).*
- Two practitioners (AF6 Arquitectura, Estudio ACTA).*

*It covers relevant aspects presented by the experts in the three sections of the questionnaires: presence/awareness, competences in practice, and requirements in academic programs. It is noticed the engagement and commitment of all experts to give complete and argued responses. It could be highlighted their extended and interesting discussion identifying the gaps of knowledge in study programs and suggesting strategies to overcome such situations.*

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MARPH (Master in Architecture and Historical Heritage) director, USE

Domingo Sánchez Fuentes

MCAS (Master in Sustainable City and Architecture), former secretary and adjunct coordinator, USE

Ángel L. León Rodríguez.

PhD Architecture Program coordinator, USE

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AF6 Arquitectura (Architecture Office) + USE Director of Building Structures and Ground Engineering

Javier López Rivera

ACTA (Architecture Office) + Deputy Director of Culture and Sustainable Habitat at USE Higher Technical School of Architecture

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Urban Planning Management, Sevilla Town Council

Esteban de Manuel Jerez.

EQUO Verdes Andalucía, political party

## **Decision Makers in Public administration**

Victoria Segura Raya

ide SEVILLA, Sustainability and Urban Innovation Department, Urban Planning Management, Sevilla Town Council. Architect, expert on GIS

Silvia Fernández Cacho

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Beatriz Castellano Bravo.

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## **Decision Makers in NGO / Professional society**

Julián Sobrino Simal

Industrial Heritage Lab, NGO in colab. with University of Seville

Ángel L. González Morales

ITACA Ambiente Elegido, Education for Development Project, NGO



Eduardo Mosquera Adell



Domingo Sánchez Fuentes.



Ángel L. León Rodríguez.

# A1

Researcher Academic Educator



Miguel Hernández Valencia



Javier López Rivera

# A2

Practitioner



Maribel Moreno López



Esteban de Manuel Jerez

# A3

Policy Maker  
(Government or local authorities members or consultants)



Victoria Segura Raya



Silvia Fernández Cacho



Beatriz Castellano Bravo

# A4

Decision Maker in Public Administration  
(Ephorates, Ministries, Devolved Administration)



Julián Sobrino Simal



Ángel L. González Morales

# A5

Decision Maker in NGO / Professional Society

## INTRODUCTION



USE Team worked on the tentative list in the context of a shared and fertile discussion on the most representative experts for each field of expertise identified within the project criteria: Researcher Academic Educator, Practitioner, Policy Maker (Government or local authorities' members or consultants), Decision Maker in Public Administration (Ephorates, Ministries, Devolved Administration), Decision Maker in NGO / Professional Society. This discussion has been carried out in meetings, complemented with both online documents which allow permanent updating and constant and fluid email communication.

### The number of responses received

• 13 out of 13. The response to our proposal has been 100% positive, having achieved the participation and honest commitment to all the experts we have contacted.

### The representation of the stakeholders engaged (in relation to what was envisaged - 2 per Field of expertise)

• As the coordinator AUTH team has already noticed as a general shared issue, these experts did not indicate, in all the cases, the main field of expertise USE Team has assigned to them in the questionnaires. However, as shown in the list provided, the experts cover all of them, and their responses also evidence their multiple perspectives and approaches to Cultural Heritage and Sustainability.

### Comment on issues of gender representation

• For the first ten choices of experts, USE Team takes into account gender equity (4 women and 6 men). However, three extra experts were added in the questionnaire process in order to assure that at least ten questionnaires were filled in.

### Variability (if any) of academic backgrounds

• The experts are mainly in the area of Arts and Humanities with a clear majority of architects, although there also are art historians and geographers (9 experts). There are 3 experts who have marked the area of Social Science and 1 the area of Technology and Engineering.

• However, it should be noticed that the academic training in Architecture in Spain includes Urban Studies, Environmental studies, Planning and Development, Construction and building technology, Environmental Engineering and Material Sciences, and this explains this selection.

• On top of that, most of the experts have a master and/or PhD degree (11 PhD, 2 Master) which mainly guides the choice of the area of expertise.

### Years of experience, CVs, contributions to academic programs, etc.

• The experts have a long experience of their fields: 9 of them more than 20 years; 3 between 15 and 20 years and only one of them has between 10 and 15 years.

• If highlighting relevant and shared aspects of the experts' CV according to their field, they only pointed out their contributions as follows:

- Coordinator: 1 PhD program coordinator, 4 master coordinator, 1 erasmus coordinator,
- Tutor: 1 research-stay tutor
- Lecturer: 2 guest lecturer

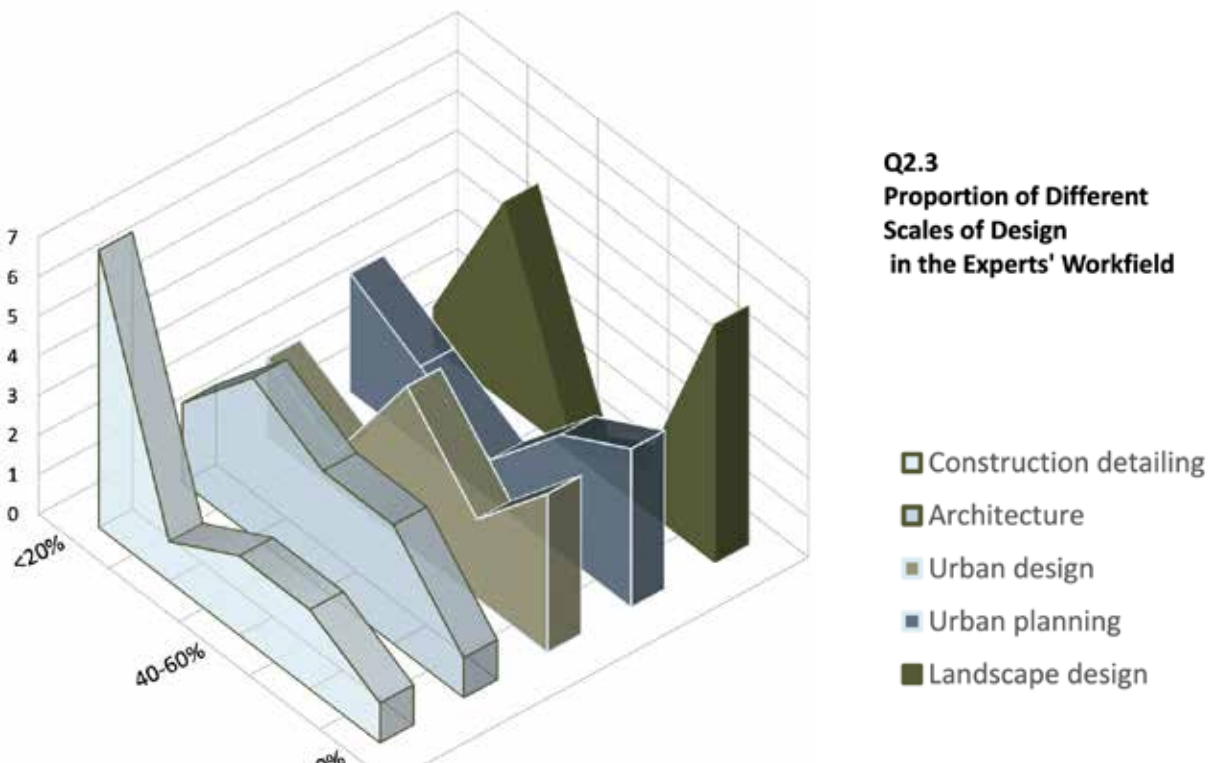
In general, the question related to this aspect (1.8) has not been properly answered. In fact, some of the experts have not answered this question and only 2 out of 13 have identified their contribution as lecturers, and these two are not working in the university. This indicates that the academic educators have taken for granted their contribution to the programs as tutors, lecturers, critics, etc., just pointing out their relevant roles as coordinators.

respondents' studies or professional background

According to Figure 1. the variability of scales of practice of the experts is extremely high. All of them work at least on three out of the five scales (Construction Detailing / Interior Design, Architectural Design, Urban Design, Urban Planning, Landscape Design). There are 2 experts that dominate all scales, and 4 experts have four of the scales specified, and 3 have three scales.

There is a significant higher proportion (more than 80%) focusing on Urban Design, Urban Planning and Landscape Design, and there is a general focus on Construction detailing in the smallest scale (<20%).

