Lessons from the Past, Visions for the Future
Celebrating One Hundred Years of Landscape Architecture Education in Europe

Norwegian University of Life Sciences
Ås, Norway, 16-17 September, 2019

LESSONS VISIONS
FROM THE PAST FOR THE FUTURE

ECLAS and UNISCAPE Annual Conference 2019

Hosted by the Norwegian University of Life Sciences, Ås, Norway

16-17 September 2019

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Introduction

Real change can only happen very slowly and as a result of education.
— Edward Said, 1993

Education is essential to a better future; change is inherent to landscape, and future-oriented thinking is embedded in landscape thinking. The first academic education program in landscape architecture in Europe began in 1919 at the then the Norwegian College of Agriculture (today the Norwegian University of Life Sciences) in Ås, Norway. One hundred years onwards, the relatively new discipline of landscape architecture has an opportunity to embrace lessons from the past, and to envision better futures.

By reflecting on how landscape architecture education has evolved, developed, and adapted to critical environmental and societal needs, and how it can go forward in facing contemporary challenges, the discipline moves to the centre of architectural and environmental discourses as the profession best equipped to make the kinds of links necessary for sustainable practice.

This conference will host thought-provoking discussions, intellectual deliberations, and cutting-edge ideas, knowledge, and innovation about landscape as a core topic, and the role of educators of the future generations of landscape practitioners, researchers and scholars. Two volumes on teaching landscape architecture, *The Routledge Handbook of Teaching Landscape Architecture* and *The Studio Experience* will be launched at this conference. This centennial celebration is also an opportunity to launch a new Master of Landscape Architecture in Global Sustainability at the Faculty of Landscape and Society in the Norwegian University of Life Sciences.

(NMBU photo archive)

Greetings from the organising committee

It is our pleasure to welcome you to the joint ECLAS and UNISCAPE annual conference hosted by our School of Landscape Architecture at the Norwegian University of Life Sciences in Ås. As we have seen from the overwhelming response to our call for papers, the topic of landscape education is timely. 100 years from the beginning of landscape architecture education in Europe, and in anticipation of the 20th anniversary of the European Landscape Convention, is the appropriate moment to discuss and reflect on the role of landscape education in the past, and its role in these critical times of climate change, particularly threats to our landscapes.

The conference programme is intensive. We have two days that include over a hundred 15-minute presentations, five 90 – 180-minute workshops, and six special topic sessions proposed and organised by members. The schedule is divided into five 90-minute sessions, during each session eight blocks run parallel. We know that this is a lot of content, and there will be difficult choices to make. We have included the extended abstracts in these proceedings in order to help you plan and prioritise the sessions that are of particular interest to you. The extended abstracts, all of which have undergone double-blind reviews, function as short papers with reference lists, making this book a useful resource on landscape education.

We are honoured to host keynote speakers Anne Whiston Spirn, Ellen Fetzer and Burcu Yigit Turan. We would like to thank our keynote speakers, and we also take this opportunity to thank all the reviewers who contributed their time and sharp intellects to make sure we collate quality work.

As organisers, we hope that this conference gives all of you the opportunity to discuss, exchange ideas, and inspire one another, so together we can make a difference, by educating the next generation of landscape professionals to address current and future challenges.

Shelley Egoz, Lei Gao, Anne Katrine Geelmuyden, Karsten Jørgensen, Morten Clemetsen and Tore Edvard Bergaust

Ås, September 2019

Welcome note from the School of Landscape Architecture, NMBU

Dear friends of landscape,

It is a great pleasure to welcome you all to the Norwegian University of Life Sciences (NMBU).

This year we celebrate 100 years of teaching landscape architecture here at NMBU.

Surprisingly enough, it was here at NMBU that the very first landscape higher education program in Europe was offered. In 1919, the first students were admitted to the garden art program at what was then the Norwegian College of Agriculture here in Ås (now NMBU). This marked the first small step of a long tradition, based on a garden art tradition that started several thousand years ago, far away from Norway and Ås.

Since then, the department of landscape architecture has struggled its way out of the cradle, and since the first tentative, unsteady steps, has matured to become a robust, self-sufficient adult.

Today the department includes nearly 50 staff members and we offer two educational programs, a five-year masters program in landscape architecture (40 students) and a three-year bachelor of landscape engineering (25 students). This autumn we launch a new two-year Master of Landscape Architecture for Global Sustainability (25 students) that will welcome its first students in September 2020.

We are the leading institution in landscape architecture education in Norway. We also house the Norwegian Landscape Laboratory, the Centre for Landscape Democracy (CLaD), the Historical Archive of Norwegian Landscape Architecture (which also has a blog) and the Virtual Reality Laboratory. These are all located at a green campus.

The central element of the NMBU campus is the park established by Olav L. Moen, the first head of the education program from 1919. It is based on his plan from 1924; and was further developed the following years. The park is considered Moen's most important work and is now marked as a protected cultural heritage site. The park has always, and still is, actively used in teaching and student activities.

After 100 years of offering education, it is natural to gather here at Ås for an ECLAS UNISCAPE conference reflecting on how landscape architecture education has developed, lessons from the past, vissions for the future, and

celebrating one hundred years of landscape education in Europe.

Again, a warm welcome to all and especially to ECLAS and UNISCAPE members. I hope all of you will feel inspired, get fresh ideas, and gain new friendships.

`Tore Edvard Bergaust, Head of School of Landscape Architecture`

`Norwegian University of Life Sciences`

Welcome note from ECLAS

Some twenty years ago, as an undergraduate at the University of Idaho in the US, I was among a group of architects and landscape architects who founded a green discussion group to talk about sustainability. I was, as were my compatriots, convinced that landscape was ecological and political as well as scenic. We were definitely a minority among the other students. Recently a prominent landscape architect lectured to students and staff at the University of Greenwich. When asked a thorny question about negotiating race relations in landscape space, the speaker raised both hands and replied, "I'm a designer. I don't do politics." A chill of frost descended upon the room. The students were furious. It's remarkable that issues of justice and the environment have moved to the very centre of landscape architecture in such a short time, enough that a designer who made a reputation in the 1990s could be seen by current students as hopelessly out of touch.

As climate breakdown makes immediate action imperative just as Fascism 2.0, among other political poisons, is helping tear apart the liberal edifice, it may seem futile to theme a conference around the idea of earnest study. The last twenty years of the 100 years of landscape architecture education show the opposite: that land-based practices and ecological and holistic thinking are fundamental to justice, humanity (and the more-than-human), and planetary flourishing. This complicates our task as teachers and students all the more, but in rich and fascinating ways. How we act, think, design, and teach have immense power to prefigure better futures. This work will include not just traditional studio education, but a questioning of that model as well as a defence of the simultaneous work of hand, heart, and mind that the best design education proffers. Ours is a work of transformation: of landscapes, of course, but also of institutions, ideas, and quality of life.

Welcome to the ECLAS and UNISCAPE Conference at NMBU in Ås!

`Tim Waterman, ECLAS Vice President`

Welcome note from UNISCAPE

UNISCAPE, the European network of universities dedicated to landscape studies and education according to the principles of the European Landscape Convention, welcomes you at the ECLAS and UNISCAPE joint annual Conference 2019.

UNISCAPE was established in Florence in January 2008 as a result of the joint initiative of 23 European Universities. The founding members of UNISCAPE are 42 universities from Italy, Spain, the Netherlands, Portugal, Slovenia, Belgium, Slovakia and France.

Currently the network is composed of 56 member universities from 15 European Countries, and two private foundations promoting landscape studies and research.

The aim of UNISCAPE is to support and reinforce scientific interdisciplinary cooperation regarding landscape issues, among European universities – beyond national and disciplinary borders – especially in the areas of research and teaching.

`Tessa Matteini, Director, UNISCAPE`

Keynote Speakers

Anne Whiston Spirn, the Cecil and Ida Green Professor of Landscape Architecture and Planning at MIT, is an award-winning author, scholar, photographer, teacher, and practitioner. Her books include *The Granite Garden* (1984), *The Language of Landscape* (1998), *Daring to Look* (2008), and *The Eye is a Door* (2014). Since 1987, she has directed the West Philadelphia Landscape Project, an action research program integrating research, teaching and community service. Spirn is the recipient of Japan's 2001 International Cosmos Prize for contributions to the harmonious co-existence of nature and mankind, IFLA's Geoffrey Jellicoe Award, and the 2018 National Design Award.

When Learning Is Real

For forty years, Anne Whiston Spirn has integrated action research and teaching to address intractable environmental and social challenges, to advance knowledge, and to expand the scope of professional practice. Spirn will reflect on that experience, successes, failures and lessons learned.

Ellen Fetzer holds a diploma and a doctoral degree in landscape planning from Kassel University, Germany. Since 2001 she has been working at the School for Landscape Architecture, Environmental and Urban Planning in Nürtigen (Stuttgart area, Germany). Currently she is coordinating an international masters degree in landscape architecture (IMLA). The second focus of her work is in the Centre for University Didactics. Ellen works a great deal in the field of computer-supported collaborative learning and facilitates online seminars in international cooperation on topical issues such as social entrepreneurship and democracy education. She is president of ECLAS, the European Council of Landscape Architecture Schools.

Landscape education: Our path towards responsible citizenship

"Education has a vital role to play in developing the knowledge, skills, attitudes and values that enable people to contribute to and benefit from an inclusive and sustainable future. Learning to form clear and purposeful goals, work with others with different perspectives, find untapped opportunities and identify multiple solutions to big problems will be essential in the coming years. Education needs to aim to do more than prepare young people for the world of work; it needs to equip students with the skills they need to become active, responsible and engaged citizens." (OECD, 2018: The Future of Education and Skills – Education 2030).

In its 2018 report on the future of education and skills, the Organisation for Economic Co-operation and Development (OECD) calls for urgent changes in teaching and learning. Our environment, society, and economy are facing complex transformations and unpredictable futures. Every educational institution, including landscape architecture departments, needs to prepare their students for a future of uncertainty. 'Transformative competences' are key to creating new value for others, to reconciling tensions and dilemmas,

and to taking responsibility. Transformative competence is composed of systems thinking, anticipatory competence, normative competence, and strategic competence. All of these are based on interpersonal competence, which is a precondition for joint action (Scheidewind et al, 2016). Landscape and landscape architecture education provide an ideal context for developing such competences. It is in our landscapes where the challenges of global sustainability become tangible, and alternative futures emerge. However, almost 20 years after the first publication of the European Landscape Convention, weak public and political awareness of the relevance of landscape and landscape architecture education is still the norm in Europe and worldwide. During my talk, I call for landscape educators to have more confidence in the value of their work, especially in light of the current future skills debate, and the global OECD movement for transformative education. I also emphasise the ongoing need for curricular development. Our common challenge is integrating future skills and transformative competence into landscape architecture curricula. I hope that this and future ECLAS conferences become the place for debating, co-designing, and learning from each other, in order to give landscape education the attention it deserves. Landscape and landscape architecture have the potential to become a model for other disciplines and domains.

OECD (2018): The Future of Education and Skills – Education 2030, Position Paper, https://www.oecd.org/education/2030/E2030%20Position%20Paper%20(05.04.2018).pdf (last accessed 24.03.2019)

Uwe Schneidewind, Mandy Singer-Brodowski, Karoline Augenstein, Franziska Stelzer (2016): Pledge for a Transformative Science: A Conceptual Framework, Wuppertal Paper Nr.191, https://wupperinst.org/a/wi/a/s/ad/3554 (last accessed 24.03.2019)

Burcu Yigit Turan is Associate Senior Lecturer of Planning in Cultural Environments at the Swedish University of Agricultural Sciences, Department of Urban and Rural Development, Division of Landscape architecture, in Uppsala. She obtained her PhD in 2010 from Vienna University of Technology. Her dissertation is titled 'Complexity of Meanings in Urban Landscapes: Between the Imagined and the Real'. Burcu practiced, studied and taught landscape architecture and urban planning and design in different geographies, such as Turkey, the Netherlands, Austria, the United States, and Sweden. Her current work revolves around the issues of social justice, migration, urbanisation, and ethics and politics in landscape architecture.

Questions for landscape architecture education in an age of increasing inequalities and polarisation

Social inequality, fragmentation, polarization and hate speech represent a growing dominant social and sentimental state all over the world. Different media have been bombarded our lives with semiotic games. They shape our understanding of events, disassembling the causality chains behind facts, and scapegoating singular elements, rather than structural issues. Borders are constructed every day to exclude some bodies from somethings. They produce and reproduce inequality. They are both material and immaterial; they are visible and invisible; they exist in our minds, in between us, and outside of us. They can exclude some bodies; they can paralyze minds not to understand, eyes not to see, and hearts not to feel, the pain of those who are excluded. They are smart: they evolve to elude recognition. They are materially and symbolically constructed in landscape by others, by ourselves, and consequently by landscape architects. We produce and reproduce them.

Today, we hear voices in landscape architecture calling for social equity, democracy, and justice. Policy texts emphasize social justice and sustainability as goals for the future. Projects represent themselves with con-

cepts such as social justice, sustainability, participation, inclusion, and democracy. We want to see a just, socially- and environmentally-sustainable world. What do we do? What is the gap between intention and action? What are the elements of this gap?

Are we able to see the borders that create and exacerbate inequality? Are we able to help others to see them? Are we able to stand against them and for justice? Can we imagine and create landscapes that can bring down walls? What kind of landscape architecture education do we need to help our students gain those abilities? What are the challenges?

In this talk, I will elaborate on the above questions and propose some axes of thinking that can open up dialogue in our community about the challenges and possibilities of moving beyond borders in our pedagogical practices.

