City of the Future Graduation Lab

Experiences in Multidisciplinary Education

Editors
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TU Delft OPEN

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"Our first, last and constant task is never to allow our fore-having, fore-sight and fore-conception to be presented to us by fancies and popular conceptions, but rather to make the scientific theme secure by working out these fore-structures in terms of the things themselves."

—*Martin Heidegger, Being and Time, p. 153*

Electronic version of this book is available at https://books.open.tudelft.nl/

As part of their graduation projects, some parts of the texts written by the former students can be found in the repository of the TU Delft.

Design and cover design

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Xiaodong Luo, Architectural Designer

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Introduction

I am an associate professor in the Department of Architecture and Urban Studies at the Politecnico di Milano. It's a quite large department with different competencies—architecture, urban planning, landscape, sociology and geography—so we do experiment with multidisciplinarity. In parallel, I have my architecture practice in Calabria, the region where I come from, mainly related to architectural design. I am also a visiting researcher in Delft at the Department of Architecture for two years now.

What is your relation with the City of the Future Cross Domain Graduation Lab?

My interaction with the studio was mainly related to the Venice Architecture Biennale in 2018. We hosted a workshop in cooperation with the universities of Venice, Rome, Calabria and Delft. Besides that, I was participating in the *Stations as Nodes* Summer School organized by Delft in 2018.

Approach and experience with multi-disciplinarity

What is your approach or opinion towards multi-/crossdisciplinarity in your field of expertise and if so, what is your experience with that?

I would say that I have maybe a naive way of seeing the terms multidisciplinarity and crossdisciplinarity. For me, they are quite different. The main characteristic of multidisciplinarity is the horizontality between disciplines. There are no leading disciplines through which the perspective is explained. Multidisciplinarity is quite needed to research complex

phenomena because you need to expand your perspective. Crossdisciplinarity is about combining disciplines with a clear direction and a clear focus, usually with a dominant discipline over the others.

Multidisciplinary is a tough job because to reach horizontality you have to first create a common ground. This takes time. My experience is that multidisciplinary research is more difficult due to the negotiation of terms, meanings and context, but it's quite engaging because you expand your knowledge towards other disciplines.

In the practice of design, do you think that one of these approaches is preferred?

It depends on the context. The more you go to complex topics, the more you need multidisciplinarity. In the context of architectural design, multidisciplinary is not the main focus, even though of course you need engineering and landscape architects. As the scale becomes larger towards the urban scale, then you need to use multidisciplinarity to combine policies from different perspectives. Usually, in this case, the team is composed of many experts representing the different fields and led by a coordinator, for example the Municipality.

What has been your experience in teaching students to work on a multidisciplinary project?

I think multidisciplinarity works if you have a proper position yourself. For instance, as an architect, if you have a position about infrastructure as pieces of urban architecture in the sense that they have to maintain a publicness. A transport engineer will focus on the issues of flows

and people and then we start a discussion. The final outcome is a negotiation of positions.

Where do the boundaries of each position lie?

Having a position does not mean that you have to create walls, but at least you have your point of view. The danger is when competencies are transgressed or transposed, for example, if a landscape architect would like to act as a botanist and vice-versa. The context in which this negotiation happens must be respectful, that each discipline respects the others' ideas.

Should there be someone to coordinate this process?

Coordination can create efficiency in terms of time and defining the rules of the game. But, at the same time, the coordination might direct the process too fast towards the objective. A horizontal platform allows more mistakes and different trajectories, which I think is maybe more fruitful.

Multidisciplinarity in education

How do you see multidisciplinary ideas or experiences translate towards education in the built environment? What is your experience at Politecnico di Milano?

Sure, let me share an example. This year we had the thematic studio on the role of architecture in marginal conditions in Italy. We combined architectural, landscape and construction design in this studio. It worked quite well because we maintained respect towards each other at the same time that we had a horizontal

cooperation, so the three disciplines were always at the same level of intensity and attention. We looked for coherency in scales, from landscape to detail, across the whole process. Obviously, the constructive part came a bit later, but it was mandatory to consider from the beginning the materiality, the construction, the reality on the ground, as well as the landscape and spatial settings.