Fig 1. Mapping of the various design scales of practice (urban planning, landscape, urban design, architectural design, construction detailing) that the experts are engaged in (responses to Q2.3)



# PRESENCE/AWARENESS OF ISSUES OF SUSTAINABILITY AND HERITAGE IN PRACTICE

## THE IMPORTANCE / AWARENESS OF SUSTAINABILITY AND HERITAGE IN PRACTICE/RESEARCH



Most of the experts have pointed out Sustainability and Cultural Heritage as the pillars, the axis of their professional practices developed in public institutions. They highlight a number of relevant, academic, research, professional and institutional projects, developed in the last 10 years, mainly for the Andalusian region (regarding the protection and rehabilitation of landscapes and built environments, specific plans and regulations, such as the first law on Sustainable Urban Planning of Andalusia, research labs, and also pointing out their central participation in particular academic programs, cooperation projects and other Erasmus+ projects). Their projects are based on a rigorous documentation process and also reflect on the potential recycling and reuse of built heritage for society. Most of the projects relate to both concepts, just two experts indicate that have more grounded in one of the specific fields. Methodological and conceptually they all commit and integrate documentation, protection and intervention. They also explore interdisciplinarity and social participation.

The experts generally affirm that their projects are based on the combination of legal requirements, personal initiative and client/public sensitivity. However, there is a significant group who points out the personal initiative –grounded in their intellectual work and civic awareness - as the driving force. Some of these pioneer proposals have been later assumed by the administration and elevated to part of

the legislation. In the context of heritage intervention, there is a general consideration of Sustainability and Cultural Heritage within the legal framework, both national, regional and municipal, in synergy with European policies regarding environmental issues. Experts also refer that their works respond to public contests although they add up to their requirements in such matters. They also point out that the social demand in these aspects is growing although it is still lower than the professional and institutional awareness: the projects are resilient responding to the changes of social needs. They reflect on the fact that the application of legal requirements does not assure the project quality; research and creativity are indeed critical for a real integration of sustainability and cultural heritage.

Experts emphasize the maximum commitment and awareness to Sustainability and Cultural heritage, when referring either to their closest collaborators or to the university community in general. However, when talking about their colleagues they think this commitment is low: some of them particularly refer to certain segments of the university and others point out that this awareness is uneven among the disciplines. They detect a high awareness in younger generations, also because they are more familiarized with the cooperative tools that require to work in those fields.

Regarding the incorporation of these matters in the main corpus of architectural academic studies, most of them agree that they are not clearly integrated: Sustainability and Cultural Heritage are isolated in certain courses or emphasized by certain professors. They suggest that these concepts should be transversal and interdisciplinary. They also



advice that Sustainability, on the one hand, cannot be limited to technical energetic or constructive issues and Heritage, on the other hand, is not only limited to restoration. They also add that these limitations may be caused by an excess of fragmentation of the study programs, which causes a lack of holistic vision.



”

**THERE IS A GREAT LACK OF KNOWLEDGE OF THE TRANSDISCIPLINARY FOUNDATIONS OF SUSTAINABILITY, SINCE, IN MY OPINION, THE SUPPORT OF A SUSTAINABLE PLANNING MUST BE STRUCTURED IN THE URBAN-TERRITORIAL HERITAGE SYSTEM.**

”

**Domingo Sánchez Fuentes. MCAS (Master in Sustainable City and Architecture), former secretary and adjunct coordinator, USE**



”

**FROM MY POINT OF VIEW, ARCHITECTURAL FIRMS, LIKE THE REST OF SOCIETY, SUFFER FROM AN EXCESS OF SECTORIZATION AND A LACK OF TRANSVERSALITY AND HOLISTIC VISION. THIS IS EVEN MORE EVIDENT AND, AT THE SAME TIME, MORE IMPORTANT IN A FIELD SUCH AS ARCHITECTURE AND URBAN PLANNING WHERE WE WORK (OR SHOULD WORK) WITH AND FROM RELATIONSHIPS (SPATIAL, SOCIAL, ENVIRONMENTAL, ECONOMIC, EMOTIONAL, ETC.) HOW IS IT POSSIBLE TO DESIGN OR PRESERVE A CITY BY SEPARATING AND LOOKING AT ONLY ONE ASPECT OF THE RICHNESS THAT THESE SPACES OWN?**

”

**Ángel L. González Morales. ITACA Ambiente Elegido, Education for Development Project, NGO**



”

**IN OUR CASE, A LOCAL ADMINISTRATION WHICH PRODUCES AND PUBLISHES SPATIAL DATA, WE LIKE TO THINK THAT WE ARE FUNDAMENTALLY RESILIENT, CAPABLE OF ADAPTING OUR ACTIVITY TO DEMANDS, AT AN ASSUMABLE PACE TO GIVE ANSWER TO THOSE NEEDS. BUT REGARDING SUSTAINABILITY, IN LARGE PART WE ATTEND TO REUTILIZATION OF EXISTENT RESOURCES IN COMPLIANCE TO THE LAW ABOUT REUTILIZATION OF THE INFORMATION IN PUBLIC SECTOR.**

”

**Victoria Segura Raya. ide SEVILLA, Sustainability and Urban Innovation Department, Urban Planning Management, Sevilla Town Council. Architect, expert on GIS**

## RELEVANCE OF KEY CONCEPTS IN PRACTICE/ACADEMIA/DECISION MAKING/POLICY MAKING



A majority of experts expressed that there is not a prevalence of any of these concepts -*reuse, resilience, restoration*- over others, they considered that the three are linked and have an equal relevance. However, if there is a need of a ranking, according to the answers, *reuse* is the concept that more experts have considered more applicable in his/her work, followed by *restoration*. Some experts considered *resilience* a more complex concept that could contain the other two. It should be noticed that two experts did not feel identified with any of the concepts, and one expert proposed a new one: *re-inhabiting*.

According to the graphics and considering, jointly, the three scales of the design, *resilience* and *cultural enhancement/commitment* are the concepts more valued. Going over the spectrum of concepts, the scale of Urban Design Urban Planning stands out like the one in which all them have more presence and, therefore, more relevance. Assessing the three scales, *thermal, visual & acoustic comfort, energy conscious design, microclimate improvement, refurbishment* and *restoration* are some of the main concepts in the scales of Construction Detailing, Interior Design and Architectural Design and those associated with nature and infrastructure are the less valued.

Urban planning and landscape design share *regeneration, cultural enhancement/commitment* and *public advocacy for social participation/inclusion*, as the main concepts. Regarding the lowered-rated concepts in these last two scales, it could be appreciated that, while in the scale of Urban Design and Urban Planning they could not be easily detected because of the evenness in the responses, in the area of Landscape Design the concepts concerning energy clearly appear as the less relevant.