Programme overview

	Sunday 15 Sept. 2019 Pre-conference PhD colloquium	Monday 16 Sept. 2019 Conference day 1	Tuesday 17 Sept. 2019 Conference day 2	Wednesday-Friday 18-20 Sept. 2019 IFLA World Congress 2019 in Oslo
08:30		REGISTRATION & COFFEE 8:30-9:30		Separate registration. Detailed information see https://www.ifla2019.com/
09:00			KEY NOTE Ellen Fetzer 9:00-10:00	
09:30		Welcome addresses 9:30-10:00		
10:00	PhD colloquium 10:00-13:00	KEY NOTE Anne Whiston Spirn 10:00-11:00	COFFEE 10:00-10:30	
10:30			Parallel session #4 10:30-12:00	
11:00		Parallel session #1 11:00-12:30		
11:30				
12:00			LUNCH 12:00-13:00	
12:30		LUNCH 12:30-13:30		
13:00	LUNCH 13:00-14:00		KEY NOTE Burcu Yigit- Turan 13:00-14:00	
13:30		Parallel session #2 13:30-15:00		
14:00	PhD colloquium 14:00-17:00		Parallel session #5 14:00-15:30	
14:30				
15:00		COFFEE 15:00-15:30		
15:30		Parallel session #3 15:30-17:00	COFFEE 15:30-16:00	
16:00			Conclusions 16:00-17:30	
16:30				
17:00	PIZZA and socialise 17:00-18:00	Poster session / Heads of Schools' meeting 17:00-18:00		
17:30			ECLAS GENERAL ASSEMBLY / Guided tour of campus 17:30-19:00	
18:00		Memorial tree planting 18:00-18:30		
18:30		CONFERENCE DINNER 18:30-21:00		
19:00			FAREWELL RECEPTION* 19:00-21:00	
19:30				
20:00				
20:30				

*The FAREWELL RECEPTION will be a joint event with delegates, observers and ExCo from IFLA World Council.

Parallel sessions: overview

Room / Time	A	B	C	D	E	F	G	H
Paral.#1 11:00-12:30 Monday 16 Sept.	**Block 1A.** Pedagogic methods: Studio teaching (1/4)	**Block 1B.** Digital technology in landscape education (1/2)	**Block 1C.** Curricula: Assessment and programme development	**Block 1D.** Teaching transdisciplinary approaches to landscape (1/4)	**Block 1E.** History of landscape education (1/3)	**Block 1F.** The ELC and landscape education	**Block 1G.** Pedagogic methods: Multisensory	**Block 1H.** [Special session] Landscape architecture education in a global research context
Paral.#2 13:30-15:00 Monday 16 Sept.	**Block 2A.** Pedagogic methods: Studio teaching (2/4)	**Block 2B.** Pedagogic methods: sustainability, ecology and planting design	**Block 2C.** Pedagogic methods: Understanding site	**Block 2D.** Teaching transdisciplinary approaches to landscape (2/4)	**Block 2E.** History of landscape education (2/3)	**Block 2F.** [Special session] UNISCAPE meeting: Landscape education after 20 years of the ELC	**Block 2G.** [Workshop] Stonesensing:Evoking meaning with stones	**Block 2H.** [Workshop] New practices of collaboration:Exploring landscape architectural teaching, learning and practice contexts (1/2)
Paral.#3 15:30-17:00 Monday 16 Sept.	**Block 3A.** Pedagogic methods: Studio teaching (3/4)	**Block 3B.** [Special session] The history and future of teaching digital methods in landscape architecture	**Block 3C.** The making of a profession	**Block 3D.** Teaching transdisciplinary approaches to landscape (3/4)	**Block 3E.** History of landscape education (3/3)	**Block 3F.** [Special session] Challenges and opportunities of landscape architecture education in the Arab world: The experience of the American University of Beirut	**Block 3G.** [Workshop] Learning to read the landscape: a methodological framework	**Block 3H.** [Workshop] New practices of collaboration:Exploring landscape architectural teaching, learning and practice contexts (2/2)
Paral.#4 10:30-12:00 Tuesday 17 Sept.	**Block 4A.** Pedagogic methods: Studio teaching (4/4)	**Block 4B.** Pedagogic methods: Student engagement and motivation	**Block 4C.** Pedagogic methods: Fieldwork	**Block 4D.** Landscape education: Ethics and values	**Block 4E.** Pedagogic methods: Teaching in a global context	**Block 4F.** [Special session] Bridging national and disciplinary boundaries: Concepts of sustainability in landscape and urban planning education	**Block 4G.** [Special session] Professional mythologies or academic consistency? Reframing the basic concepts in landscape architecture education	**Block 4H.** [Workshop] An asset to education: Introducing archives of landscape architecture in academic education
Paral.#5 14:00-15:30 Tuesday 17 Sept.	**Block 5A.** Pedagogic methods: Design thinking	**Block 5B.** Digital technology in landscape education (2/2)	**Block 5C.** Educating in a multicultural context	**Block 5D.** Teaching transdisciplinary approaches to landscape (4/4)	**Block 5E.** Pedagogic methods: Integrating theory	**Block 5F.** Visions for landscape education	**Block 5G.** [Workshop] The power of imagined landscapes	

PARALLEL SESSION #1

Scenario thinking in landscape architecture education

Gianni Lobosco
University of Ferrara, Italy

Keywords: Uncertainty, scenario planning, infrastructures, explorative landscapes, master thesis

Background information

The contribution presents the experience of the Final Master Studio in 'Landscape Architecture and Infrastructures' carried out in the last seven years at the Architecture Department of the University of Ferrara, Italy. The course focuses upon the development of a single project over the last academic year bringing the students to their Master dissertation. The studio is structured on five teaching modules held by academics and experts on different topics: landscape architecture, parametric landscape & infrastructure design, coastal and hydraulic engineering, geology, and energy engineering. Such diversity has been set up with the aim of providing students with as much as possible skills contributing to their work development in the direction of an interdisciplinary scenario-based approach to the issues concerning infrastructural landscapes' evolution.

One of the main pedagogic challenges is related to the fact that the majority of the students who chose the studio, during their university career, have not been able to attend any specific course on landscape architecture. Such a situation, which is not uncommon in the Italian scene, reflects a peculiar way of considering the landscape discipline as a complementary skill, among others, for future architects. This generalist and classical conception of the profession, as it is also regulated by law, has affected academic programs and implicitly prevented the establishment of strong landscape tendencies in architecture schools. Furthermore, this lack has deeply contributed to downplay the architects' role in planning, design and management of major landscape transformations in favour of other professional profiles.

As a result, landscape architects are rarely involved with the infrastructures' design process since its beginning; only after basic strategic choices have already been taken and the infrastructure layout has been set up, they are called in order to mitigate side-effects, visual impacts and to restore some kind of 'natural' appearances (Figure 1). Such an attitude at considering the landscape just under the filter of impacts is probably grounded on two main beliefs: the first concerns a certain sense of guilt towards Nature seen as an ideal and fixed entity that is going to be violated; the second, more practical, deals with the reassuring effect of data, numbers and statistics that engineering as well as other scientific-based disciplines are able to provide the developers with describing the infrastructure as a congruent body which can range inside a predictable array of circumstances.

Research questions

Against this situation, it has to be said that policy makers, managing authorities and above all infrastructure developers are increasingly realizing the strong limitations lying in quantitative-oriented approaches. Since infrastructural works, according to their long life span, require to be dimensioned
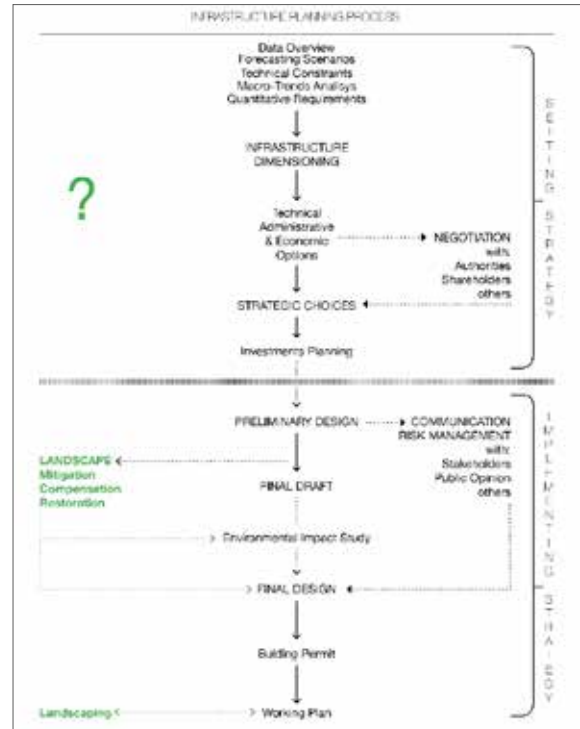
Figure 1. The flow chart exemplifies the general infrastructure planning process in the Italian context. For what concerns the developer's side, the landscape architecture advising (in green) is limited to the implementation phase.

in relation to complex trends of external variability, their adaption and resilience cannot only be attained through the adjustment of inner parameters and ratios. According to some studies (Hughes, Chinowsky and Strzepek, 2010), just climate change could add 10% to 20% to infrastructure costs by 2030; the same literature highlighting the impact of extreme events suggests that an effective response to these issues needs to be based on a location-specific approach and warns against standard solutions.

A further element weakening the developers' confidence in quantitative responses is 'uncertainty'. Contemporary landscapes have been experiencing rapid and intense transformations due to technological and cultural change, expanding globalization and new economies. Their impacts are difficult for mapping, monitoring and coordinating, but the decision-makers need anyway some tools allowing them to anticipate future transformations and assess resources availability in order to be effectively prepared for dealing with complexity. As literature points out (Madanat, 1993; Feinberg and Genethliou, 2005; Flyvbjerg, 2005), mathematical forecasting has been long time the preferred method attempting to predict the future, in part due to its scientific

credibility. However, although often effective in the short term, the accuracy of mathematical forecasts decreases exponentially as the time horizon increases. So their capacity for illuminating future changes is correspondingly reduced for long-term planning and thus especially for infrastructures.

Methods

In order to fill this gap, the use of the 'scenario thinking' has been emerging as an effective tool for testing potential strategies against unknown and unpredictable futures. Successfully used in the business world, such an approach is returning to infrastructural planning which is actually the field where it was consistently tested as a method for the first time, during the 1970s, at Royal Dutch/Shell (Wack, 1985). The advantages of scenario planning are reflected in the reduction of uncertainty by creating and identifying possible alternative paths of future infrastructures' development. By running multiple narratives within alternative models of next social, political, economic, and environmental conditions, unexpected outcomes could be anticipated and complex feedback loops discovered.

Within this framework the role of the landscape architect can actually be reconsidered in the light of a decision-making process that needs to physically visualize different alternative future scenarios (Steinitz et al., 2003) whereby a limited number of possibilities are created and systematically compared against one another (Deming, 2011). In fact, an alternative landscape futures approach (Steiner, 2000) or more simply put, the development and evaluation of prospective landscape scenarios, should extend beyond data analysis and impact assessments to encompass the systemic relationships between environment, society and infrastructure.

The main hypothesis behind the Master Studio in Ferrara is that such 'prospective landscape scenarios' can address the infrastructure planning since its decision-making process toward more adaptable, cost effective and resilient strategies. In order to attain these objectives, a radical change is needed in the cultural attitude of infrastructure developers, as well as landscape architects who have to be able to deal with new designing instruments and procedures (Di Giulio, Emanueli and Lobosco, 2018).

Landscape education can play a crucial role in this sense, addressing labour market demands by developing new professional skills for architects and actively involving private and public bodies in their training paths. For that reason, several theses developed in the final studio during the last years have been formulated in cooperation with companies and institutions which have acted as virtual clients.

Results

Students are asked to design, visualize and compare the physical implications of alternative future scenarios processed upon the inputs and forecasts provided by the client in the raw form of data and technical alternatives. They elaborate through the thesis a sort of Landscape Format for Scenario Planning aimed at integrating contextual issues and higher-level uncertainty into design proposals. The presentation discusses a selection of pilot experiences carried out according to this scheme within some

exemplar and challenging contexts (such as touristic areas or fragile ecosystem like lagoons and river basins), chosen for their being pressured by extremely variable dynamics. These projects' aim has been to understand how data and forecasts could effectively be converted into 'landscape exploratory scenarios' which could represent an integrative landscape-based platform assisting decision makers' choices. Following a 'research-by-design' methodology, these works attempt to demonstrate the convenience of overturning any idealized attitude towards the landscape in the common process of designing and planning infrastructures (Figure 2).

Conclusion

The early outcomes have demonstrated the vivid interest of stakeholders in such a methodology due to the chance of being able to rely their future strategies on more qualitative projections synthesised and processed by the means of landscape visions to be evaluated at the beginning of the decision-making process for addressing more resilient and comprehensive choices. The value of future landscapes' arrangements is increasingly conceived by developers as a useful and proactive outlook rather than a consequence of just technical implication. In this framework, landscape architects, if well prepared, could reach a key role in the infrastructural planning shifting their position from the bottom to the top of the 'project chain' (Figure 3).

