

Annexe S.1:

1. Student opinion format

Two different approaches were undertaken to investigate the success of the teaching methods for the students. In the first charrette in Delft, short interviews were recorded using a random sample of the group, whereas in the second charrette in Romania all students could submit their feedback in a written anonymous format.

1.1 Feedback from Delft Charrette April 2015

Seven short interviews were filmed in Delft in April 2015 on the last day of the charrette. The students could freely comment on how they experienced the charrette, whether they have any suggestions for improvement, what was the most important thing they learned or what is sustainable architecture for them, after taking part in such an exercise. Two students from each, Delft and Milano, and three students from Bucharest agreed to participate. Considering gender equality, they were three female and four male students. All videos can be found online in the project's Facebook community. Following are the transcripts.

TU Delft, student 1:

(...) the workshops were organized in the form of a charrette, with tasks that had to be finished within a couple of hours. Having followed this week, a combination with lectures, it was a really good format. The lectures complimented each other. I think for a start it was a really good format and I think for the future you might want to change the format to something with longer work times, so you can work more in depth on the sustainability on a conceptual level, but also on a detailed level. And for the charrettes, reaching the detailed and the technical level was a bit short. So instead of having three days of three short charrettes, you might want to think of having one going over two days, so you can work on your concept first and further define the concept in a technical and detail aspect. So you can actually experience a different side of sustainability and reach a different depth. That's why I think this workshop was a really useful workshop and I think everyone should at least experience one of these workshops for sustainability.

TU Delft, student 2:

(...) What I think architects should do in the future regarding sustainability is, to look at materials more, the materials that you use, more consciously, so when you think about which materials you use for your building think about what kind of footprint it has, what kind of life it had before and what kind of life it will have in the future, and if you start from that I think building in itself can be far more sustainable and the next step is the design and I think that will be a good point to start.

Ion Mincu, student 1:

(...) I really enjoyed the workshop, that was an interesting experience, because I managed to work somehow with people from other countries, and experience some relations, and more

than just an interaction, a social interaction, it was an exchange of ideas. I think that the most important thing that I gained from this workshop was that I learned a lot more about the social part of sustainability and how it implements within the city and how people react to the social part of sustainability.

Ion Mincu, student 2:

(...) I learned very much. So many things about sustainability that I haven't known before. This workshop helped me very much in learning new things and competing with students from other countries like Italy and students here from Delft. I assimilated quite a few information regarding the sustainability and I think this will help me in the future.

Ion Mincu, student 3:

(...) Today's workshop or the whole week showed us that it is very important to have a cultural background in sustainability and probably the most important thing would be that when you adapt sustainability to different countries you should take into consideration different cultural and social, economic backgrounds. Therefore, the whole workshop would be a success in the case if it applies to different countries, it applies to Romania and Italy, more exactly Bucharest and Milano. And I think the success relies on combining different cultures and basically interacting with different people from different backgrounds.

Politecnico di Milano, student 1:

(...) After taking part to the wicked problem workshop in Delft I have to say I have a new view on sustainability in architecture and I started thinking that whereas sustainability has always been seen as a technical issue and something that was not really integrated in architecture in its expressive values, I really believe that the challenge in architecture is now to make sustainability that express also architectural and expressive values not just technical and functional.

Politecnico di Milano, student 2:

(...) My personal opinion on how the charrette was structured is, it worked pretty good. I mean to have this combination to have these lectures and the practical experience. So, I guess that the layout was pretty well organized. Probably I wouldn't change anything. It was really a great chance for me to join that workshop and I'm proud and happy to be here. Maybe wickedness is that, it goes with experimentation, I mean those problems don't have a solution yet. Probably speculating and experimenting stuff is the best way to try to find a solution for them. And I definitely believe involving students can be a great chance to have some answers (...)

1.2 Feedback from Romanian Charrette April 2016

All participating students were asked to write any feedback on a sheet of paper at the end of the charrette. This way they could stay anonymous, if they wished to. Twenty-four feedback sheets were received.

Coding was used to analyse the texts written and the following three tables present the results in terms of positive, negative feedback and suggestions for improvement for the future/ last charrette.