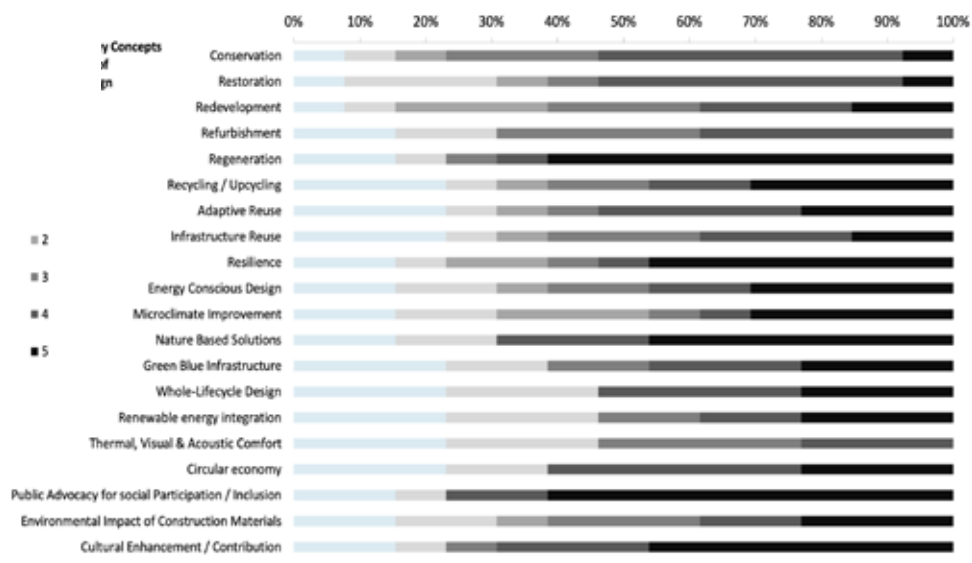
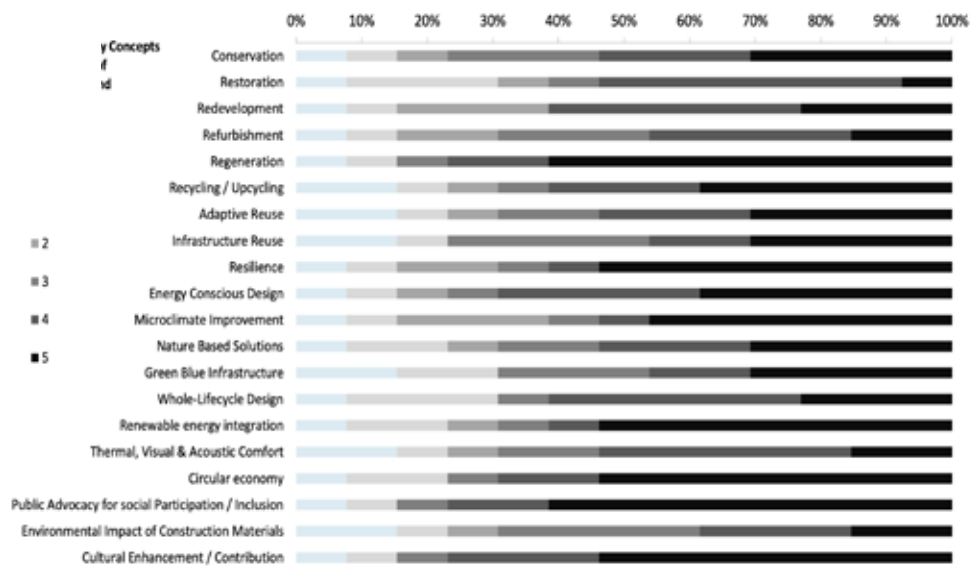
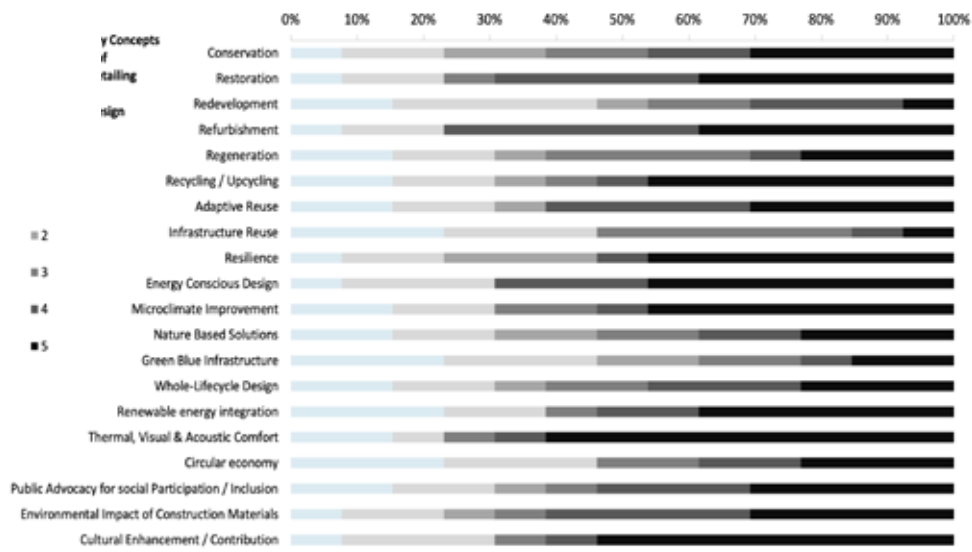


**COMPLIANCE WITH TECHNICAL AND LEGAL REQUIREMENTS DOES NOT GUARANTEE THE QUALITY OF THE RESULT. THE CREATIVE PROCESS OF THE PROJECTS, THE APPLIED METHODOLOGY, AND THE KNOWLEDGE OF THE OBJECTS IS MUCH MORE IMPORTANT. INTERVENTION IN HERITAGE FROM ARCHITECTURE INTRODUCES TRANSFORMATIONS: IN SPACES, IN THE RELATIONS BETWEEN THEM, IN THE PERCEPTION OF THE USER, IN THE USE... THEREFORE WE MUST BE EXTREMELY RESPONSIBLE AND KNOWLEDGEABLE ABOUT THE OBJECT OF INTERVENTION**



**Miguel Hernández Valencia. AF6 Arquitectura (Architecture Office) + USE Director of Building Structures and Ground Engineering**

Fig 2. Mapping of Key Concepts' relevance in the context of Design



## PILLARS OF SUSTAINABILITY IN THE DECISION MAKING PROCESS



Policy makers and Decision makers from public administration identify the binomial Society–Culture as fundamental pillar of their processes, stating that this is because: first, cultural heritage is the manifestation of a specific culture; second, the society defines and legitimizes its value in each moment, being a sociocultural construction; and, last, because of its role as common good for contemporary societies. Other experts state that Culture should reinforce its relationship with Sustainability, while Society, Economy, and Environment have a more popular presence. They also highlight the importance of a good management when dealing with limited economic resources.

Educators, Practitioners and NGO founders agree in the need of a balance between the four pillars in order to approach a sustainable project in cultural heritage, highlighting the relevance of transversality and interdisciplinarity. They also agree on the relevance of the Society, as a necessary commitment with participatory processes and awareness campaigns, and the relevance of local Culture, and pointing out that without culture there is construction but there is not architecture. It should be noticed that two more pillars are mentioned: Affection and Education, pointing out that they are essential to approach, conceptually and practically, these topics and their relationships.

Environment is also appreciated as very encompassing concept, that include or relate to the others. They also put the focus on the need of building a coherent space of vital security, balancing human well-being with a respect towards the ecosystems and vital cycles of the planet.



**SUSTAINABILITY IS FORTUNATELY A FUNDAMENTAL PILLAR IN WHICH WE SUPPORT OUR INTERVENTIONS (AS POLICY MAKERS), TO THE EXTENT PERMITTED BY THE ACTIONS THEMSELVES.**



**Maribel Moreno López. Urban Planning Management, Sevilla Town Council**



**THERE ARE CERTAIN PILLARS, OR PRINCIPLES, ON WHICH THERE SEEMS TO BE A GENERAL CONSENSUS ALTHOUGH THEY ARE NOT ALWAYS APPLIED: CIRCULAR ECONOMY, GREEN ENERGY, INCLUSIVE SOCIETY, PARTICIPATORY GOVERNANCE, OPEN CULTURE.... I THINK IT WOULD BE NECESSARY TO INCORPORATE THE PRECAUTIONARY PRINCIPLE, I.E. NOT TO UNDERTAKE ACTIONS WHERE THERE ARE REASONABLE DOUBTS ABOUT THEIR IMPACT ON THE CULTURAL AND NATURAL HERITAGE VALUES OF MONUMENTS, SITES AND LANDSCAPES**



**Silvia Fernández Cacho. Andalusian Institute of Historical Heritage. Director, Documentation Research Center**

# COMPETENCES IN RELATION TO SUSTAINABILITY AND HERITAGE IN PRACTICE

## AWARENESS OF SKILL LEVEL OF GRADUATES FROM ACADEMIC STUDY PROGRAMS DEALING WITH SUSTAINABILITY AND/OR CULTURAL HERITAGE



Educators deal frequently with graduates from academic study programs in different phases of their education. They indicate that those who collaborate in research activities and/or who have had a particular training in these fields rapidly and effectively integrate themselves in the work process. They notice that, as architects, they have collaborated with geographers, sociologists, anthropologists, art historians, architects, environmentalists, engineers, and lawyers, all with an adequate preparation. Others experts, however, notice that they have collaborated very little with current graduates in these disciplines.

When referring to competences in both fields, there is also a difference in the perception of the areas: while the skills related to Cultural Heritage are more evidenced in the graduates from the Architectural program, the skills related to Sustainability are less noticed, considering that they are more enhanced in the postgraduate context. They highlight the role of the Master programs in this regard, providing students with a holistic education in these matters, showing, in certain cases, more competences than PhD students (who are more partially focused).

The experts related to Public Administration acknowledged cooperating with graduates (and postgraduates) from academic study programs in different stages: architecture students through curricular practices, collaborators/colleagues with a master degree (MCAS and MARPH), and

multidisciplinary teams of professionals. Regarding all of them, there is a general appreciation of a growing knowledge on the concept of sustainability. Some experts point out how these graduates have complemented and updated certain fields of knowledge in the public administration through their collaborations, manifesting a solid basic training in Sustainability and Cultural Heritage.

Practitioners and NGO founders indicate their extended experience working with interdisciplinary teams. Although not all of the experts had a close relationship with graduates, they generally emphasize that they have found in them a willingness to keep learning in more advanced stages of their careers. They also point out that, in the professional practice field, they observe a banalization and simplification of such concepts that sometimes might denote a lack of training.



”

**THE MAIN PROBLEM IS THE LACK OF TRANSVERSALITY, AS WELL AS THE IMPOSSIBILITY OF THE STUDENT TO BUILT HIS/HER CURRICULUM IN A MULTIDISCIPLINARY WAY** ”

**Julián Sobrino Simal. Industrial Heritage Lab, NGO in colab. with University of Seville**

## QUALITY AND LEVEL OF SKILLS AND KNOWLEDGE OBTAINED FROM ACADEMIC EDUCATION IN RELATION TO THOSE EXPANDED IN THE WORK ENVIRONMENT



According to experts' answers displayed in the graphics, the quality and level of skills and knowledge are higher in the work environment than in the academic education, which matches with the natural progression that collaborators experience from the education context to the work context. According to this and interpreting the graphics jointly, it is observed that *comprehension of fundamentals, knowledge of analytic tools and methods, technical competencies and knowledge of local context* are the more developed skills.