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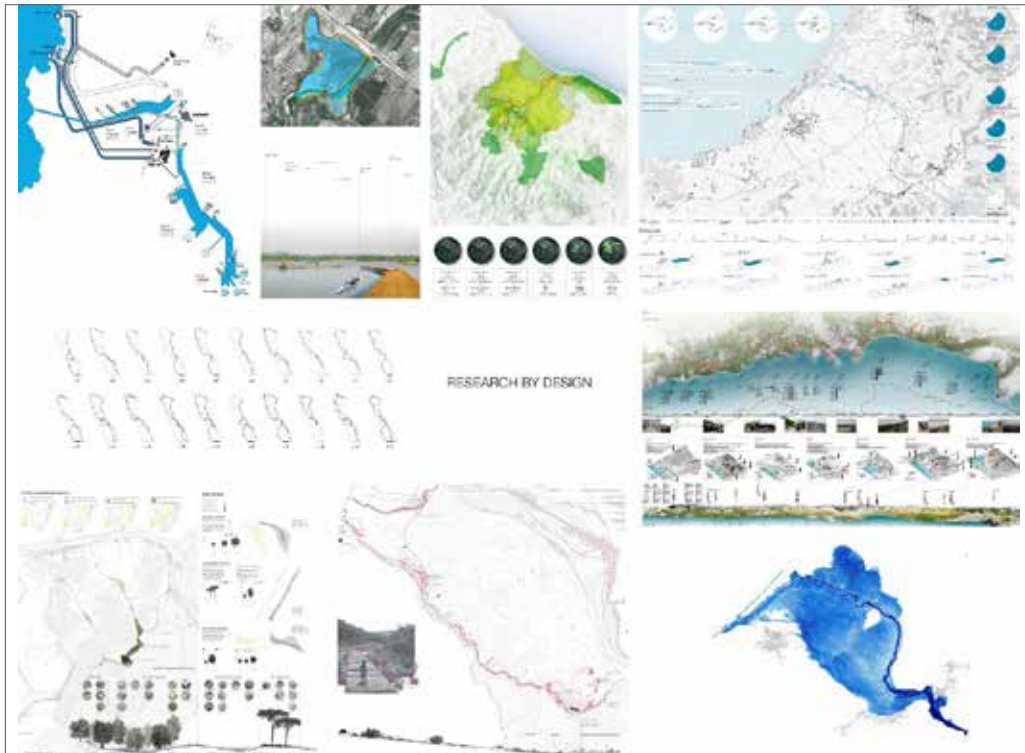
Figure 2. Some examples of the 'research by design' approach applied in Master Thesis projects by building alternative scenarios concerning infrastructural landscape development within high-sensitive contexts in touristic areas, coastal regions, lagoon and river systems.
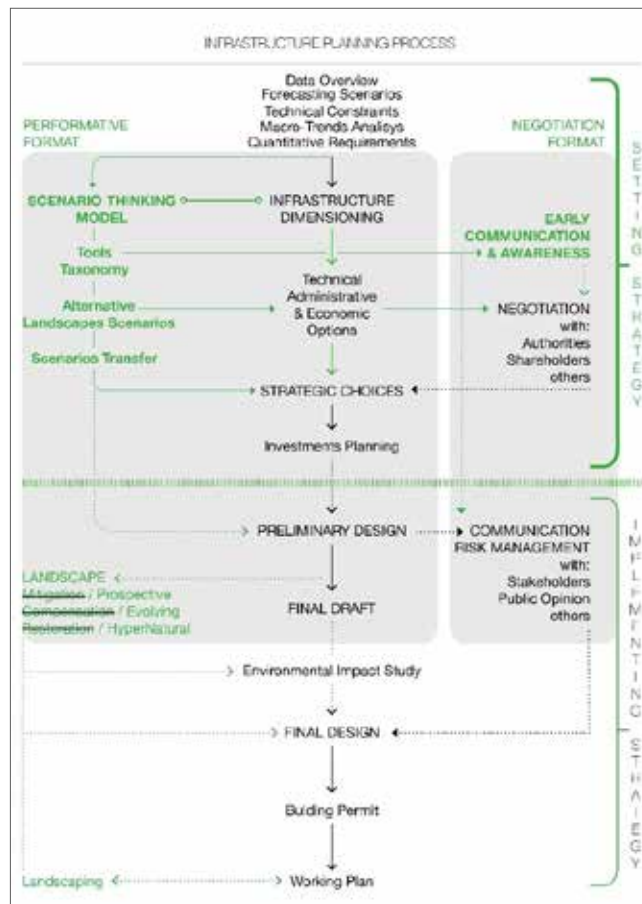
Figure 3. The flow chart presents the 'scenario thinking' contribution to the infrastructure planning process showing the impact on the strategic phase in terms of 'Performative & Negotiation' format, as well as the influence on the attitude at considering landscape architecture as a side-effects mitigator of the infrastructure implementation.

An evaluation of a systematic teaching approach to evidence-based design in landscape architecture studios

Andreas Wesener, Wendy McWilliam, Anupriya Sukumar, Louise Bailey, Marcus Robinson
Lincoln University, New Zealand

The pressing need to teach evidence-based design (EBD) as part of landscape architecture students' regular curricula has been convincingly argued (Brown & Corry, 2011). The paper evaluates an EBD approach to teaching a studio project at the School of Landscape Architecture at Lincoln University, New Zealand. The project was taught within the 2018 Sustainable Design and Planning third-year studio of a four year Bachelor of Landscape Architecture (BLA) programme. The project used an EBD approach based on the Brown and Corry (2011, p. 328) four-step process: 1) formulate clear design goals; 2) use relevant literature-based scholarly information; 3) evaluate the evidence for usefulness; and 4) apply the evidence and translate it into suggestions for design.

The chosen design problem is highly relevant to the New Zealand context: how to protect school children from over-exposure to UV rays in school yards. School children often receive too much sun exposure (particularly ultra B (UVB)) leading to sunburn (erythema), skin aging, and melanoma (a very deadly form of cancer) (Holick, 2004; Yagura, Makita, Yamamoto, Menck, & Schuch, 2011). Over-exposure also causes cataracts (eye damage), and the suppression of the immune system which can increase the frequency of illness (Kripke & Morison, 1985; Heisler & Grant, 2000; Dumay et al., 2001). In terms of skin cancer, New Zealanders have one of the highest incidence levels in the world (Kruse & D., 2013). Primary school aged children are particularly vulnerable (Seidenari, Giusti, Bertoni, Magnoni, & Pellacani, 2000), and excessive levels of exposure during childhood increase the risk of skin cancer in adulthood (WHO, 2003). In New Zealand, the Cancer Society of New Zealand (CSNZ) runs the 'Sun Smart Accreditation Programme' for schools in line with the recommendations of the World Health Organization. However, few schools have been accredited (Reeder, Jopson, & Gray, 2012) and many school yards do not adequately protect children from UV ray over-exposure.

The studio project was divided into two parts. Firstly, students were asked to develop EBD guidelines for landscape architects in support of UV protection for public school students located in the Inland South Island Region of New Zealand. Secondly, they applied these guidelines to redesign a school yard within this region.

The project was designed to address three main barriers to teaching EBD identified through an evaluation of previous studio projects. First, there is often a lack of student clarity around design objectives needed to drive a literature review in support of a goal. This lack of clarity often leads in students developing too many goals, supported by shallow and inadequate evidence. They run out of time prior to identifying relevant evidence. We provided students, initially, with one design goal, followed by a seminar that demonstrated how to translate goals into relevant, clearly expressed objectives that can be used to effectively locate theory in the literature.

Second, design students are often not very experienced in finding and evaluating evidence in the literature in support of their designs. Rather, they focus on precedent design work to provide them with spatial ideas for which the supporting theory is often absent. In consequence, students do not know where to look for, or how to identify, theory in support of their designs. In response, we provided students with an initial summary of evidence in support of designing for UV protection. In addition, a seminar taught students where this information came from, and how it was relevant to meeting their design objectives. Students did not have to spend as much time searching for relevant information, but developed skills to analyse the literature and search for additional literature to add to their evidence.

Finally, students frequently struggle to translate literature-based information into spatial form implications. Theoretical information in the literature is often only communicated via text. We responded to this challenge by introducing a step-by-step approach to translation, reinforced by demonstration, within individual and group tutorials. The studio provides the perfect environment for this teaching and learning style. Students were asked to demonstrate this translation in their guidelines, which required evidence-based text and conceptual spatial diagrammes to illustrate the evidence. Students described and illustrated through conceptual drawings key factors determining UV exposure at different spatial scales that responded to sun angles, materials and land uses during key times of the day and school year.

As part of the preparation of the design guidelines, students were asked to demonstrate their application to a generic school yard located in the Inland South Island Region of New Zealand through the use of SketchUp 2017 software. The resulting 3D model was particularly useful in generating evidence where it was lacking, and in translating text-based theory to spatial form (Figures 1a,1b). The preparation of the relatively simple and concisely communicated design guideline increased the accessibility of the theory in the literature, whose complexity was initially a key barrier to students learning an EBD process.

In the second part of the project, students were asked to prepare a landscape concept for an existing real-world school ground based on their design guidelines in support of activities at key times of the day and year (Figure 2). The project required site inventory and analysis with respect to design objectives, and the further use of Sketchup modelling, to locate and evaluate existing and proposed site design in support

of activities and UV protection. This step in the EBD process enabled students to develop, and evaluate new ideas for different school yard activities (an additional goal) and UV protection at multiple spatial scales.

Following the design phase, students were required to evaluate their design relative to the existing conditions of the school ground, demonstrating how well they met their UV protection and school yard activity goals (Figure 3).

In order to evaluate if our approach was successful, we assessed student outcomes against a set of desired learning objectives. In addition, we interviewed students to test if their learning expectations regarding the project were met and if the EBD process was transferable to other projects. In terms of the latter, we tested if students were able to tell us how they might approach designing a garden in support of honey bees located in a public park.

Our evaluation revealed, that for most students, following a more systematic approach to teaching EBD was effective. Their learning outcomes were met, with design outcomes varied, rich in detail, and evidence-based. Student interviews indicated that some students initially struggled to access the literature to identify and translate relevant evidence. These students needed additional assistance to overcome these barriers. In addition, some expressed disappointment they were not moving directly to design during the preparation of guidelines. However, once these barriers were overcome, and students saw how the guidelines could enable them to develop rich and convincing design solutions, they said they enjoyed the process. Many expressed pride in their work, saying the ability to demonstrate supporting evidence, increased confidence in their design abilities. Furthermore, the interviews revealed that students were able to apply the systematic EBD process they learned to tackle other design challenges.

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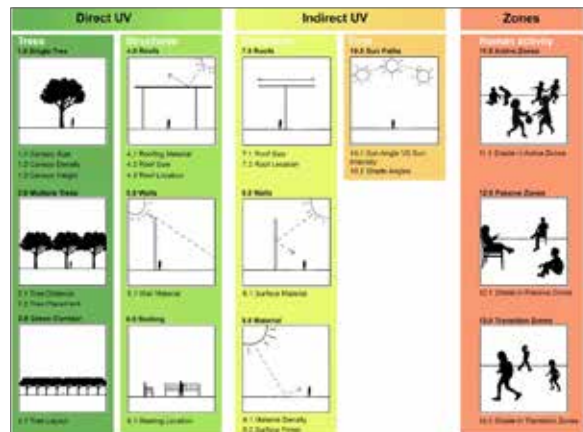
Figure 1a.
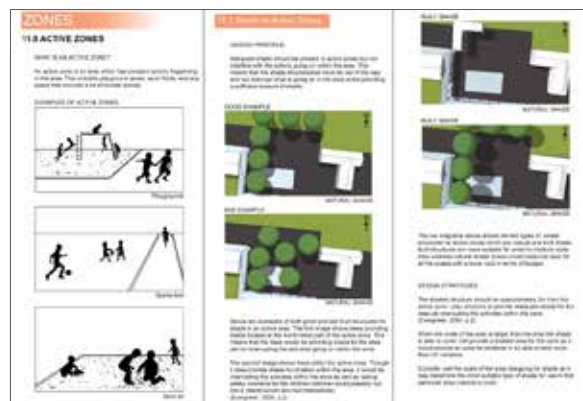
Figure 1b. Design guidelines and table of contents
(T. Chitongartpakdee)
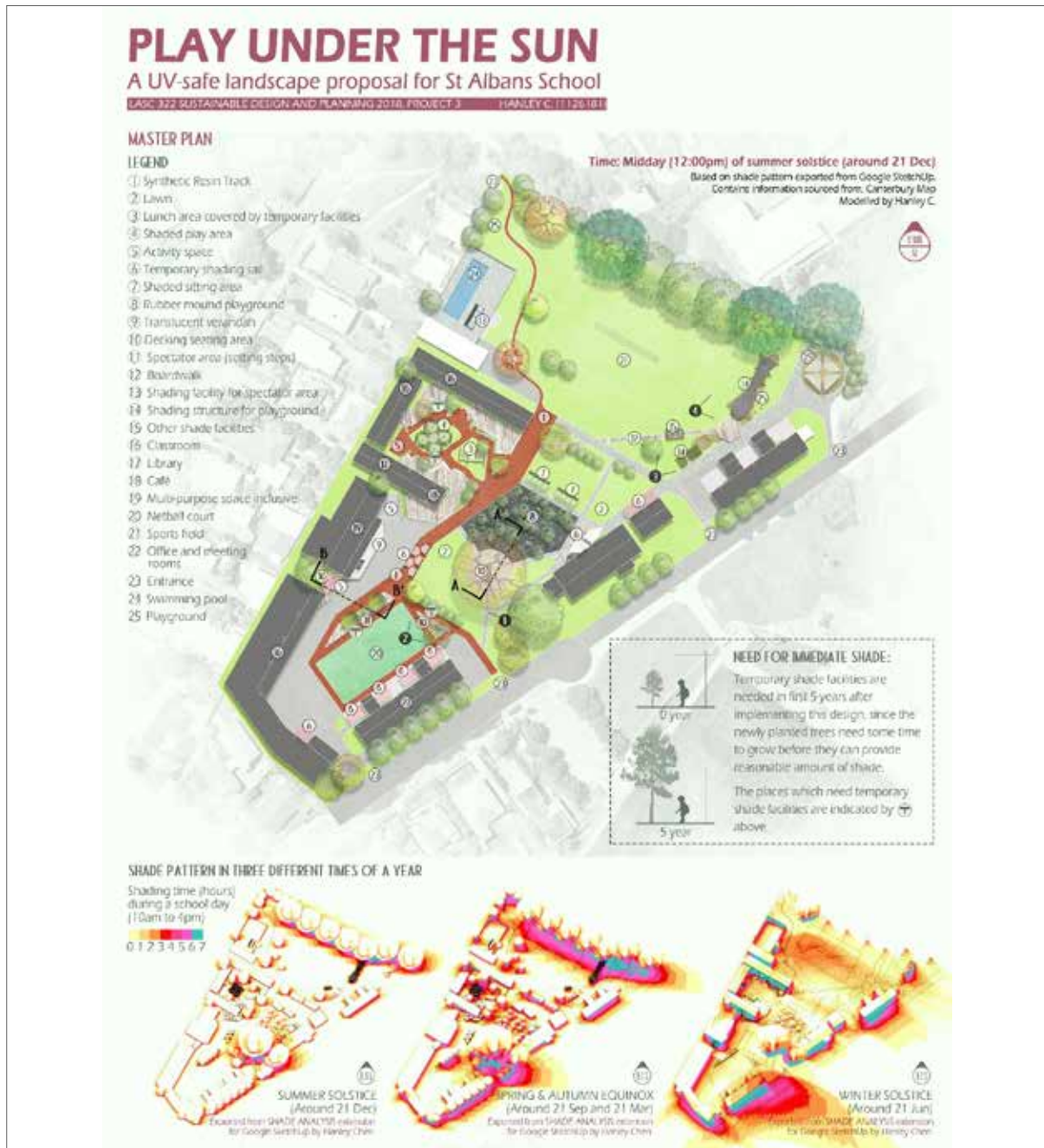
Figure 2. Application of guidelines (H.Chen)
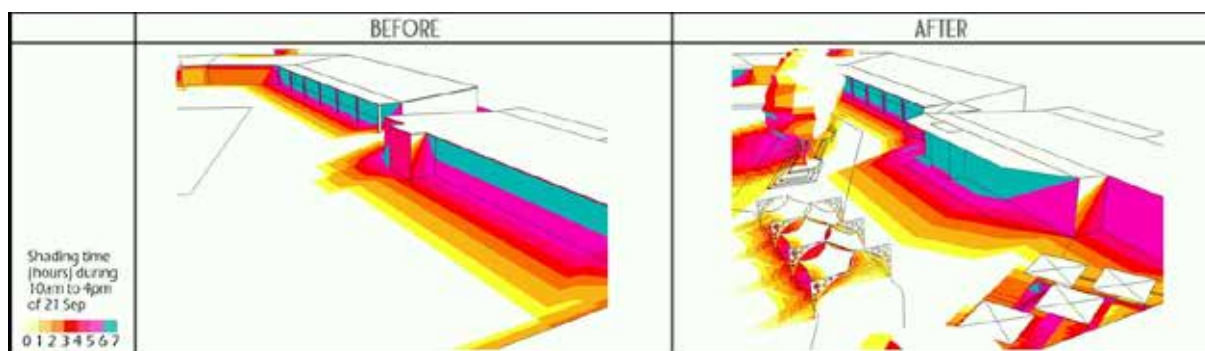
Figure 3. Excerpt from the evaluation (H.Chen)