Positive points

Thank you	12
great experience	11
great interaction/ collaboration	10
interesting topic	7
great to work on site	6
great to travel	3
liked group brainstorming	2

Negative points

improve organisation	11
too many delays/ keep to schedule	6
lack of sleep	4
lack of electricity	3
lack of tables	2
lack of wifi	2
coldness made us sick	1
rude prof	1
profs too far away	1
improve communication	1

Suggestions for improvement

more time needed for charrette	12
send us schedule before travel, incl hotel address, payments, costs, packing list	4
other lectures (multi-disciplinary)	3
explain sustainability better	2
vision and issue stage shorter and more time for design	2
less excursions	2
less student presentations (not 1 per day)	1
ask us for our opinion	1

The results of the analysis of the student feedback from the second charrette clearly point in the direction to not include too many things in one week. The students prefer to receive a schedule incl. address of hotel, terms of payment, packing list (probably referring to the cold weather in Romania) one week before the charrette. At the beginning of the week they would like to have enough time to meet the students from the other universities and bond with work group members before starting the charrette work. The inter-cultural experience is very important to them and they would prefer to be able to get the most out of it. Although some of them appreciated the travelling within Romania, visiting museums along the way and during the week etc., most mentioned this was taking too much time from their actual work time. Also, once a schedule is set by the organizing institute, it is vital to stick to it. Furthermore, they appreciated working on site, though this should include a proper working environment with e.g. tables, heating, electricity, wifi. Regarding the suggestions of improvement, the professors should provide a better explanation of the concept of sustainability in the beginning, include short lectures, but not only from an architectural point of view, but also multi-disciplinary, e.g. social-cultural and economic. They would like to more time to work and for the tutoring by the professors - maybe four days instead of three. They suggested not having to present their work every day in front of everybody, but prefer discussing it with the tutors. They suggested a shorter vision and issue stage in order to have more time to focus on the design. This comment goes in line with one of the interviewees from the first charrette in Delft.

1.3 What is ‘Sustainability’? (Students’ Manifestos) May 2017

All participating groups were asked the first day and the last to write a definition of Architectural and Urban Sustainability in order to know the growing awareness of the topic

Day 1

«Human actions that not only preserve the natural heritage on Earth but also helps it grow in the use of future generations. It includes the relation of what the environment can give and what humans are taking it off, in balance. Sustainability is related to durability. Something which can continue (indefinitely). Sustainable growth = social growth, environmental growth and economic growth.

Renewable energy production, technical advancements. Material reuse, embodied energy and of materials considered before demolishing the material»

(Martina, Virginie, Michelle, Alex)

«Doing things in a way to make the world generate an inner balance in time, in which people, planet and profit do not harm each other's interests»

(Irina, Wesse, Derya, Lorenzo)

«Sustainability is a way of thinking. It should be present at the point of conception. We should not use the technology to rectify bad design decisions. Sustainability is often associated with complicated technologies we need to return to basics: correct orientation, material etc»

(Raluca, Elena, Alice, Serah)

«Related to time, flexibility (being able to adapt to changes in functions according to needs), natural resources, social acceptance (involvement, target group, impact on local community) energy efficiency»

(Urzica, Giulia, Jorien, Mara)

«Sustainable design is an attitude; a frame of mind. It needs to consider multiple timescales – that of the past, the now and the future- taking flexibility and adaptability into account, since we are designing for a society that both is and is not ours. Social and spatial identity and heritage need to be respected and celebrated, while promoted unexpected encounters and cultural integration. The same type of respect as to be shown in relation to nature and inhabitant of the city. A cyclical process in which built structures and materials can be almost endlessly reconfigured repurposed and reused based on a long-term perspective rather than short-term profit »

(Daniele, Helena, Ana-Maria, Fotau)

Day 5

«Sustainability, in our point of view, means to be aware of the issues which surround us and to try to solve them in order to make our action last through the years and evolve dynamically, improving step by step the condition of the site. A sustainable approach means to keep in mind the environmental, social, and economic dynamics, to sustain and harmonize them together, creating a self-efficient system in which all things, energy, resources and interactions are in balance. In this process, it's important to consider the embodied energy in

materials and use technology both efficiently and effectively. Communities have to be involved in this process because active communities are more beneficial than individual people»

(Martina, Virginie, Michelle, Alex)

«Sustainability is an evaluation of social, economic, cultural and environmental factors filtered through time and space scales»

(Irina, Wesse, Derya, Lorenzo)

«Related to environment: limited and predict impact, eco-friendly materials, lower CO₂ embodied emission; related to social: get more local people involved, continuous public interest and profit, respect the context (culture, history, tradition); related to technology: affordable price and time to make it practical, work in a longer time span and still advanced, respect the idea of low-tech technology to avoid an obsession of modern high-tech»

(Urzica, Giulia, Jorien, Mara)

«Sustainability is a way of thinking, that goes beyond the use of efficient technologies. It means the acceptance of limits, considering identity in a community based approach, while also working at different timescales and with multiple users. It aims to create sustainable relationships in a community, through building alliances. It means showing respect to social and spatial identity through education and the spread of awareness. This type of respect towards the cultural landscape should also be shown to natural landscape. An approach based on minimum consumption of new land and urban regeneration leads to a soft urban renewal. This cyclical process, in which built structures, materials and batches of land can be almost endlessly reconfigured, repurposed and reused can lead social, environmental, and also economic benefits»

(Daniele, Helena, Ana-Maria, Fotau)