Regarding the first graphic (Q.3.2a Skills obtained through academic programs), the *managerial/administrative, specialist environmental design and practical experience* are the skills obtained through academic programs less appreciated by the experts in their collaborators. Regarding the second graphic (Q.3.2a Skills obtained through practice), the *specialist environmental design skills* are considered by the experts less developed through practice in their collaborators.

Regarding Q.3.2b, the experts refer various skills that could be obtained through education, articulating these differently, however several experts agree in some of them, such as: transdisciplinary and collaborative work, social participation and connection with local communities, and heritage management and methodologies. Other suggestions are skills related to: real data, documentation and study cases; social sciences; technical-scientific training; and public policies and international organizations.

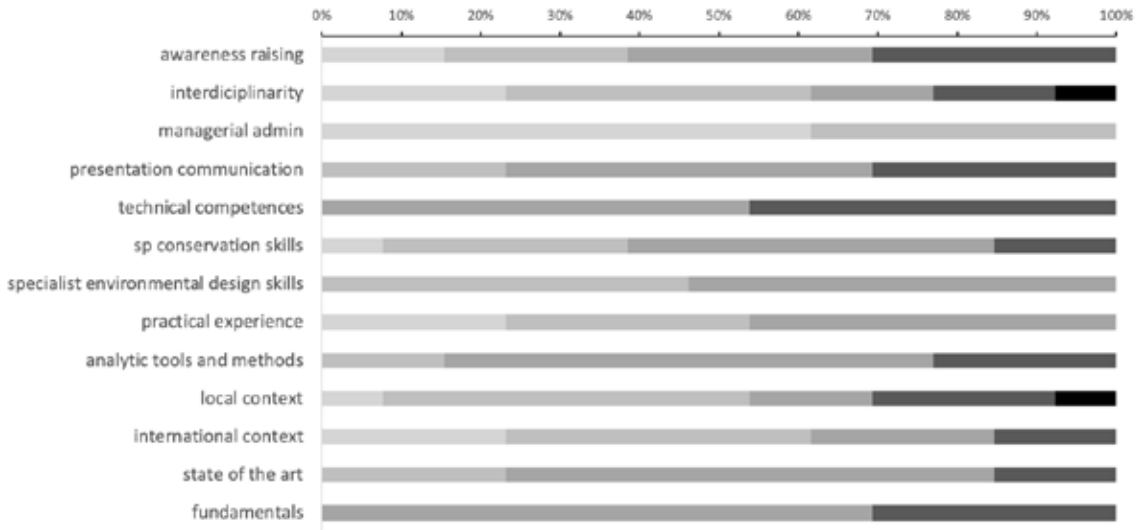


**TRAINING AT THE LEVEL OF ACQUISITION OF PROFESSIONAL SKILLS AND SUBSEQUENT SPECIALIZATION SHOULD BE BASED ON LEARNING FROM THE SEARCH FOR REAL, SOCIALLY APPLICABLE AND ACCEPTABLE SOLUTIONS, WHICH MAY BE EXPERIMENTAL AND INNOVATIVE, BUT FROM THE AWARENESS OF THE COMPLEXITY MANAGED IN THE FIELDS OF SUSTAINABILITY AND CULTURAL HERITAGE (AND OF THE DEMANDS THAT THEY REQUIRE). ACADEMIC REDUCTIONISM MUST BE AVOIDED,**



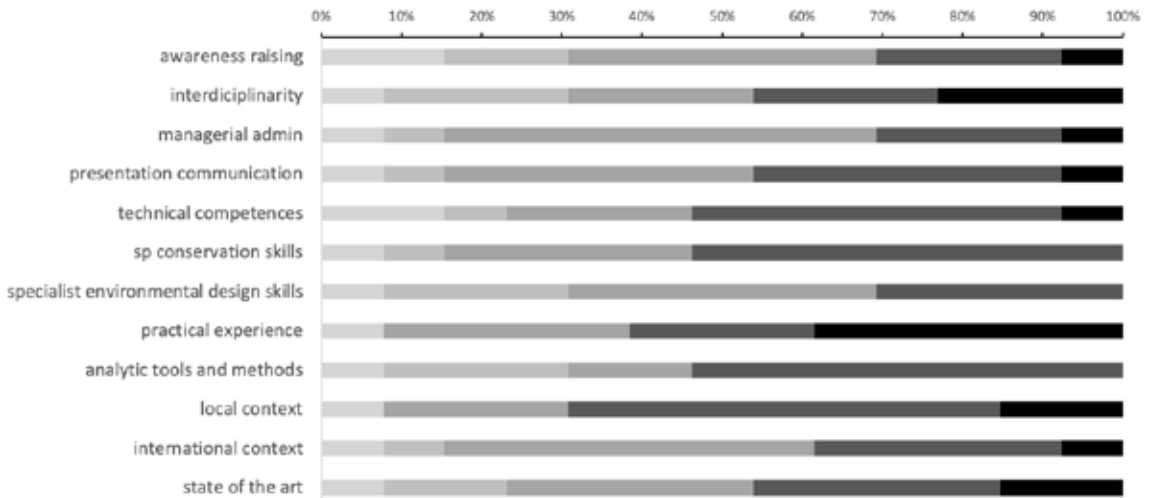
**Eduardo Mosquera Adell, MARPH (Master in Architecture and Historical Heritage) director, USE**

**Q3.2a Skills obtained through academic programs**



ACADEMIC PROGRAMS

**Q3.2a Skills obtained through practice**



PRACTICE

Fig 3. Mapping of the quality and level of skills and knowledge of graduates.



# REQUIREMENTS IN THE CONTEXT OF ACADEMIC PROGRAMS ON SUSTAINABILITY AND HERITAGE

## IDENTIFYING AND OVERCOMING KNOWLEDGE GAPS IN EXISTING ACADEMIC PROGRAMS



These are the main gaps detected by the experts:

- On transversal fundamentals. A primary concern that is generally noticed is that these concepts do not transversally relate to all courses in the program, they are just addressed in specific courses. They particularly highlight the importance of knowing the transversal fundamentals of Sustainability, indicating that a sustainable project is structured on an urban-territorial heritage system.

- On renovation and innovation. They identified that an update and follow-up of the evolution of the concept of Cultural Heritage is not naturally happening, nor does it happen a recurrent contextualization from the frame of cultural studies, disassociating it from the notion of administrative and legal protection of heritage assets. It is highlighted that cultural heritage should not just addressed from a preservationist approach.

- On technical knowledge. Experts noticed that environmental and energetic knowledge regarding sustainability have not a sufficient presence in existing academic programs. They also affirm that there is a lack of competences to be able to obtain zero-energy buildings, implementing a combination of active and passive measures.

- On equity and creativity. Experts saw a gap on boosting creativity in terms of interculturality and interchange.

- On methodologies and management. It is detected a lack of knowledge on methodological and operative processes for the management and intervention of cultural heritage, acting at its different scales and conditions (material and immaterial).

- On communication and participative processes. It is expressed that the ability to

stimulate heritage awareness and communicate with the society (disseminating its values and preservation mechanisms) is not sufficiently stimulated. There is a lack of knowledge on governance and participation.

- On practical tools. It is noticed that is still a challenge to providing future architects the tools for raising awareness, sensitizing and educating on these concepts, to go from the role of enforcers to the role of facilitators in the architectural practice.

### Overcoming the knowledge gaps:

These are the main ideas addressed by the experts to overcome these situations:

- Including contents on heritage and sustainability transversally in the study programs to offer more specialization in the educational itinerary.

- Introducing approaches from other disciplines: fine arts, art history, geography, archaeology, anthropology, among others. The relevance of a global vision in the study programs is highlighted.

- Stimulating heritage awareness and communicate skills to interact with the society (disseminating its values and preservation mechanisms), and treating governance, transference and participation as central subjects in the study programs.

- Including contents, practices and study cases that help the student to face real cases that can be found in the professional practice; although it is noticed that an academic program cannot be submitted to the changeable nature of everyday contexts.

- Expanding a scientific perspective, including more specific courses on environmental and energetic issues.

- Expanding the knowledge on project management (including protection, preservation, research, and dissemination projects), and reinforcing rigorous curricular internships in companies.

- Opening a particular scenario of discussion on environmental degradation and the social, economic, and sanitary crisis.



- Using intermediate tools as master of specialization to reinforce the knowledge on these topics.