Islands as interpretative, cognitive and design tools for teaching process oriented waterscape design in a studio setting

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Keywords: Water landscapes, edge, theoretical device, education

The notion of island, beyond the agreed upon geographic definition, embeds several other ambiguous meanings that span a wide range of semantic and operational domains for design thinking. If considered from a design disciplines perspective, islands have been extensively used for interpretative, speculative, and design purposes (Ungers et al. 1977; Petti 2007; Indovina 2009; Lee 2011; Staniscia 2011, 2013, 2016; Callejas 2013; Andexingler 2015).

In multiscale design studios that include: regional readings related to ecosystem thinking, landscape character speculations, and site scale design explorations, it is necessary to move forward in landscape interpretations beyond the commonly applied data overlay (hydrology, geology, habitat, urbanization systems, and even more in-depth explorations such as visibility studies, ecological connectivity identification, etc.). This practice often presents a hard task for students. Indeed, they usually find difficult to transfer the previously acquired knowledge to site scale design applications. This step is in fact mostly limited to a programmatic engagement with the site. At least initially, this creates a default hierarchy which tends to subordinate spatial conditions in students' work and affects their progress toward more complex proposals (Barba, 1994; Goula 1999, 2005, 2010). The authors suggest that when a concrete spatial entity, such as the island, is introduced in studio as a conceptual framework, students are compelled to fully understand and recognize the landscape project as a sort of mesocosm[1]. In a mesocosm, in fact, the spatial conditions, users' dynamics, and ecological processes are so intermingled and interdependent that a more complex and systemic design thinking is needed.

As designers, we not only 'think about islands', we also 'think by means of them' (Daou & Pérez-Ramos, 2016, p. 7). Islands have been used as a geographic device to counter represent a world defined by flows, interconnectedness, continuity and endlessness. Although, the uncovered truth is that islands also work as lenses that magnify fluxes, networks, and connections – for instance in landscape ecology and in the theory of island biogeography. Also from a design stand point, islands represent the orderly frame for ever-changing and evolving systems, figuratively able to 'integrate dynamic ecological systems into spatially bounded landscapes.' (Lokman & Herrington, 2016, p. 143). The reason behind it is probably that, in order for us to understand movement, we need to measure it against a fixed frame and that frame, in the case of islands, is naturally defined. Whereas, in terra firma, that frame is the result of an imposed human decision. However, not only designers have brought to bear

islands as metaphors and material archetypes both to project models derived by ideal worlds and to create models for our real world. Plato and Thomas More are great examples in this sense.

Furthermore, islands' spatial attributes have been intentionally employed as design's main components: finitude, limitedness, boundedness have become concepts for and characters of landscape architecture projects – for instance, in the Serpentine Gallery Pavilion by Peter Zumthor and Piet Oudolf. And isolation, separation, confinement have become landscape strategies – for instance Gilles Clément applied them in Matisse Park in Lille. A less explored aspect is the potential of islands to become a tool for speculation, toward ecological functionality, connectivity and fragmentation. This perspective has been explored within a landscape architecture studio setting with the contribution of landscape ecology and morphology/geography driven analytical traditions.

The work presented is the result of an ongoing conversation among the authors starting in 2003. Back then, it focused on diachronic morphological speculations on the coast and, it continues today with recent teaching experiences in canal, river and coastal sites. The authors propose a joint reflection on the potential of island as theoretical device for speculating on the values of water edges and as an operational tool for process oriented design in Landscape Architecture Education. The island has been used as a discrete morphological entity to encourage students to think about the past and the future of coastal alluvial plains. Its utility is twofold. On one hand, it is deployed through analysis by identifying layers of the history and evolution of waterscapes. The island is part of the memory of water flow changes; it becomes a testimony of the hydrological processes which define responses in floodable landscapes. On the other hand, the island is deployed as an inspiration for process oriented landscape designs. For example, the island, as a landscape archetype, becomes the ideal vehicle to discuss issues of isolation versus connectivity. The island is also a field in which extreme phenomena happen making it an exemplary case study.

The presentation is composed of two parts. In the first one, the authors will reflect on the theoretic contribution of the notion of island in the design domain and on the implications for design when island thinking is applied. In the second, the authors will discuss the instrumentality of the islandic conditions in design thinking through the description of and the reflection on specific design iterations within a landscape architecture studio setting – from basic landscape interpretation to design strategy

and speculation. Three aspects that the notion of island suggests, are the main focus of the reflection: insularity, the idea of archipelago, and islandness as an ever-changing quality of a flat dryland surrounded by fluctuating water.

Note

1. From the *Oxford English Dictionary*: 'Noun. Ecology: An enclosed and essentially self-sufficient (but not necessarily isolated) experimental environment or ecosystem that is on a larger scale than a laboratory microcosm.'

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Digital methods for mapping landscape space

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Keywords: Landscape architecture education, mapping, spatio-visual landscape characteristic

Introduction

In the field of landscape architecture, landscape design is an important area of knowledge and activity (Evert et al., 2010). Landscape design is about the construction and articulation of outdoor space and results in landscape architectonic compositions. Landscape architectonic compositions deal with form and meaning, and provide a physical, functional and aesthetic arrangement of a variety of structural elements to achieve desired social, cultural and ecological outcomes (Vroom, 2006). In order to understand and communicate about the spatial and visual properties (in short: spatio-visual properties) of landscape architectonic compositions tools, representations and vocabulary are of fundamental importance for landscape architecture (Nijhuis, 2011). Landscape architects have always been eager to develop and employ manual and digital media that can support thinking and communicating about spatio-visual properties of landscape architectonic compositions. Despite its importance, there are only a few attempts to implement and develop digital tools that help to understand and describe the visual manifestation of landscape space, how space is organised and what ordering principles play a role, from both qualitative and quantitative perspectives.

Educational and research institutions have an important part to play in raising awareness, they must take the lead in educating students and inspiring practitioners, building up their knowledge and passing it on, and adding new tools to the traditional craftsman's toolbox. This paper explores some digital methods for mapping landscape space, as a means for thinking and communication about spatio-visual properties of landscape. It aims to stimulate the development of a digital culture in landscape architecture while exploiting digital tools in their powerful integrating, analytical and graphical capacities.

Methods for mapping spatio-visual properties

In this paper, the focus is on digital methods for exploring the spatio-visual manifestation of open spaces, surfaces, screens and volumes and their relationships in terms of structural organisation (e.g. balance, tension, rhythm, proportion, scale) and ordering principles (e.g. axis, symmetry, hierarchy, datum, transformation) (cf. Bell, 1993). The basic premise is that the shape of space, plasticity (form of space-determining elements) and appearance (e.g. colour, texture, lighting) of spatial elements in the composition determine the relation between design and perception (Nijhuis, 2014). This type of research addresses the form and functioning of three-dimensional landscape space, which creates a certain spatial dynamic. Here digital tools are employed to study the framing of a view or urban panorama, or the construction of a spatial series along a route, making a pictorial landscape composition.

There are six predominant digital methods for exploring the spatio-visual characteristics of landscape:

1. Compartment analysis: considers the visible landscape as a set of concave compartments (mass) and maps the distinguish and relationship between space and mass from a vertical perspective.

2. 3D landscapes: identifies a visual landscape from an observer's point of view, which utilises three dimensional visualization and addresses spatio-visual characteristics horizontally.

3. Grid cell analysis: manipulates the landscape subdivided into spatial features that are represented by raster cells or grid-shaped polygons, and concludes the precise findings of landscape characteristics .

4. Visibility analysis: is a three-dimensional visibility calculation based on raster, which shows the geographical area visible from a given position from the observer's perspective.

5. Landscape metrics: operates spatial analysis of land use patches in landscape ecology, quantifying potential metrics of landscape composition and configuration vertically via raster or vector.

6. Eye-tracking analysis: is a system that records eye movements and fixations while observing scenes which has a big potentiality in interpreting the spatial and visual characteristics, such as way finding, affordance, visual queue, and dominant elements etc.
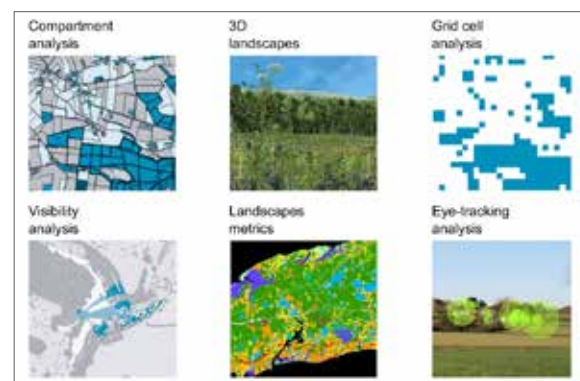
Figure 1. Figure 1 Diagram showing six predominant spatio-visual landscape mapping methods. Images from Nijhuis, Van Lammeren, and Antrop, 2011; Nijhuis, 2017; Palmer, 2004; Dupont, Antrop & Van Eetvelde, 2014.

These digital methods for mapping landscape space can be characterised according to their horizontal-vertical dimensions, and qualitative-quantitative approaches. The horizontal dimension perspective explores the landscape from an observer´s point of view (from the inside out) and addresses the visual space and characterises spatial attributes or patterns from eye-level perspective. The vertical perspective considers the landscape from 'above' – the map, or the view from the air – and is about horizontal referenced

analysis of spatial patterns and relationships (Nijhuis, 2015). Tools, platforms, and data for analysis that can be used for application of these methods are shown in Figure 2 and Table 1.
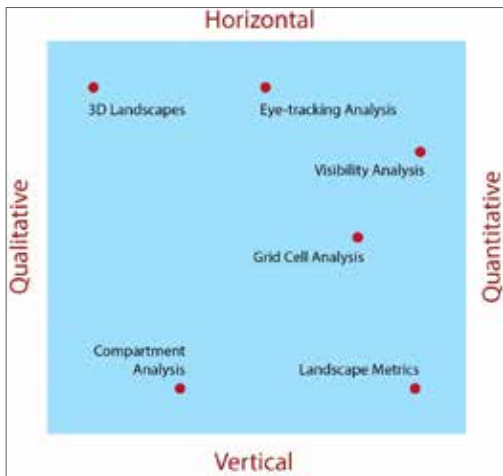
Figure 2. Diagram showing the characters of spatio-visual landscape mapping methods

As found, these digital methods and tools are applied to explore spatio-visual landscape properties complementally based on various data types, mapping dimensions, and disciplines. Therefore, in order to get more comprehensive understandings of landscape space, they are better to be used together instead of working individually.