Multidisciplinarity in future education

How would you see the paradigm of multi-/crossdisciplinarity in future-based education in the built environment?

I think we are already testing multidisciplinary and crossdisciplinarity in education and practice. But I see a double sword there. The challenge is that if we start from the first year to give a method of multidisciplinarity, the students might leave the university without and a clear position, a clear point of view. On the other hand, it is good that students are trained to work together with other competencies. I will give you an example. We have professors with an academic background in philosophy a specialisation in urban planning. In that sense, they have unique profiles. We can be more effective in developing this type of training in the future.

I don't have an exact answer on how to balance both sides but what could be is that a part of the curriculum is devoted to training personal skills and another part is devoted to developing an attitude of multidisciplinary collaboration.

Multidisciplinarity and the needs of the city of the future

How would you see multi-/crossdisciplinarity education concerning the design needs of Cities of the Future?

I think this is a problem of time. In the last 10–15 years, education has been trying to work on short-term and mid-term transformations of the city, a kind of problem-solving approach. However, this approach is similar to what is there outside in the practice. This is not only what we as designers are called to do. We are called to think long-term. Education should keep room for groundbreaking research on the city of the future: unexpected visions, impossible visions or impossible features. Such tests are always useful. In fact, the design needs of cities of the future is about getting a long-time perspective and working with uncertainty as a topic.

How would you see the interaction between academia, industry and government in the future?

I see this connection as a benefit. But if we have a position. Academia has the role to see impossible things and explore impossible scenarios. The industry has the role to challenge academia with reality. The encounters of the two spheres are a benefit for both of them, because for academia is a kind of pushing back to experiment visions, testing them and grounding them, and for the industry, it is a push to think further than their immediate issues.

Who do you think will be the main industry players in the future?

Look at all the industries of technologies, ICT. They are becoming the new developers of the future, also in the built environment. The industries of biofabrics, materials and waste are also becoming more important for the city.

Final remarks

Do you have any final remarks?

You have a bigger responsibility as a generation for the future than what we had. But also you have a bigger chance in the sense that you can focus on developing your interest within your curriculum. In this case, this should be based on crossdisciplinarity rather than multidisciplinarity as approach, so you have a perspective, you have a personal interest and then you expand your knowledge towards related disciplines or topics. This possibility that education nowadays is given is important and it's equally important to take it consciously. For that reason, I appreciate your work in the book because it is urgent to develop consciousness from the new generations on how to approach the formation of their curriculum.

The Cross Domain City of the Future Graduation Lab, situated in the Faculty of Architecture and the Built Environment at TU Delft, has been a pioneer in experimenting with a multidisciplinary approach to education on the built environment. Drawing upon this expertise over the past years, this book reflects on multi-disciplinarity in the built environment and its implementation in education on the built environment. How should one approach multidisciplinarity in education and practice? What encompasses its core elements, benefits, and challenges?

By addressing these questions, the book aims to inform students and practitioners within the realm of the built environment by sharing insights from experiences in multidisciplinary education. It presents eight conclusions regarding the future of multidisciplinary education and, thereby, seeks to contribute to a more humane and sustainable future for cities:

I   Process is central to multidisciplinary collaboration. Negotiating positions, ensuring an environment of respect, balance and open-mindedness, and setting a common vocabulary.

II   Multidisciplinarity can be a way to foster innovation. It triggers complementarity and confrontation. As with any innovation, there is potential for greater outcomes, but, at the same time, extra risks emerge. These need to be managed.

III   Multidisciplinarity could be better integrated into organisational structures.

IV   Disciplinarity and multidisciplinarity are in mutual coexistence. They are inseparable. They can complement and contradict each other.

V   Problem precedes solution, not the opposite. Framing the problem, or 'problematizing', is a considerable share of the actual solution. This is particularly applicable to multidisciplinarity.

VI   Multidisciplinarity is by nature composed of fluid boundaries. Navigating through an enormous diversity of perspectives requires agility, flexibility, independence, spirit of adventure and embracing uncertainty.

VII   Professionals should be trained as 'T-shape': grounded in their field while able to dialogue with other fields.

VIII   Both generalists and specialists are needed. Education should provide opportunities for both.

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