- Implementing methodologies based on learning from 'action'. Teaching on tactical preliminary strategies that can reinforce a participatory process and prompt rigorous site-based knowledge.

- Updating, constantly, the professors' training and education on these topics, boosting a professional and pedagogical renovation.

- Facilitating more educational stays/ residencies in, private and public, institutions and organizations working in any of the branches of these areas.

- Opening the collaboration between universities, offices-companies-corporations, administration and society.

- Expanding the monitorization regarding this matters in the study programs and the number of students that will use them in the professional practice.

## BALANCING THEORY, TOOLS AND PRACTICAL TRAINING IN ACADEMIC PROGRAMS



Regarding Q.4.3a, the experts generally point out, with different nuances, that the three aspects have similar relevance in the education process. Several of them consider that the implication of three concepts is mandatory and, with independence of the proportion, theory stands out as the conceptual framework from which to develop the other aspects. Some experts denoted the importance of understanding the dynamic character of the process and the need of adaptation of such proportions according to the defined objectives and activities.

The graphics (Q.4.3b) shows that, according to experts, evaluation methods is the activity that should have less space in academic education, 70% of experts think that the appropriate proportion is under de 40%. Referring to the other two activities (methods of knowledge transfer and practical and technical training) the graphics display exactly the same results; therefore, the experts consider that both activities need the same proportion in academic education.

**Q4.3b appropriate proportion of activities in academic education**

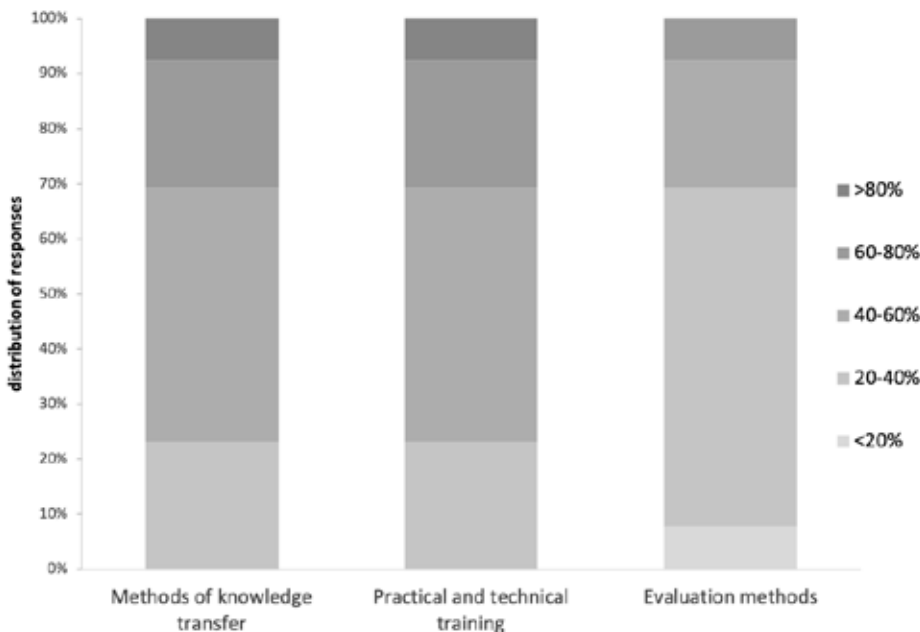


Fig 4. Mapping the proportion of activities in academic education.

## THE SIGNIFICANCE OF KEY CONCEPTS IN EDUCATIONAL PROGRAMS



Regarding graph Q.4.4, the key concepts with more significance according the Spanish experts are regeneration, cultural enhancement and public advocacy all of them with more than 60% of the maximum consideration (5). With the same trend, recycling and adaptative reuse with more than 50% of the maximum consideration are the only concepts that all experts consider highly important (4-5). In contrast, the concepts with less significance are redevelopment, restoration and refurbishment all under the 25% of maximum consideration (5). The others twelve concepts, according the majority of experts, have a similar consideration and a substantial importance (eleven of them are above 70% in the range of 4-5). The experts generally acknowledged the significance of all key concepts given only de minimum rate (1) to one of the list, redevelopment.



**FIRST OF ALL, WE SHOULD DEEPEN THE CONCEPT OF CULTURAL HERITAGE AND HIS MODERN EVOLUTION, CONTEXTUALIZING IT IN THE CONTEXT OF CULTURAL STUDIES, TO UNTIE THE IDEA OF ADMINISTRATIVE AND JUDICIAL PROTECTION OF PATRIMONIAL GOODS, AN IDENTIFICATION THAT GENERALLY IS VERY ASSUMED BY SOCIETY. THERE IS ALSO A KNOWLEDGE GAP RELATED TO THE METHODOLOGIC AND OPERATIVE PROCESSES, EITHER IN MANAGEMENT OR INTERVENTION IN PATRIMONIAL GOODS BUILT IN THEIR DIFFERENT SCALES, FROM LANDSCAPE TO THE OBJECT, AND IN THEIR DIFFERENT DIMENSIONS (TANGIBLE AND NOT-TANGIBLE). DUE TO THE NATURE OF HERITAGE ITSELF, THIS WORKING METHODOLOGY IS TRANSVERSAL AND MUST BE BASED ON THE KNOWLEDGE ABOUT THE OBJECT OF INTERVENTION AND TRANSDISCIPLINARY THINKING**



**Beatriz Castellano Bravo. Andalusian Institute of Historical Heritage. Architect, Project Department**

## Q4.4

The Significance of Key Concepts of Sustainability and Heritage which should be addressed in the context of Academic Education

- 1
- 2
- 3
- 4
- 5

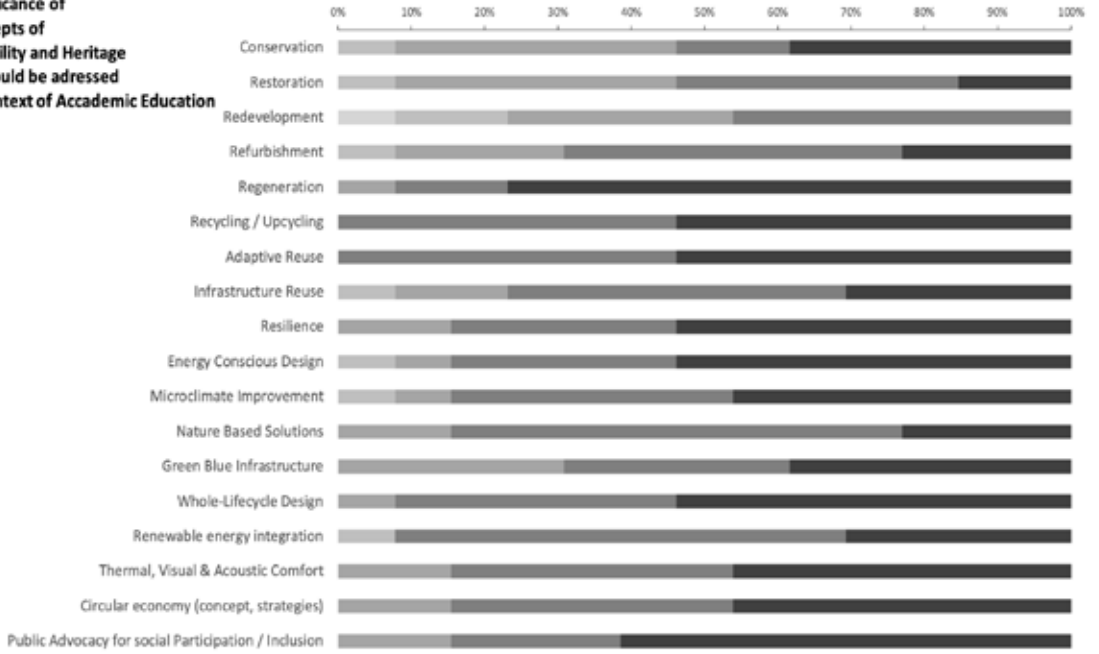


Fig 5. Mapping the significance of Key Concepts of Sustainability and Heritage in academic education.



”

THE MOST IMPORTANT PILLARS WHICH SHOULD BE FURTHER EMPHASIZED IN THE DECISION MAKING ARE THE OBLIGATION OF ESTABLISHING PROTECTION MEASURES THAT CONSIDER HERITAGE AS A NON-RENEWABLE RESOURCE WITH FUNCTIONALITY REGARDING THE NEW CONCEPT OF SUSTAINABILITY.

”

Julián Sobrino Simal. Industrial Heritage Lab, NGO in colab. with University of Seville

## KEY FACTORS FOR THE IMPROVEMENT OF ARCHITECTURAL EDUCATION IN TERMS OF SUSTAINABILITY AND CULTURAL HERITAGE AWARENESS AND TRAINING



Regarding the study programs and the institution, the key factors of improvement highlighted are:

- Collaboration and formative consensuses regarding these terms and its transversal presence in the study programs (graduate and master).
- Horizontality and transparency in the structures of the educational system (research groups, departments, schools and faculties).