Contribution in landscape architecture education

The above-mentioned methods help to think about and visualize landscape space in qualitative, quantitative and combinatory ways. They show enormous potentiality for integration and implementation into landscape architecture education by:

• Expanding the digital toolbox for landscape practitioners and students to interpret landscape spaces. The overview of the mapping toolbox creates opportunities for landscape architects to describe and understand known and unknown aspects of landscape space. Employing digital methods for mapping landscape space provides alternative perspectives and integrate disciplines. It also connects qualitative and quantitative approaches for revealing spatial relationships and visual organisation of landscape in unprecedented ways.

• Introducing advanced analytical mapping methods in landscape education is indispensable for new generations of landscape architects. Digital mapping methods advocate a multidisciplinary approach towards landscape design while, extracting, translating and adapting theories and technologies from the fields of urban morphology, visual landscape study and landscape ecology, employing them to gain new insights of landscape spaces.

• Adapting these data-based mapping methods and tools into education helps to develop research by design and design by research approaches. On the one hand, the developed mapping methods can be applied in multiple steps in the design process, as analytical, evaluation and design tools. It also enables to integrate research into the design process. On the other hand, designs produced by students in different projects can supplement to the body of spatio-visual landscape knowledge.

The research and education of digital mapping methods is important for landscape architects for understanding, designing, and communicating about landscape space. It opens a way to visual landscape characterisation supporting multidisciplinary approaches towards landscape design. With the development of this toolbox, designers can engage in issues of the landscape development, transformation, and also preservation while providing realistic and instrumental clues for interventions in urban landscapes.

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Table 1. Tools, platforms, and data for analysis that can be used for application of these methods

	Compartment analysis	3D landscapes	Grid cell analysis	Visibility analysis	Landscape metrics	Eye-tracking analysis
Tools & Platforms	Pen, sketchbook, Depthmap	Pen, sketchbook, camera, SketchUP	SegNet, Excel, ArcGIS	ArcGIS, Excel	ArcGIS, Fragstats	Eye-tracking glasses
Data type	Field survey, CAD map	Field survey	Google map, GIS data (vector)	GIS data (raster)	GIS data (raster)	Photograph

The digital classroom as landscape democracy arena. Toward a socially transformative pedagogy in design and planning

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Access to safe, healthy and meaningful landscapes is an important aspect of spatial and environmental justice. Both the European Landscape Convention and socio-constructivist theorists suggest that the landscape should be understood in terms of people's perceptions (Kühne 2013, Council of Europe 2000). The question of which landscapes have value and for whom is also being re-problematized due to global driving forces, suggesting a new role for practitioners in helping to counter-act these pressures. Planning and design decisions need to derive their legitimacy from local needs, values and goals, and emerging professionals must be trained to develop "transformative planning competences", i.e. knowledge and experiences that can help them uncover how a community relates to its landscape.

Designers and planners have a critical role to play in shaping the sustainable city of tomorrow and ensuring the 'right to landscape' (Egoz et al. 2011) for all human beings as well as their ability to participate in decision processes regarding their landscapes. Despite recognizing the need for citizens' engagement, many professionals resist participation, which they see as an obstacle to their creativity. Changing the perceptions of professionals requires a design education that prepares them to come to terms with this important dimension of sustainable planning and recognize community participation and citizens' empowerment's role in building resilience and stewardship.

Launched in 2015, the three-year-long, EU-funded Landscape Education for Democracy (LED) curriculum offered planning and design students from 5 European universities the chance to engage critically with the theories, methods, ethics, and practices of participation in landscape planning. In the spring semesters, 150 students from worldwide attended lectures, collaborated on assignments, and debated what landscape democracy entailed and which strategies they could apply to pursue it. Scales and impact areas of their visions ranged from landscape preservation to public health, from sustainable transportation to biodiversity. During the summer following the online seminar, 10-day intensive workshops afforded them the ability to test their acquired knowledge in the context of the communities of Zingonia, Italy, Kassel Germany and Törökbálint, Hungary. By entering into a partnership with community members, students learned about the contextual nature of landscape democracy, dealt "critically and creatively with reality, and discover[ed] how to participate in the transformation of their world" (Freire 1996 p.34).

The following seven goals embrace the subject-specific framework of how we have understood landscape education for democracy. Next to these seven goals, the LED team has identified a set of personal and methodical skills, which are not necessarily specific for the LED context but required for putting LED competences into action.

Goal 1: Democracy as a practiced skill
Through the seminar we wanted the students to explore the concept of democracy not only from a theoretical perspective, but also from a dialectical perspective as a result of their work within their transdisciplinary, cross-cultural working group work and through their interactions in the online seminar. In the end, we wanted students to know how public participation and democracy are related, and raise awareness in them of the contemporary challenges to landscape democracy and to the 'right to landscape' in the context of urban and landscape change processes.

Goal 2: Learning how to deal with diversity
Through their work in the context of a cross-cultural learning environment, we hoped that students would experience and learn from their direct engagement with different interpretations and values that result from a pluralistic society. Students would need to become sensitive to the different attitudes towards the landscape and across ethnic, socioeconomic and expertise divides.

Goal 3: Critical landscape thinking
By engaging with relevant theories learners are enabled to conduct an informed and dialectical discourse on the relationship of landscape and democracy. Students would then start to critically evaluate and identify concrete situations in which democratic processes are missing from landscape decision making processes, and propose possible solutions.

Goal 4: Rethinking the role of planning
Students are introduced to the evolution and common understanding of public participation, linked to major directions of contemporary planning theory. Through discussions and group reflections they develop a critical perspective and become aware of the potentials and limits of various models of participation.

Goal 5: Rethinking the role of the community
Students learn about the evolution and the contemporary understanding of the concepts of community and identity. They are encouraged to relate these concepts to planning practice. This is especially trained during LED intensive study

programmes. Shifting mindsets towards empathy and the appreciation of local knowledge includes a critical reflection on the role of the designer/planner as 'expert', which often leads to a discovery that knowledge about the landscape must be first and foremost grounded in people's perceptions, as the ELC called for.

Goal 6: Landscape democracy into action
The LED programme is not designed for presenting a specific approach towards participatory planning. Instead, the idea is to make the learners select the most adequate methods and tools to be applied in specific challenges requiring participatory processes. Students should be enabled to design a participatory process that is specific, adaptive, flexible and sensitive to the local context. This requires knowledge of common communication tools supporting participatory processes as well as different examples of participatory processes and how methods and tools are applied in practice.

Goal 7: Cultivating a landscape democracy discourse
Participants are knowledgeable and have the ability to discuss the interrelation of landscape and democracy using an agreed upon vocabulary employed by practitioners and researchers in landscape, democracy and public participation.

The project's action research approach involved the mapping of their individual growth through pre and post engagement surveys, while also informing changes to the course structure, content, and activities. Results revealed that the students valued the opportunity to learn about participation and landscape democracy in a multidisciplinary and cross-cultural context, despite facing challenges in their collaborations due to commitment and limited time of some of their peers. Their feedback also reveals the awareness of the difficulties in operationalizing the principles of landscape democracy, and a keen interest in continuing to engage communities in their own universities' curricula so that they could further strengthen their agency. Finally, they showed doubts that they would able to pursue this work in a private practice context. The paper ends with lessons for educators interested in shaping the democratic design and planning classroom of the future.

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Using classroom clickers as a means to increase student participation in large landscape planning lectures

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Keywords: Interactive teaching, audience response system, landscape planning education

Basic introductory lectures often face several problems: Passive attendance at lectures, no continuous preparation and repetition during the semester and uneffective/inefficient dealing with the reading materials distributed might lead to sub-optimal performance in the exams at the end of the semester. This is especially true for first-semester students who have just left high school and still have to adapt to the different way of learning at university. Large number of participating students (>100) in such introductory courses might prevent professors from switching to more interactive ways of teaching. Yet, student engagement is a critical factor for deep learning (Bryson & Hand 2007, Hockings et al. 2008).

To overcome the problems mentioned above, a semi-inverted classroom model, supported by digital audience response systems (classroom clickers) was used in an introductory landscape planning class at Nuertingen-Geissingen University, School of Landscape Architecture, Environmental and Urban Planning. Around 120 undergraduate students, enrolled in the landscape architecture, landscape planning and urban planning programs took part in this experiment. At the beginning of each of the weekly three hour lecture blocks, a repetition of last week's subject and a test of the students´ knowledge of the readings from last week was carried out. To allow for a personalized analysis of the students' performances and to give them feedback they could use for the final exam preparation, students could enter their student ID number in each of these clicker sessions. In addition to questions on the content of the class, a regular monitoring of the students´ effort for home readings, preparation and follow-up activities was carried out.

The system used in the study presented is called TurningPoint by Turning Technologies, which is a proprietary system of handheld senders and a usb receiver key, combined with a plug-in for Microsoft Powerpoint. Using this solution, a real-time integration of student polls in the teaching material (classical lecture powerpoint presentation) is possible.

Various studies have reported significant effects of using digital audience response systems on learning outcomes and student engagement in the classroom (e.g. Hunsu et al. 2016, Kay & LeSage 2009, Fies & Marshall 2006), but little is known about these effects concerning the specifics of landscape architecture and landscape planning education. The same applies to the pedagogical approach of the inverted (flipped) classroom, which has been found to motivate and engage students in various contexts (cf. e.g O'Flaherty & Philips 2015, Mason et al 2013), but little to no research has been carried out specifically in terms of landscape architecture.

In the presentation, I will present the hard- and software used, the different types of questions to check understanding, knowledge and transfer as well as a statistical analysis of the correlation between students' activities and performance in the clicker session (which was not graded) and their performance in the final (graded) exam.

Advantages and disadvantages of various audience response system, both using proprietary devices and mobile phone base online solutions are discussed.

I conclude that digital devices such as audience response systems, combined with a modified didactical approach do allow for an interactive lecture model, even for large classes. The results of this study are being replicated in the current semester and will also be used to motivate students to shift their work intensity from short time before the exam period to a continuous learning process over the semester.

This goes hand in hand with the findings of Kim et al. (2014), who set up design principles for flipped classrooms and stressed that incentives for students to prepare for class are essential and a mechanism to assess student understanding has to be provided. Both factors are covered with the audience response system assessment and the individual feedback to students which they can use for final exam preparations.

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Agency of landscape architecture in the digital world: Connecting classical skills with contemporary conditions

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Keywords: Landscape architecture skills, information technologies, data visualization, spatial complexity

Introduction

In the last decade, the term landscape began to be used by different fields of expertise when describing contemporary conditions for human life. Sadly not because of its roots in nature, but rather due to its agency of size and scale. Following the global restructuring to spatial-economic understanding of urbanisation brings about digitally supported approaches and professions, and an era saturated with the digital technology.

This essay examins classical design and spatial skills and how a new take on their pedagogy can help us enter the realm of emerging disciplines, such as information technologies (IT), that are taking centre stage. We will firstly re-examine classical spatial knowledge such as landscape analysis and landscape complexity, in order to discuss new pedagogic approaches to meet the expectations of the digitalised future.

Definition of The problem

The word landscape has become almost as promiscuous with meaning as the words type, space, system, and lately sustainability. Landscape became a vessel for multitude of meanings, what Latour (2004) terms 'the matters of concern' stating that every claim can be contested and should be part of an open discussion. He observes that all constituencies, human and non-human, have a voice and equal right of representation. This contemporary position is creating the new spatial complexities that the IT companies promise to solve through the employment of information technologies. However, that is only possible if nature is formatted so to be instrumentalised through the sciences and used for a particular purpose as a 'standing reserve' (Heidegger 1977). This formatting and transformation Heidegger calls 'ge-stell' and is done for its own purpose; so as to create a discourse within itself – within the doctrine of scientific reason. Mathematisation of nature as a 'standing reserve' and of the urban gives a platform for easy decision-making.

If the landscape gave the name, digital technologies gave the means for the emergence of the new global spaces in the wake of the economic restructuring of 1970s and 1980s. These landscapes are unmeasurable and unknowable in the urban and architectural terms and can only be grasped as a 'distantiated economy' (Amin and Thrift 2013) where urban centres of 'command and control', and nature as a 'standing reserve' are mixed into a global meshwork to such a degree that is hard to distinguish one form the other. The emerging landscape is no longer rigidly designated and explicitly defined, rather is an assemblage of 'vast number of highly particular global circuits' (Sassen 2012, p. 111). This paradigm shift is described by Manuel Castells as 'the space of flows', where the culture of production and consumption 'can be reduced to knowledge generation and information flows.' (Castells 2000, p. 409)

To govern such conditions, new design and planning approaches emerged. One came in the form of Landscape Urbanism where Waldheim (2006) suggested landscape as the only way to deal with large areas and their undetermined futures. The vocabulary shifted 'from forms of urban space to processes of urbanization, processes that network across vast regional – if not global – surfaces.' (Wall in Corner 1999, p. 234) In recent years, the latter is emerging as an operational scale where technological giants such as IBM create a market of IT solutions for the new globally connected condition and for themselves. The trends of spatial management are delegated by the providers of information technologies through the concept of the smart city.

In light of the digital technologies, the 'scientific' nature and the Laturian fragmentation, this essay asks: what are the classical skills of the landscape profession and how should they be developed further to contribute to the newfound world? Further it asks, which competences are required if we are to move in this direction?

Classical skills and their development

A first identified skill is understanding spatial complexity. Christopher Alexander in his work 'Systems Generating Systems' (2011) talks about a 'kit of parts' through which complexity of space can be managed. In order to manage the complexity we see today, the classical drawings of plans and strategies need to evolve. We need to foster new representations that develop the systemic approach of a diagram, compressing different types of information from technological elements of a smart city through typologies of landscapes to policies into one cohesive cross-scalar representation. Such is the drawing in Figure 1, a student project (under author's tutelage) that won the landscape architecture competition Le:Notre 2018 for the development strategy of Gozo island in Malta. The drawing is not a plan nor a strategy but is placed in between the both and is the basis for further tactical, participatory negotiations or acts as a strategic and policy instrument.

A second identified skill is drawing of maps and graphic representation of information. In the IT age, the environment is measured in a cacophony of ways. Sadly, the representational approaches do not cope with the vast amount of data stored, which makes these data unknowable. Spatial data is rendered either as a beautiful 'information graphic' or as a scientific map through the 'overlay method' following the McHarg's Staten Island approach (1951 pp. 103-106). It is hard to accept that 70 years later, the contemporary GIS does not extend beyond this simplistic yet powerful method. We need to continue the research and development of representational techniques for spatial complexity that go beyond Mcharg's layering.

Such an attempt is a map in Figure 2 developed by a student at the London Metropolitan University (under author's tutelage). The drawing explores a definition of new spatial indexes for visualization and assessment of urbanisation pressures on the landscape.

New pedagogic approaches
In order to be more in-step with the new digitally measured world, the outputs shown in Figure 1 and Figure 2 need specific pedagogic approaches and development of teaching competences in three crucial fields.

Firstly, we need to embrace the systemic thinking. Teaching of design through systems means talking about the underlying logic rather than the shapes and figures of the outcome. Even if systemic thinking is being pushed to the forefront, it is rare that the vocabulary follows. Instead of talking about the visual features of the space, the open-closed relation, the volumes, the visual rhythms; the vocabulary needs to focus towards questions of flows, dynamics and systemic rules. New vocabulary needs to be supported by the understanding and ability to communicate these abstract notions and concepts to the students.

Secondly, we need to actively research and develop new ways of spatial representation. It is true that we express ourselves graphically; however, these expressions are set in their ways. Contour lines are so unanimous with elevation that we do not even think, for example, about time (isochrones), or indeed, completely new types of representation dealing with pressure of development as shown in Figure 2. In this vain, we need to continue developing the representational techniques and include the research of representation of data into teaching curricula.

Finally, we need to promote and be ourselves IT literate. Just as the knowledge about plant species is needed to propose a lasting and balanced planting plan, basic knowledge of data gathering, storage and processing is needed to be able to represent and understand the newfound information-augmented landscapes of the now and the future.

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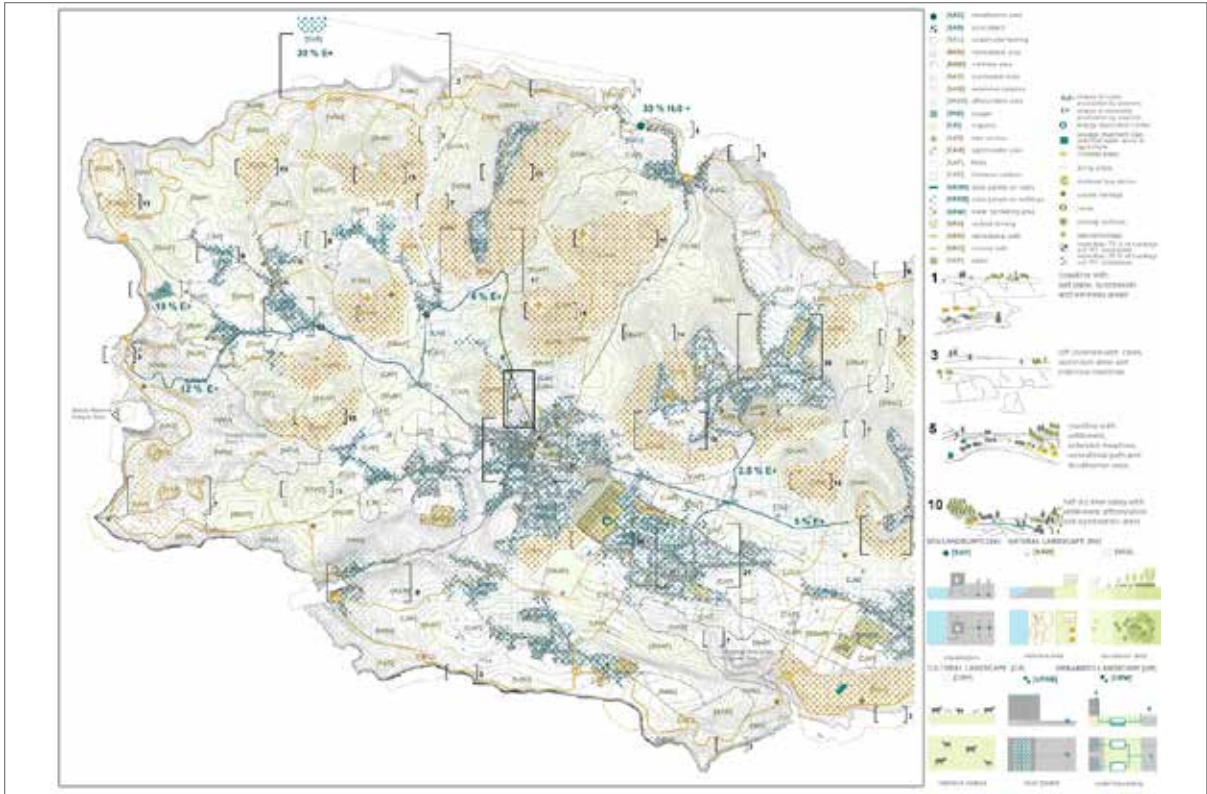
Figure 1. Drawing of Gozo island regeneration. The drawing resides between a design and a strategy, developing systemic thinking. It compresses different types of information; from technologies of smart city to landscape typologies and spatial policies into one representation that is readable at multitude of scales. © Pečan Petra, Pečenko Živa, Marn Nika, Eler Urška, Pogačar Tom, Jakša Dominik. 7th Le:Notre Landscape forum 2018. Student competition: Future! Envisioning the Eco Island of Gozo in 2050. First prize project: Gozo Goes Green. Mentors: Tomaž Pipan, Nadja Penko Seidel
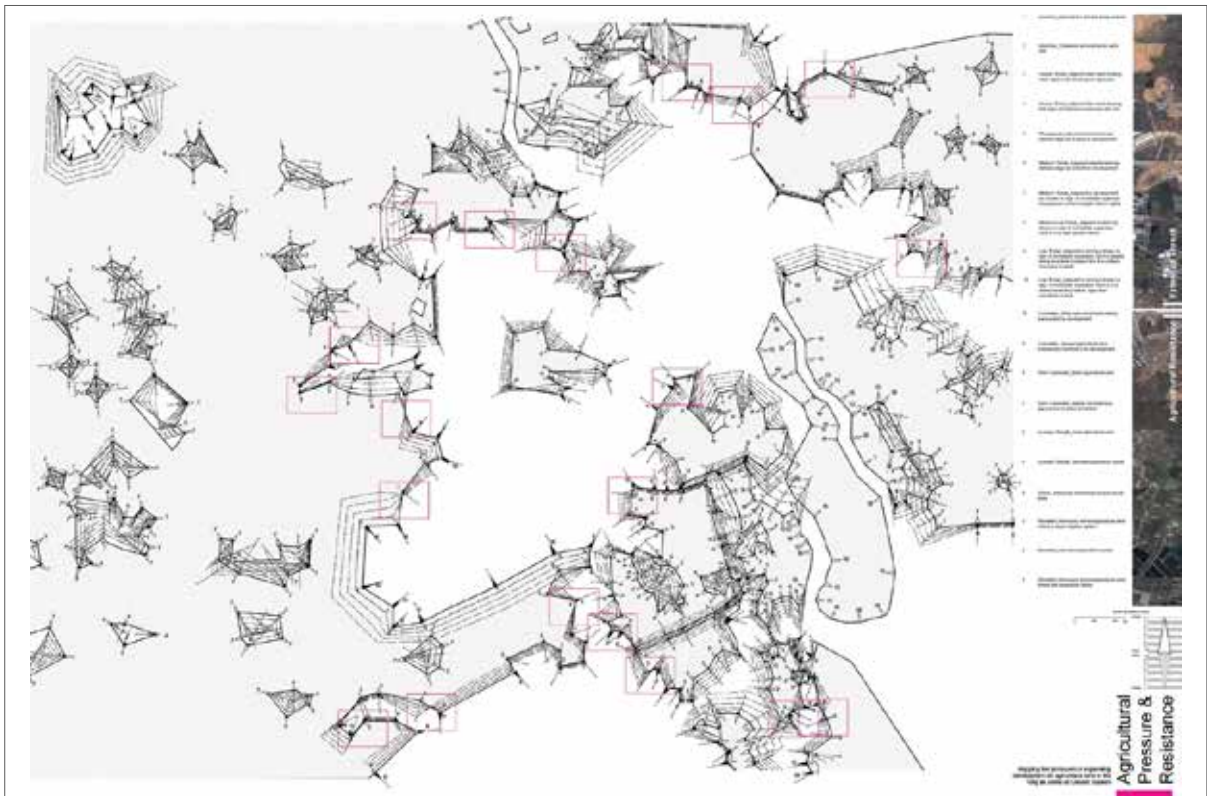
Figure 2: Map of industrialisation pressures on the agricultural land. The map assesses the rural edge around Xiamen city in China. It is using a social sciences approach on the basis of which it develops an indicator capable of visualizing pressures of rapidly developing industrial areas. © Patrick Fryer, Studio 8, the CASS, London Metropolitan University, 2010. Mentor: Tomaž Pipan.

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Evaluating evaluations of students' design proposals

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Keywords: Landscape architecture education, assessment systems, studio course, pedagogics, design proposals

This paper presents the results of a study evaluating evaluations of students' design proposals, in 'Studio 1', a studio course held during the first academic year of the landscape architecture program at SLU (Swedish University of Agricultural Sciences) in Alnarp. The objectives of the study have been to investigate if and how different grading and assessment systems affect students' design proposals as well as how teachers evaluate the students' work.

The concept 'Studio course' is a course model that is used in most architectural education programmes in Europe. The curricula and pedagogical methods in a 'Studio course' can differ between countries and programmes, but in most cases the main objective is to train emulating a professional architectural environment. In 'Studio 1', held in the first academic year of the landscape architect programme in Alnarp, the curriculum generally focuses on professional training and often contains the task of designing or planning 'real-life' situations. The course is given by a team of teachers with different backgrounds and perspectives; hands-on tutoring and supervision in the drawing-rooms are a central part of the pedagogic curriculum. Exercises such as sketching, comprehension of scale, visual rhetoric's and people's use of urban outdoor environments are mixed in between lectures and various assignments. In some ways, but not in all aspects, the pedagogies resemble what is more broadly known as Problem Based Learning (Hmelo-Silver, 2004). In general, Studio courses encourage training to conceptualize 'the uncertain' where there are several possible solutions for a given problem. In 'Studio 1' these creative aspects of the profession are exercised and the practice of collaboration skills between the students is encouraged. Usually one of the most important moments of feedback from the experienced teachers to the students is the final critique at the end of the course. During this occasion the sketches, proposals and blueprints are presented by the students and assessed by a team of teachers, most usually with invited professionals. Assessing and grading students in studio courses presents a special dilemma, as knowledge production in the built environment disciplines differs from other disciplines, such as natural sciences or social sciences (Griffiths 2004). This implies that grading and assessing systems cannot just be transferred or copied between different disciplines. Assessment of creative aspects can be discussed in various ways (Schön, 1991), as can the effectiveness of formative versus summative assessment systems (Biggs, 2003).

Approximately sixty students a year attend 'Studio 1' as part of the first academic year of the five-year program for Landscape architects in Alnarp. The first syllabus for the course was developed in the late 1990s and over the past ten years the course has been held using the same syllabus, curriculum, content and more or less, the same team of teachers. Smaller modifications regarding exercises, lecture and practical content have been made but the variables that affect the students' results and the learning outcomes have been stable, with the exception of one crucial variable; the assessment system. From 2008 to 2013 the focus was on summative assessments, goal-related grades were given through checklists with detailed design aspects that should be considered and summed up for the given grade in a four-step grading system applied at SLU. From 2000 to 2008 and from 2013 and onward focus has instead been on formative assessments which are used for feedback during learning. During these periods students have been informed whether they have passed the course and more importantly been given extensive oral and written feedback during the final critique, but no grades.

In order to explore the strengths and weaknesses of the different assessment systems we have conducted a study with two objectives. The first was to investigate if different grading and assessment systems affect the quality and content of the students' design proposals. The second was to investigate how and what teachers evaluate in the students' blueprints. The method of which we explored our objectives was through letting four experienced teachers, not previously engaged in 'Studio 1', reevaluate 32 blueprints. The blueprints were selected from the top and bottom results from students all attending 'Studio 1' in four different academic years where two different assessment systems where used: two academic years with a goal-related grading system and two academic years with formative assessments. In the selection of the blueprints we were aiming for a variation regarding both the aspects the students in question had taken care of in the design proposal, as well as a variation of the location of the place for the design proposal. The blueprints were evaluated and discussed individually by each teacher and the reevaluation was then compared and discussed in relation to the previous evaluation. Patterns of evaluations, inconsistencies and results were compared with the two different grading systems and also analyzed with questions concerning how and what each individual teacher evaluates.

The results show that the quality and content of the students design proposals were not affected by the assessment systems. Or in other words: the students design proposals were not, in any sense 'better', with a goal-related grade then with a formative assessment or vice versa. The result also shows that the evaluation of the individual design proposals varied a great deal from teacher to teacher and the reevaluation also differed from the earlier evaluation. It seems that the top design proposals as well as the bottom design proposals were more evenly evaluated than the design proposals that were average. The teachers tended to evaluate the overall design and result, rather than evaluating every detailed design aspect through a

checklist. A coherent framework in an overall design proposal was valued higher even if a few mistakes in detailed design aspects were obvious in the proposal.