Regarding training, the key factors of improvement highlighted are:

- Heritage and sustainability awareness linked to training.
- Complementary multidisciplinary training for professors in these matters.
- Transdisciplinary teaching-learning methodologies.
- Acting for learning. Implementing the action in the processes regarding these fields of knowledge and their intersections.
- Learning and service tools for introducing the student in real processes of sociological transmission of the habitat.

Regarding the conceptual approach to these matters, the key factors for improvement mentioned are:

- An effective relationship with the society affected by the architectural action.
- A precise definition of sustainable practices for preservation and development.
- A focus on the interrelation of both concepts: sustainability and cultural heritage.
- (Tangible and intangible) cultural heritage as a way of operating our everyday context.
- A focus on the naturalization and minimization of cultural heritage action.
- Scientific rigor when dealing with these themes.
- A return to coherence and sanity.



”

**THE KEY FACTOR FOR IMPROVING AWARENESS AND TRAINING IN SUSTAINABILITY AND HERITAGE IS REAL CHANGE ACTION (OR CONSERVATION): TO ACHIEVE AND ENCOURAGE THE PERSONAL INVOLVEMENT OF THE ACTORS (INSTITUTIONS, TEACHERS, STUDENTS, CITIZENS, ETC.) INCLUDED IN THE PROCESSES OF IMPROVEMENT OR PROTECTION OF SPACES OR ASSETS BY PROMOTING A CHANGE OF ATTITUDE. TO THIS END, INITIALLY A TRAINING PROCESS SHOULD BE CARRIED OUT FOR INSTRUCTORS, WHICH, IN ADDITION TO THE USUAL TOPICS, SHOULD BE COMPLEMENTED WITH CROSS-CUTTING THEMES TAKEN FROM OTHER DISCIPLINES SUCH AS EDUCATIONAL SCIENCES, PSYCHOLOGY (ENVIRONMENTAL OR SOCIAL), SOCIAL WORK, COMMUNICATION SCIENCES, ETC**

”

**Ángel L. González Morales. ITACA Ambiente Elegido, Education for Development Project, NGO**



”

AS AN EXPERT I WOULD SUGGEST THAT THE KEY FACTOR FOR IMPROVEMENT IN THESE FIELDS IS TO USE SERVICE LEARNING METHODOLOGIES ENGAGING THE STUDENTS IN REAL PROCESSES OF SOCIOECOLOGICAL TRANSITION OF HABITAT.

”

Esteban de Manuel Jerez. EQUO Verdes Andalucía, political party



”

THE GAP BETWEEN ACADEMIC EDUCATION AND PROFESSIONAL PRACTICE IN THE FIELDS OF SUSTAINABILITY OF THE BUILT ENVIRONMENT AND CULTURAL HERITAGE CAN BE OVERCOME BY DEDICATING MORE TIME IN CURRICULA TO ENVIRONMENTAL, ENERGY AND SUSTAINABILITY ISSUES, BUT FROM A SCIENTIFIC POINT OF VIEW.

”

Ángel L. León Rodríguez. PhD Architecture Program coordinator, USE



”

AS A KEY FACTOR FOR THE IMPROVEMENT OF ARCHITECTURAL EDUCATION IN TERMS OF SUSTAINABILITY AND CULTURAL HERITAGE AWARENESS AND TRAINING, I WOULD PROPOSE NATURALNESS. THAT IS TO SAY, NO ACTION FORCED TO THE EXTREME WILL BE SUSTAINABLE, NOR IS IT TRUE THAT IT VALUES WHAT IS FOUND IN HERITAGE. DECREASING, RENOUNCING, DOING LESS AND BETTER IS MUCH MORE APPROPRIATE THAN INTERVENING A LOT, NO MATTER HOW GOOD THAT INTERVENTION IS. WE ARE IN THE ERA OF A RETURN TO THE ESSENTIAL -ALTHOUGH MOST PEOPLE STILL RESIST-, OF A RETURN TO THE ORIGINS. LEARNING FROM THE PAST TO RECOVER IT OR INCORPORATE IT INTO THE PRESENT

”

Maribel Moreno López. Urban Planning Management, Sevilla Town Council



”

A MORE TRANSVERSAL EDUCATION, WHICH HELPS TO INTEGRATE DISCIPLINES, LESS SPECIALIZED.

WE ARCHITECTS BUILD, MODIFY, MAKE DECENT... BY AND FOR SOCIETY. IF WE DISTANCE OURSELVES FROM THEIR NEEDS, WE WILL NOT HAVE A FUTURE. WE MUST WALK TOGETHER. UNDERSTAND THAT ARCHITECTS MUST BE VERY ATTENTIVE TO WHAT SOCIETY DEMANDS, AND NOT WALK ON OUR OWN, WITHOUT TAKING IT INTO ACCOUNT

”

F. Javier López Rivera. ACTA (Architecture Office) + Deputy Director of Culture and Sustainable Habitat at USE Higher Technical School of Architecture

# DISCUSSION / CONCLUSIONS

*The Andalusian experts in the analysis conducted by USE team are representative of all required fields of expertise: research academic educators, policy makers, decision makers in public administration -both local and regional- NGO decision makers and finally professional practitioners on architecture, offering multiple perspectives and approaches to Cultural Heritage and Sustainability.*

*The fact that 13 experts out of 13 have agreed to participate in the study indicates the strong commitment in Andalusia to cultural heritage and sustainability, who have resulted in their engagement to the questionnaire, devoting time to them and providing complete and thorough answers. With a long trajectory and high profile in their fields they are mainly in the area of Arts and Humanities, with a clear majority of architects, who in Spain have an academic training which includes Urban Studies, Environmental studies, Planning and Development, Construction and building technology, Environmental Engineering and Material Sciences. This also explains that the variability of scales of practice is very high.*

*Therefore, it could be concluded that the 13 experts have a relevant and complementary CVs convenient for HERSUS project in the USE research context. All the experts involve in this*









|||||

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# Conclusions



Serbia (Belgrade)



Italy (Venice)



Cyprus (Nicosia)



Greece (Thessaloniki)



Spain (Seville)



Ana Nikezić  
Aleksandra Milovanović  
Aleksandra Đorđević  
Mladen Pešić

## DISCUSSION AND CONCLUSIONS



The discussion is developed in line with the comparison of two National questionnaires reports with particular focus on the comparable questions – (a) applicability of key concepts in the context of different design scales, and (b) skills and knowledge obtained in educational programs, while creating a reflection on specific conclusions drawn within both reports.

Accordingly, the most significant findings comparing the two can be perceived in:  
- Unbalance of the students' and experts' understanding of the applicability of key concepts related to sustainability and cultural heritage in the context of different scales of design practice. In particular, the highest disbalance can be perceived in individual scales concerning following concepts:

- (1) Construction detailing, Interior Design and Architectural Design: Conservation, Restoration, Energy Conscious Design, Nature-based solutions, Renewable energy integration, Thermal, Visual and Acoustic comfort, and environmental impact of construction materials;
- (2) Urban Design and Urban planning: Restoration, Refurbishment and Thermal, Visual and Acoustic comfort;
- (3) Landscape design: Conservation, Restoration, Redevelopment, Recycling/ Upcycling, Microclimate improvement, Nature-based solutions, Green Blue infrastructure, and Cultural enhancement/Contribution.

- The highest disbalance in the scale of Landscape design, both in relation to professional backgrounds and study programs among students and field of work and relevance of key concepts among experts, while the urban design and planning scale records the highest coherence in-between students and experts statements.

- Evident mismatching between (a) students' self-evaluation on skills and knowledge obtained through educational programs, and (b) experts' perception of

those skills, particularly higher rates from students perspective on awareness-raising, specialist conservation skills, practical experience, analytic tools and methods, local and international context. Additionally, the questionnaire revealed that there is a coherence between students' and experts' views on skills and knowledge obtained in the field of technical competencies, presentation skills, fundamentals, and lack of managerial administrative skills.

– Lack of representation of heritage in experts' responses in contrast to students' views very both heritage and sustainability are equally ranked and evaluated.

In relation to the country and local context of policies, there is a notable relationship between existing established educational programs and expert's expectations on obtained skills and knowledge that future professionals should have when entering the practical arena. Regardless of the aspect that dominates in education and practice (heritage or sustainability), all HERSUS consortium countries, and hence Serbia, testify that there is a need to integrate these areas and to deepen the knowledge and understanding through education and practice.

Although there is an awareness of the contemporary and innovative concepts among students and experts in all HERSUS countries, experts' questionnaires highlight that traditional conservational concepts should not be neglected but need to be enhanced and upgraded in line with challenges posed by aspects of sustainability.