The study shows that the argument to use goal-related grades to enhance the quality of students' results is not valid in this type of knowledge production. The inconsistency of the earlier evaluation in relation to the previous evaluation, as well as the inconsistency between teachers raises questions on the legal security to use goal-related grades as a measurement of good design. It also shows that experienced teachers value a coherent framework in an overall design higher, and that this is something different than putting detailed design aspects together in a design proposal. Or in other words: the sum of a good design proposal is more than its detailed design aspects. The assessment systems can also be discussed from a student progression perspective. With the goal-related grading system the student is, at the end of the course, left with a grade and a checklist with design aspects. The formative assessment system instead leaves the student with formative written feedback that points out the strengths and weaknesses of the student's design proposal as well as suggesting a way for going forward.

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(Re)affirming landscape planning as a core area of landscape architecture practice, education and research

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Landscape Planning is one of the core competencies of landscape architecture (Bruns et al., 2010) by embracing a forward-looking action to enhance, restore or create landscapes in a context of ensuring sustainable development (Council of Europe, 2000). Landscape planning is also part of landscape architecture history – land use suitability analysis from Ian Mcharg (1971) studies or environmental corridors to guide planning decisions from Phill Lewis (Collins et al., 2001), for example – but also part of today's with the interaction between landscape planning and emerging concepts, such as ecosystem services: 'We, the landscape architects, have to reposition ourselves as the kings – the good kings – who are aware of the degrading ecological environment in our territories and the survival challenges facing Homo sapiens, and be able to think big and envision a global, and regional landscape as an ecosystem, as well as regulate and change this system effectively through a workable infrastructure – ecological infrastructures that can secure sustainable ecosystem services for the survival of humanity' (Yu, 2016:182-183). In essence, the emerging concepts such as Green infrastructures, Nature-Based Solutions, Ecosystem Services, Sponge Cities (among others) are all quite familiar to landscape architects in practice, research, and education.

Landscape Planning deals with the integration of landscape processes complexity in the designing of a vision for the future. It is imperative to reaffirm the importance of landscape planning as a core area and competence of Landscape Architecture, which is not always valued by society. The deep relation with the interdisciplinary knowledge and the propositional principles of Landscape Architecture is, therefore, a priority and a potentiality in landscape planning approach.

The reaffirmation of landscape planning is needed in education but also in practice and research. In Portugal, the landscape planning practice is easily considered by society (including stakeholders and decision makers) as a geography or urbanism subject, excluding landscape architects. In research, it is becoming more common to have specialized areas of application, like the Organisation for Economic Co-operation and Development (OECD[1]) research areas that are too specific, without giving space for transdisciplinary or multidisciplinary research. This has made it difficult to apply for research projects in the field of landscape planning.

It is considered that practitioner experience, education, and research need to converge in the Landscape Architecture disciplines to guarantee better learning. In landscape planning, this will enhance the student's critical thinking about landscape approaches and expand the autonomous capacity to propose intervention methodologies, alongside with the exploration of a creative design process at the
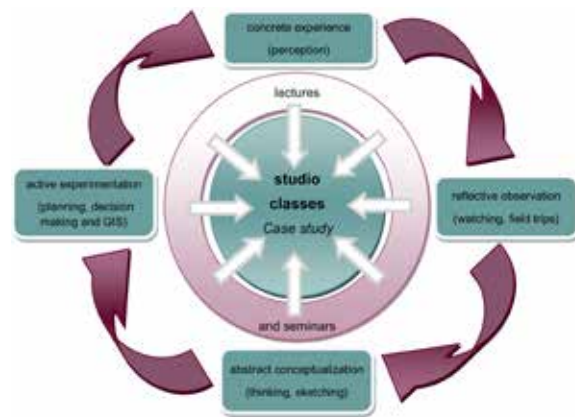
Figure 1.

landscape scale. My thoughts about these topics go to the importance of converging practice-research-education in the teaching pedagogic approach, which I advocate to be supported within the experience-based methodologies (Figure 1).

The experience-based approach (Kolb, 1984) involves four stages: concrete experience (perception), reflective observation (watching, field trips), abstract conceptualization (thinking, sketching) and active experimentation (planning, decision making and use of Geographic Information Systems). This method (Figure 1) is adapted in the studio classes and contributes to a better involvement of the students in the discussion of experiences and solutions for a Landscape Planning problem or the development of Landscape Planning opportunities. Along the Landscape Planning class, this cycle could occur several times. The lectures nurture the studio classes covering several subjects, with the involvement of invited speakers with expertise in planning and managing landscapes.

The studio classes are developed in groups to encourage the sharing of experiences, debating different points of view, and negotiating planning options. It is also defined as a stage for individual work to train design or /and individual research capacities. The studio class will include various presentations throughout the class in order to train communication and decision making (strategic, sketching and planning). Tutorial support helps the students in performing independent decisions. The link with research has the benefits of bringing research networks into the class and developing new interests among the students.

Note
1. http://help.prod-incites.com/inCites2Live/filterValuesGroup/researchAreaSchema/oecdCategoryScheme/oecd.html

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Drawing an exam – exploring didactical relations

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Keywords: Landscape architecture studio, didactics, drawing, examination, curriculum

Background

A new and innovative form of exam developed within the Bachelor of Landscape Architecture at Copenhagen University (UCPH) has led to significant adaptions of the first year curriculum. These changes are pedagogically complex, but build on ongoing developments in teaching at UCPH. With the reform of university education in 2013, the Danish Ministry of Education made numerous attempts to speed student progression. This included ensuring a minimum number of ECTS passed by students each year, which required shorter teaching modules. The structure of the Bachelor of Landscape Architecture at UCPH was duly altered to reduce module length and first year students have been required to take an extra exam after the first semester as an addition to the portfolio exam held at the end of the year.

The initial sense that a new exam was an unwelcome imposition soon gave way to an understanding that it could in fact be a catalyst for further development of the module, instigating new forms of reflection on content and pedagogic framing. The opportunity arose to relate our existing pedagogy to new criteria, investigating what further pedagogic resonance (Rosa & Endres 2016) could be nurtured in the course.

This 'disruption' has given the module a new energy and has in fact contributed to positive developments and ultimately the furtherance of pedagogical goals. Building on a deep wealth of collective experience within the landscape architecture education, the aim has been to ensure continuity in teaching and learning while creating a revised constructive alignment (Biggs 1999; Biggs & Tang 2007) in relation to the new exam and revised setup.

Exam format

The format of the new exam was an open choice for us- a second portfolio exam was quickly dismissed and it was decided to experiment with a form of exam that more closely addresses the competences achieved through the various sub-assignments made during the first months. The aim was to combine aspects such as design thinking, drawing competences and knowledge of landscape architecture history in one verbal examination. At the same time, colleagues were exploring the use of vertical projectors in the studio teaching to link and explore digital and analog methods of sketching and communicating in the design process (Hansen et al. 2016). This didactical framing created yet another opportunity for rethinking the exam situation.

The aim of the module is to introduce Landscape Architecture and Planning as fields of study and practice. Students are expected to work with various tools and develop both observational and analytical skills, their creativity and aesthetic awareness. An important choice has been to focus on 20th century housing landscapes during the module. This relates to the research profile of Landscape Architecture

Figure 1. 'Stjernehjælperen' is a guiding tool to address various parameters for analysis and design work related to landscape architecture

and Planning at UCPH where welfare landscapes have been a significant theme for many years (e.g. Hauxner 2003, Braae 2017). Furthermore, these spaces and landscapes also have great learning potential, as they represent a familiar landscape type for new students, and the basic and recognizable programmatic content of the housing areas make initial contact with the sites immediate and relatable. In addition, they span the fields of landscape architecture and urban planning broadly, train the students to consider multiple scales and offer the possibility to discuss diverse aspects from planning values and paradigms to specific design solutions or materiality. These welfare landscapes are also something of a Scandinavian specialty that helps situate the profession internationally.

Hence, in the new exam, students are required to compare two housing landscape projects blindly selected from twelve works studied through the semester. After an hour of preparation, the student simultaneously draws and verbally explains the comparative analysis of the two works, based on aerial photos projected onto large format paper from the vertical projector (Figure 1). The form is simple, but offers the students a significant range of creative opportunities during the exam. Since the introduction of the format, our efforts have been to maximize the learning benefits for the students in their preparations for, and during the exam.

Linking teaching elements and assessment

One of the biggest challenges during the first module is to introduce the student to a multiplicity of themes and approaches within landscape architecture. The aim is to secure strong links between the sub-parts encouraging students to combine their knowledge across assignments— and even across different modules. A useful connecting tool has been the so-called 'Stjernehjælperen', The Star Helper, which was developed in 2007 and has been revised consistently. The model is a guide for 1st year students when approaching understandings of landscape architecture projects – it addresses them in terms of Morphology,

Functionality and Use, Materiality, Planning ideas and intentions and Context (Figure 2). Modifying factors related to each point on the star are scale and time. We have experienced that students find the tool useful when presenting design ideas, but also for the analytic phase of exam preparation and when structuring the presentation at the exam itself. The 'Stjernehjælperen' is now a familiar tool in 1st year teaching at UCPH and the iconic graphic form creates an easily recognizable common point of departure for students across years. Giving students the opportunity to operationalize their use of this tool during exercises as well as at the exam has brought it into focus in a new way.

The module Plan & Design 1 runs concurrently with the course 'Natural Processes 1' and the year starts with excursions common to both modules. These excursions also begin to explore the theme of housing landscapes and include initial visits to some of the 12 sites that are relevant to the exam. Parallel with these excursions, teaching on Plan & Design is broken down into three groups of approximately twenty students each and the groups rotate between model building, photography and hand-drawing throughout a six week period. With these tools, students develop both observational and interpretive skills. All three sets of tools are brought into play on topics relevant to the Plan & Design and/or the Natural Processes modules (Figure 3). For model making students create a large city model requiring onsite registration and measurement of four of the twelve works studied. In addition photography, urban space and plant morphology are explored and hand-drawing is used to develop drawing typologies and observational drawing of at least one of the twelve works. Hand-drawing is taken further into the Natural Processes module with vegetation colour drawing, geomorphological block diagrams and soil profile drawing. Subsequently the tools are combined in a design project that is localized within the area recreated with the large city model. Here urban morphology and the interplay of built form and landscape is investigated. Throughout the semester, we also read texts that support discussions about spatial experiences (e.g. Rasmussen 1962) and that are applicable in several didactical situations thereby bridging the assignments on a narrative level and training analytical skills for the exam.

The web of connections between modules, exercises, projects and the new exam format is ongoing expanded, challenged and evaluated. The aim of this presentation is to conceptualize the relations between curriculum and examination further, and to highlight the feedback loops and pedagogical considerations emerging in the dynamic learning field between assignments and assessment.

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Figure 2. Exam situation with the vertical projector combining drawing and verbal dialogue

Figure 3. Large-scale section drawing on site visit, model-making for site analysis and design proposals and colour studies combined with representation of natural processes— the exercises connect across modules and link between tool courses and assessment.

Environmental literacy and landscape planning and design in Turkey

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Educational institutions are the very places for increasing environmental literacy. The main purpose of these institutions is to raise students as productive, conscious and responsible individuals for society and prepare them for citizenship. Hence the education system at educational institutions should be in a position to support and develop the students' personal, professional and societal skills, actions and perceptions (Roth, 1992). High literacy rate in a society signifies that individuals understand how natural systems work out on the earth, what kind of effects human activities have on this system and their connections, and that they have practical (applicable) knowledge of the related subject. The practical knowledge related to the system enables individuals to develop their competencies of problem recognition, evaluation, knowing personal responsibilities and taking precautions; it will also help them to develop an approach that relies on the use of natural resources and the decrease of environmental problems (Teksöz Tuncer and et al., 2008). Such attitudes are expected to develop especially among young people. From this point forth, one of the recent subjects at issue is environmental education at higher educational institutions (Moody et al., 2005). Those who gain expertise are expected to, upon graduation, to take active roles in their societal or professional lives. For example, the shared objective of the studies investigating the environmental literacy in the USA is to assess the level of environmental knowledge of the university students and to help the graduate students to grasp and develop environmental policy. In Canada, environment is an interdisciplinary subject and it is put forth that students, regardless of their majors, are supposed to be environmentally literate. In these countries, especially in the studies related to sustainable development, the aim is to assess environmental literacy and determine the efficiency of sustainable development and environmental education (Thomas and Nicita 2000, Moody et al. 2005, Teksöz et al., 2010). These examples show that higher educational institutions embrace the principle of an instrumental role environmental education holds for society (Teksöz et al., 2010).

The way natural resources are used has been one of the most significant environmental problems in Turkey in recent years. Landscape Architecture is one of the planning discipline professions involved in the planning and use of natural resources, hence finding out the level of environmental literacy among the students majoring in Landscape Architecture is of value. Landscape architecture is also a creative endeavour that helps to define what it has understood from the world as well as solving spatial problems. Dealing with spatial problems requires knowing about societal needs and social structure. Because of this structure, it is interdisciplinary and complex (Gazvoda, 2002). The large increase in the world population, fast global urbanization, non-convertible and large scale industrialization all threaten environmental health, ecosystems and landscapes. The continuity and development of sustainable landscapes is one of the most challenging most important tasks of stakeholders and scientists. In fulfilling this task, landscape ecology and landscape architecture play a critical role.

This study was carried out to investigate the environmental knowledge, attitudes and behaviours of Landscape Architecture students within the scope of environmental literacy scale. The level of environmental literacy of students aims to help understand the basic inadequacies of professional education. Also, it enables to discuss the attitudes needed to be developed for a sustainable landscape in the planning discipline in Turkey.