In the overall picture, analysis of the results from Serbia indicates contemporality of topics and courses at the UBFA that deal with key concepts and raise questions about the values of cultural heritage, thus keeping pace with the times and modernity of programs at the EU level. In this sense, there is an open polygon for the improvement of specialized study programs that would render the student profile for the labor market and achieve a stronger link between education and practice.



Sofia Tonello  
Emanuela Sorbo

## DISCUSSION AND CONCLUSIONS



The Students' and Experts' Questionnaires analyses underline the importance of Cultural Heritage and Sustainability issues for students and practitioners. The data collected highlight that students understand the importance of Environmental and Cultural Values Preservation issues, and experts consider them central in their practice. The most significant findings could be summarised in three main issues: (1) *the state-of-the-art of academic study programs*; (2) *The comprehension of the Cultural Heritage and Sustainability Awareness among students and experts*; (3) *The future challenges for educational programs and work environment for Cultural Heritage and Sustainability issues*.

### 1. State-of-the-art of academic study programs in Italy

- Cultural Heritage and Sustainability in luav study programs are part of students educational Career. Students approach them from an interdisciplinary perspective. The main relevant difference among the international level results is, although the specific curricula, that the *Second Cycle - Master Degree Study Programs* aim to give students an equilibrate perspective between Cultural Heritage and Sustainability issues.

- The Students' and Experts' Questionnaires results emphasise the importance of a deep methodological, theoretical, and scientific preparation in both cultural and operative perspective. Students and Practitioners consider *Lectures* and *Seminars* central to comprehend the *Fundamentals* and the *State-of-the-art*.

- Students and Experts affirm that *Seminars*, *Site Visits and Study trips*, and *Study and Analysis of Literature* are central educational experiences to extend students' reference case studies. Experts evaluate positively *Co-commitment outside the academic activities* and *Public presentations of work* such as national and international architectural competitions and workshops on relevant issues for local communities. Experts consider *Practical Training skills activities* and *Internships* as effective academic tools

to encourage students' involvement in work fields and promote local and international mobility.

- Experts believe that University's *networks and collaboration with public institutions* (such as Municipalities, Provinces, and Superintendencies) are fundamental tools to implement *Social Inclusion in Academical Research* and *students' involvement* in a complex design exercise.

## **2. The comprehension of Cultural Heritage and Sustainability Awareness among students and experts**

- Students and Experts consider the relationship between *Sustainability* and *Cultural Heritage* a pivotal issue from a theoretical, educational and practical perspective.

- Students and Experts address *Sustainability* and *Cultural Heritage* as all-embracing concepts to *architectural, urban and landscape scales*.

- Experts remark that not all *colleagues, collaborators, and other practitioners* are equally aware of the *Cultural Heritage* and *Sustainability concepts, national and international legislation* and *debate*. The awareness of *Cultural Heritage* and *Sustainability* issues depends on the field they work in.

- Students and Experts consider *Sustainability* a topic related to *technological aspects*, while *Cultural Heritage* a topic linked to a *historical, social, cultural and multidisciplinary approach*. Public administration and Government or local authorities' members or consultants identify the link between *Society and Culture* as fundamental in their activities.

- The Analysis of *Students' perception of Cultural Heritage and Sustainability* issues reveals that they are highly aware of these themes and positively evaluate *Skills' level obtained from the Educational Programs* (especially *Cultural Heritage* issues).

## **3. Future challenges for educational programs and work environment regard Cultural Heritage and Sustainability issues**

- Second Cycle – Master Degree students highlight a distance between the level of *Skills and Knowledge they have gained* and the *Skills and Knowledge required* in the work

environment.

- Experts underline the importance of *Third Cycle - Specialisation Schools Educational Programs* in *Cultural Heritage* and *Sustainability*.

- Experts believe in the *crucial role of University's networks and collaboration with Public Institutions* to help young practitioners overcome the complexity of architectural design in *Environmental and Cultural Values Preservation*.

- Experts and students highlight that architectural, urban and landscape design should safeguard and transmit *Cultural Heritage* and *Sustainability* issues through *local communities' inclusion in research, regeneration and enhancing projects*.

- Comparing national and international information emerged that Experts appreciate the collaboration with young graduates and the *interdisciplinarity, theoretical fundamentals, operative knowledge and internationalisation* in students' background. They emphasise the importance of continuous improvement of the learning programs.



Theodora Hadjipetrou  
 Maria Nodaraki  
 Maria Philokyprou  
 Andreas Savvides

## DISCUSSION AND CONCLUSIONS



The discussion is developed in accordance with the compilation of the two questionnaire reports prepared by the UCY team with reference to the questions with regards to (a) the presence / awareness of issues of sustainability, cultural heritage or both in practice, (b) the applicability of the key concepts in the context of different scales of design practice and c) the competencies related to sustainability, cultural heritage or both in practice. The conclusions enumerate the key points raised by both students and experts and state the main arguments on improving the available study programs so as to achieve a more significant link between sustainability and cultural heritage.

### Discussion

*a) The presence and/or awareness of issues of sustainability, cultural heritage or both in practice.*

Sustainability and cultural heritage are seen to play an important role in the experts' daily practice and research. The experts believe that most of their colleagues and collaborators are well aware of the key concepts and principles of sustainability. At the same time, graduate students have noted that they gain a good comprehension of principles related to sustainability, cultural heritage or both through their studies, but they have also noted that these issues are more succinctly introduced in the respective Master programs on Conservation and on Energy Technology and Sustainable Design. Students in the Diploma/Master of Architecture (5th year of study) have only marginal contact with these issues. Both groups mention that the concepts of sustainability and/ or cultural heritage are not adequately integrated in the main body of their architectural academic studies, something that warrants improvement.

*b) The applicability of issues of sustainability, cultural heritage or both in the context of different scales of design practice.*

According to the survey, there is a general consensus in the students' and experts'



understanding of the applicability of key concepts related to sustainability and cultural heritage in the framework of the different scales of intervention that have to address in their design practice. In particular:

- In the framework of Construction Detailing, Interior Design and Architectural Design, the relevance of the key concepts of Adaptive Reuse, Restoration and Conservation is of utmost importance to both experts and students. Students also note that Energy Conscious Design is applicable to this field.
- In the context of Urban Design and Urban Planning, the most relevant key concepts are Adaptive Reuse and Redevelopment.
- In the context of Landscape Design, the key concept of Nature Based Solutions is considered to be highly applicable to both groups. Yet another key concept highly valued by both experts and students in this context is Commitment to Cultural Enhancement.

*c) The competencies in relation to sustainability, cultural heritage or both in practice.*

There is general consensus between the answers of experts and students related to the comprehension of the key concepts of sustainability, cultural heritage or both. Experts recognize that graduates are generally aware and have adequate theoretical knowledge of the concepts of sustainability, cultural heritage or both. Students express the opinion that they gain insight of the fundamentals, have raised awareness in the presentation, communication and understanding of the local context, through the respective programs of study. Both groups agree that the curricula of the available course programs lack in field training. An emphasis in gaining practical experience and establishing a closer relationship between the fields of sustainability and cultural heritage will improve the employability prospects of graduates. Consequently, there is a perceived need to include more field training activities during studies at the graduate (diploma) and postgraduate level (master). In addition, a more multidisciplinary approach during graduate studies, involving both the terms of

sustainability and heritage will be helpful to both students and experts.

### **Conclusions**

- Both experts and students recognize the value and applicability of sustainability, culture heritage and/ or both in context of varying scales of intervention in design practice.
- Despite the competencies, obtained from the available programs of studies, the existing curricula do not provide ample opportunities to develop synergies between sustainability and cultural heritage and by extension these must be further improved.
- Practical experience in combining comprehension of the fundamentals with a raised awareness, development of presentation and communication skills and an understanding of the local context will improve and further integrate the two fields of sustainability and cultural heritage in Higher Education.

## DISCUSSION AND CONCLUSIONS

The IO2 HERSUS Questionnaires dissemination, in Greece, attracted responses from 10 experts and 120 Students. The experts' background, the variability of their roles, the high degree of their involvement in academia and their considerable experience in practice /research confirm the validity and quality of the survey. The greek student sample accounts for 15.67% of all student questionnaires received in the five HERSUS countries. The study was successful in engaging students with a background in Architecture. The majority of responses came from students attending 2nd Cycle structured studies while the remaining can be attributed to PhD students and recent alumni of 2nd/3rd Cycle higher education programs. This section discusses the cumulative findings of the IO2 survey.

### GREECE



Konstantinos Sakantamis  
Alkmini Paka  
Maria Dousi  
Kleio Axarli  
Sofoklis Kotsopoulos  
Angeliki Chatzidimitriou

### **Presence – awareness of issues of sustainability and heritage in education and practice**

- Depending on the experts' professional practice and their educational background, the emphasis on sustainability and heritage varies, while neither one is marginalized. Furthermore, despite their different perspectives, they all agree on the need to balance the pillars of sustainability as a necessary condition for serving the needs and achieving the goals of contemporary societies.
- Most of the experts' answers converge on the view that their immediate colleagues and collaborators are mostly specialized through 2nd Cycle specialization postgraduate programs. They generally accept that the concepts of sustainability and heritage are better addressed in relevant postgraduate programs but not in relation to each other.
- Experts appear satisfied from their cooperation with graduates of 5-year Architecture and related specialisation postgraduate programs, pointing out a fragmentary knowledge of issues, by the former, while at the same time acknowledging architecture graduates as the most knowledgeable on matters of sustainability and heritage with regards to related disciplines/professions.
- Experts suggest that interdisciplinarity is lacking in the context of academic programs, and should be enhanced through cooperation between diverse postgraduate programs and the public sector (Ephorates, public authorities, etc).
- Within the same context, experts point out the lack of training in terms of management/legislation issues, as well as social parameters and hands-on training.
- Students' views indicate that larger percentages of courses are included in the Greek integrated Masters' curriculums than those observed across all HERSUS countries focusing mainly on sustainability and cultural heritage or raising issues that pertain to the two.
- According to greek student respondents, Heritage-related Master's programs are found to be more inclusive of the two disciplines while sustainability-related Postgraduate programs of study are found to be able to better interface the two disciplines in the context of interdisciplinary courses (focusing equally on sustainability and heritage).

### **Educational Activities and their impact on the comprehension of key principles of sustainability and heritage**

- Greek Student respondents (in line with what is perceived at the international sample) suggest that the educational activities with the highest impact on the comprehension of key principles are Lectures and Design Project, while Research Thesis, Fieldwork, Study and Analysis of Literature,

Site visits, Co-commitment outside the academia, Seminars, Practical training skills, Internship, Participatory learning, and Public Presentation of work are perceived as having a major influence.

- Student respondents had less confidence in specific activities that have enhanced their comprehension of issues pertaining to the interface of heritage and sustainability. The activities of Laboratory work, Fieldwork, Site visits, Design Project, Research Thesis and Co-commitment outside the academia receive higher rankings, indicating a preference for a hands-on approach to learning.

- According to the students, the activities with the lowest impact are those of Applied Arts Projects, Interactive tutorials and Exams.

- The Greek Experts express the view that Methods of Knowledge transfer should form the highest proportion of academic studies focusing on the two fields, while indicating that practical and technical training are also important. Experts agree with the students in assigning marginal impact of evaluation methods/Exams on the consolidation of knowledge.

### **Competences in relation to Sustainability and Heritage in education / practice (skills and knowledge)**

- Experts find that graduates have a good level of presentation-communication skills, knowledge of analytic tools and methods, while interdisciplinarity, fundamental knowledge and awareness raising are also considered as skills that have been consolidated through academic education.

- Most expert respondents emphasize that graduates lack the managerial skills needed for formulating strategies and implementing their knowledge and have less developed practical experience/training skills. Furthermore, they find a lack in specialist environmental design skills in relation to Heritage.

- Experts rate highly the contribution of practice in consolidating most of the skills of their collaborators (graduates), some indicating that in this sense education offers the framework of knowledge on which one builds through practice.

- In judging their skills, obtained from academic study programs dealing with sustainability and/or cultural heritage, students indicate that the knowledge of fundamentals, their awareness raising and presentation communication skills are their most prevalent assets. Furthermore, they declare to have specialist / technical / analytic skills on the two domains but not any that possibly transgress the two.

- Students also find that the knowledge of fundamentals, their awareness raising, presentation communication and technical skills will be the most important in allowing

them employment in the relevant domains of sustainability and heritage.

- Knowledge of the international context in terms of the two disciplines is considered to be small amongst the students while the same parameter is also ranked of least relevance in terms of the employability that it allows.

### **Relevance of Key concepts of sustainability and heritage in different scales of design practice**

- Students' responses (in line with the international sample) reveal a wide array of concept applicability across all three scales, at the same time indicating concepts related to conservation, restoration, cultural enhancement, are more prevalent along with key concepts of sustainability at the building level but diminish in the rankings at the urban and landscape scales.

- In the case of experts, their responses reveal a slightly different perspective on the applicability of key concepts in the different scales of design in practice, since they exclude some key concepts as not relevant to their own everyday practice. They nevertheless, are found to generally agree with the views of students in the applicability of heritage-related Key concepts, only within the context of the Architectural scale.

### **Key factors for the improvement of architectural education in terms of sustainability and cultural heritage awareness and training**

- Most experts express the need to link academic education with professional practice, suggesting that studio courses and specialized intensive workshops should be enhanced in academic curricula. This is found to be in agreement with the proposals of students on the possible activities that had a significant impact on their comprehension of principles related to both disciplines – a hands-on approach.

- Experts find that the gap between education and practice can be addressed through interdisciplinary education and the involvement of relevant stakeholders, institutions, and professionals in postgraduate studies.

- All experts express the wish for a more systematic effort to correlate the concepts of sustainability and heritage, both at undergraduate and postgraduate levels.



María F. Carrascal Pérez  
 Roberto F. Alonso-Jiménez  
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## DISCUSSION AND CONCLUSIONS



In the context of USE, it stands out the high participation obtained in both processes for this outcome: 13 experts' questionnaires, and 187 students' questionnaires, representing 24.41% of the total by the five universities of the consortium.

### a) Regarding the section on presence/ awareness,

With a long trajectory and high profile in their fields, most of the experts have pointed out Sustainability and Cultural Heritage as the pillars, the axis of their professional practices, however, the "available courses" in 4th / 5th years of the Architecture Diploma are mainly focused on Architecture (81%), leaving in a second place Heritage (15%) and afterwards Sustainability (3%). There are, however, two Master's degrees, one focused on Cultural Heritage (MARPH) and another one on Sustainability (MCAS). It is also noted that, although sustainability is generally a recurrent concept, MARPH does not have a specific module on it, while MCAS does have it on heritage.

Therefore, this low presence of specific courses and also the lack of transversality, might cause that a significant group of students do not identify or, in some cases, ignore the principles related to (a) sustainability, (b) cultural heritage or (c) both in their acquired competences (skills, knowledge and attitudes), not answering the related questions in their questionnaires.

Nonetheless, experts detected a higher general awareness in younger generations in relation to these principles or concepts, which can be connected to a more integral learning experience offered in the postgraduate context.

A key concept very well valued by the experts is cultural enhancement/ commitment in practice/academia/decision making/policy making, which is also highly valued by the students in Urban Planning and Landscape Design, although not in the Architectural scale.

Experts consider the binomial *Society–Culture* a fundamental pillar of sustainability in decision making processes. Also, students consider *Public Advocacy for social Participation / Inclusion* highly valued concepts in the urban scale, however they also are the least valued in the architectural scale. On the architectural scale, the students highlight more instrumental and technical aspects and concepts that are less highlighted by the experts.

**b) Regarding the section on competences,**

The experts highlighted a number of competencies that should be taken into account in this context such as *transdisciplinary and collaborative work; social participation and connection with local communities; and heritage management and methodologies*. This can be related to the low valuation obtained by Practical experience in the students' questionnaires. Therefore, a greater connection with the professional environment has been detected: when talking about competences, this points out to skills and knowledge obtained through learning/teaching practices and processes integrated in real contexts. This appreciation is reinforced with the experts' suggestions on those competences related to: *real data, documentation and case studies; social sciences; technical-scientific training; public policies and international organizations*. This was also evident in the low valuation obtained in the students' questionnaires of the acquisition of *specialized environmental design skills, administrative management skills and analytical tools and methods*.

When referring to the competencies in both Cultural Heritage and Sustainability, the experts detect a difference in the perception of the areas: while the competencies related to the former are more evident in the graduates of the Architecture program, the competencies related to the latter are less present, considering that these ones are more enhanced in the postgraduate context. On the other hand, students give a very low valuation to the joint acquisition of transversal competences of sustainability + cultural heritage. This data can be interpreted as a low transversality in the

acquired competences (skills, knowledge and attitudes) that are applied both in the Degree of Architecture and in postgraduate studies.

It is important to highlight that a high percentage (above 70%) of the students consider necessary for their employability the skills and knowledge derived from the principles related to (a) sustainability, (b) cultural heritage or (c) both in their acquired competences (skills, knowledge and attitudes). On the other hand, most of the experts have pointed out Sustainability and Cultural Heritage as the pillars, the axis of their professional practices developed in public institutions. However, the students detect that the skills and knowledge acquired do not show this relevance observed by the experts. The experts have pointed out that there is a trivialization and simplification of these concepts in the professional practice and this could sometimes denote a lack of training.