With reference to the possibility of various approaches of Landscape Architecture departments affiliated with different faculties, the study was carried out by using a questionnaire based on environmental literacy scale. Simmonds (1995) identifies the components of environmental literacy under seven headings: Affect, ecological knowledge, socio-political knowledge, environmental issues, cognitive skills, environmentally responsible behaviours and additional determinants of these behaviours (McBride, 2011).

The main reason why the students do not take actions relates to the structure of landscape architecture education that has not changed since it began in 1980s.

Landscape architecture education focuses on intensive design and 3D training courses but is short of theoretical courses. First year studios starting with design and drawing courses are succeeded by landscape design courses in the following years and landscape planning course in the final year. In the studio courses that are supposed to be about theoretical knowledge, no theories or policies are taught but the focus is rather physical. As a result of emphasizing only physical planning, the students are unaware of why they are doing what and what they defend or protect. Moreover, they fall short to understand the relationship between design and planning because they do not work mainly on an urban scale to produce and develop major planning decisions. Without being exposed to any theories and policies of design and planning, the students do not get opportunities to engage in any relevant discourse.

The analysis shows that informal education, which suggests no political infiltration in terms of agency and stance against, is more effective. It is clear that formal education, as Hegel suggests, highly attests the need for educating the educators. Moreover, role learning based education, rather than one that offers critical thinking, produces only individuals with diplomas instead of those with the ability to think. There is also no addressing of the political dimension in planning despite its major role in moulding space. (Lefebvre, 2009). The fact that Landscape Architecture in Turkey is offered under several faculties at universities, the

failure to coordinate among the curricula and the state of 'inertia' in education may hinder not only the students' motivation for learning but also challenges developing a professional vision and mission.

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Hybrid landscapes. Blurring boundaries between art and science in landscape research. The case of Trento, Italy

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Keywords: Hybri, 'Omni-landscape', techno-nature, landscape living labs, trans-disciplinarity

The Anthropocene era is 'torment and delight' for anyone involved in landscape theory and practice; as "the world is becoming more and more global, fluid and weak" (Branzi, 2006) the popularity of the word 'landscape' grows daily together with the quantity and quality of researches and projects related to the topic. Yet at the same time landscape disciplines are facing a deep crisis related to the paradigm shift that blurred boundaries between technology and nature resulting in extreme hybridization of territories and disciplines. We are currently experiencing the age of the "Omnilandscape" (Jakob, 2008); an age where the landscape is used everywhere as a 'magic wand' to give answers to issues of contemporary world. This is the result of a twofold process that occurred in the last decades and related on the one hand to the progressive detachment of people from 'natural' environments (Lefebvre, 1970), and to the loss of natural resources and the contextual increased awareness about ecological topics on the other hand. Both these processes led to an unsatisfied 'desire' of nature that makes words such as landscape, ecology, nature so fashionable nowadays. In such a context most design disciplines have gone into crisis because of the impossibility to offer effective answers to these phenomena.

In spite of a general crisis of theoretical instruments the centrality of landscape related disciplines appears as a consequence of the ability to incorporate different approaches, professions, and theories into a comprehensive vision. This ability derives from the openness of the concept of landscape as a result of a process which is both of 'looking' and 'making'. The etymology of the word itself strengthens this idea (land-scape means 'selected view on land' while pays-sage refers to the 'wise making of land') (Turri, 2006). This means that, as our society constantly redefines its relationship with nature in a perpetual process, there is a high degree of openness and hybridization in the definition of what landscapes are.

Within this blurred theoretical environment and conceptual structure we have to rethink, explore, and therefore teach, the relations between elements of landscape, or between landscape and nature, landscape and time, landscape and flows, etc. The landscape should be explored more through its relations than through its elements. Avoiding both a rigid scientific determinism and the excessive 'aesthetisation' of landscape is therefore fundamental to go beyond the current crisis and fragmentation of disciplines, as already stated by James Corner (Corner, 2001).

As landscape is related to our relationship with nature and our relationship with nature is furthermore strictly tied to the development of urban awareness, it is necessary to reinterpret or reinvent this bond whenever the urban model enters into crisis as it is happening in the contemporary age. Some artistic disciplines have somehow already done this shift (e.g. French impressionists painters represented scenes without a figure-ground relationship by directly staining colours on the canvas in an unmediated vision) while design disciplines have yet to make such a shift.

We are facing a detachment between the most advanced theoretical approaches and practice as the deconstruction of categories and theories are common characteristics of contemporary society (Appadurai, 1996). These open questions are strictly related to how landscape is taught in universities and how the knowledge about landscape is built in research and practice. It is not only a cultural phenomenon, though; from the spatial point of view too territory and landscapes are becoming hybrid and with blurred margins (Borden, 2000). The question is then how education and practice are dealing with the situation and whether we will be able to overcome the juxtaposition of disciplines towards a true trans-disciplinary approach to theory and practice which combines the arts and the sciences (Kepes, 1956).

This contribution would like to raise some questions about the necessity to combine scientific and 'aesthetic' approaches in a more sound way within research and didactic activities. Questioning the idea that a proper empiric representation of landscape will never be able to grasp the complexity of any landscape means to open the field to a 'science-design' approach that builds on both scientific methodologies and a design approach. The potentialities of landscape as a tool to understand and design our world are embedded in its openness and fuzziness that have been described before. Any landscape project should become a performant, processual, self-organized, and dynamic tool that enables things to happen in space more than being a design tool to set visions or plans for a territory or a space. To become such an effective tool a landscape project must embed and truly entangle science and aesthetics. This is one of the reasons why a landscape design course can be quite frustrating as students have to constantly question, and are forced to go beyond traditional disciplinary boundaries. Concepts like green and blue infrastructure, ecosystem services, techno-nature, or hybrid landscape which are better able to describe and give meaning to contemporary landscapes are quite complex to be translated into strategic plans or figurative expressions.

As landscape is a complex combination between 'making', 'looking', and 'representing' there are some territories which are more affected by such a blurred relationship between humans and landscapes. Such territories are the ones that have inherited an

over-representation of iconic images over time that resulted in a process of identification between the physical status of landscape and its representation (Debarbieux, 2008).

Within Europe there are few territories that have been affected as much by this process as the Alps and the Alpine region. Iconic places like the Dolomites, some Swiss resorts or Austrian villages are so established in the collective imagery to literally 'absorb' every representation or design effort (Crettaz, 2011; Cosgrove, 2008). Within this context there are some metropolitan areas that particularly 'suffer' from this mechanism of over- and under-representation, therefore they represent blank spots where research, design and teaching processes could play an important role in giving new definitions to landscape. These areas are neither typically rural nor typically urban and this is why we think this 'playground' presents some very peculiar characteristics that make it a field where to experiment an approach and tools to close the gap and test new methods to teach and experience landscape.

In particular these experimental 'science-design' workshops and courses are being developed in the city of Trento (a medium sized city located in the Italian Alps with an important engineering faculty) where teachers and students are setting a sort of 'living lab' whose aim is to build proper hybrid professional figures able to think of effective actions for contemporary landscapes. The ongoing experience in Trento can offer positive insights on new methodologies to put innovative strategies on landscape into practice. Projects and researches of master and PhD students are not only working in combining disciplines and methodologies but are also encouraged to cooperate with EU or local planning projects to deconstruct boundaries between theory and practice, between strategic and design thinking, and between art and science. Moreover, students from the university used to have a very strong engineering background lacking knowledge and abilities in the design-oriented disciplines. Far from being a weakness this can represent the true potential to develop more comprehensive approaches to landscapes in spite of some obvious obstacles.

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Teaching, research and design: Interdisciplinary methods and new concepts at the International Winter School Welzow for post-coal mining landscapes

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In the last few years a cooperation in teaching and research developed between the provincial town Welzow in Brandenburg and the Department of Landscape Architecture at the Brandenburg Technical University Cottbus-Senftenberg (BTU). Its aim is to give students the opportunity to put their field of study to the test and to offer a chance to the city to fathom to the fullest its ideas of progression with the help of the body of knowledge of a globally operating university.

In the past year (2018) the principal object was landscape orientated options of development in areas of former filling and excavation materials following the end of the mining near Welzow (Winter School Welzow 2018- Future Landscapes). In 2019 the focus of student studies was the qualification of urban spaces interfacing between city and post-mining landscape (Werkstatt Welzow- Transformation Landscapes).

Future Landscapes
In March 2018 the department of landscape architecture of the BTU has organised a Winter School including a design-workshop for project planning regarding the topic of Future Landscapes. Its purpose was to establish new concepts and strategies for the post-mining landscape in the south of Welzow.

There were 24 students of later Master semesters from various countries working together and individually on original projects proposing steps for future developments in the city and region after the mining. The many different cultural experiences and the collaboration guided by scientific discourse broadened the perspectives and views of all participants.

The Winter School linked topics in the area of conflict between ecological land use, transformation spaces and other current issues of urban and regional progress (climate protection, socio-demographic change, new ways of mobility, land management, regional integration, biodiversity, integrated nature conservation, energy revolution). It also raised the overriding question how innovative approaches can look like in context with a miner's general conditions and confined economical resources. Furthermore, with the process of recovery there is an opportunity for a topographic reshaping of the landscape.

In which landscape do we want to live?
The format of an interdisciplinary Winter School provides the opportunity to gain insight into different ideas and views of planners, designers, scientists and local stakeholders (farmers, entrepreneurs, clubs/ unions etc.). With Future Landscapes the participants were looking into exemplary approaches that could be suitable for use in the area, such as new tourism opportunities or the development of pilot projects

(experimental agriculture, botany, alternative life-forms). They also examined completely new and unproven methods that could give a new form to the ripped/bare post-mining landscape. These proposals ought to include feasible new landscaping appeals, innovative ideas and creative concepts. The generic challenge of viability of different bioengineering, ecological and miner's standards, as well as socio-economic needs were to be followed during the design process.

Working in transdisciplinary groups towards qualified individual designs
The work resulted in six different ideas for a possible shape of the post-mining landscape around the town of Welzow. The concepts ranged from landscapes remaining as they were moulded by the mining, the slopes and plains being used for viticulture and animal husbandry, to visions about variegated landscapes with fruit and vegetable agriculture, sunflower fields, and possible leisure activities. Welzow could transform into a lakeside town with attractive accommodation and leisure time facilities or it could be surrounded by agricultural land or a terraced landscape with glass greenhouses. Another idea focuses on the renewable resource wood, which could provide an alternative industry after the end of lignite mining in the area and ensure employment and could supply us with alternative fuel.

The Winter School's logic and structure
In addition to explorative tours, such as a mine excursion and a visit of the IBA Terraces, the program included a course of lectures. These provided interdisciplinary insight into the potentials and prospects for post-mining landscapes for the participating tutors and scientists studying landscape architecture, environmental planning, archaeology, architecture, urban and regional planning, art history, tourism and sociology. Furthermore, experts from public administration and independent institutions were invited to introduce different views.

Helpful to understand, analyse and assess the significance and the role of the postmining landscape are field studies that show the surroundings of the area and its challenges. The studies started with researching and analysing the culture, atmosphere, climate and history of the social and ecological interrelations, spatial link and proximity, regional integration and so on. Then followed the interpretation of the town as a conceptual starting point. The main part of the Winter School was the planning workshop 'Rethink Welzow'. In this case, the concept of Rethinking allowed to come up with anything one could think of and practise one's imagination and creativity. Its aim was to demonstrate that a professional and innovative work process, in a

town that doesn't have future prospects yet, is indeed possible when making sure that unusual routes and mindsets are taken. To conclude the Winter School the results were publicly presented by the students in the local school building.

Winter School Welzow 2019 - Transformation Landscapes

In March 2019 another Winter School about the transformation of town and landscape took place; it picked up the preceding Winter School's results. This year the focus was set on prioritising concepts for the future development of the postcoal landscape. The project was realised once more in cooperation with the BTU Cottbus-Senftenberg and local stakeholders.

Impromptu

A four-day impromptu workshop was chosen as the working method. A quick and intense immersion in the regional and social context through lectures, viewings of the active mines and conversations with local protagonists of the town's development was followed by individual inspections of the areas of linkage between city and post-mining landscape. The students immersed into their object areas focusing on urban architecture, the design of the merging areas and participating in a discussion about governance as a form of project realisation orientated towards the needs of stakeholders and citizens. In just two days solutions were suggested, all of them far ahead of previous progress in Welzow.

Outlook

The format of a Winter School is an important, design orientated part in the examination of post-mining landscapes in peripheral, rural areas. The aim is that participants develop new and innovative ideas for a future use of the mining plains after the exploitation phase out, focusing on a sustainable, resource-friendly development using regional potentials to ensure an attractive anthroposphere for locals. Adding to that, another goal of the students' concepts was to generate new economic impulses for the town and its population. The transformation from mining to postcoal landscape should emanate far into the region and even further. In the presentations of the results in front of local stakeholders it clearly showed that not only the students surpassed ordinary solutions by far, but also could convey their concepts convincingly to the audience.

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Landscape beyond engineering. Landscape design research in the Alpine context

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For the past two years my teaching and research activities have been devoted to the education of students in the fields of Architecture and Building Engineering in Trento (Italy). Here, for the first time after years of education in architectural schools, I was confronted with students coming from technical disciplines where only a very small number choose the course of landscape architecture as an elective studio during their last academic year. At the same time, Trentino is a region covered by more than 70% of forest, meadows and agricultural fields' landscapes. Here, landscape is considered by the inhabitants one of the most important values both for a better life quality as well as for the representation of their own cultural identity. Very often, this territory owns critical and weak characteristics that - still too rarely - are addressed in the ongoing landscape and architectural design solutions. In such a sensitive context, I have started to question the contents and the methodology of my own educational approach.

Wilson and Zamberlan (2017) recognise the potential of design thinking and practice in innovatively addressing contemporary global challenges. Hence, one could assume that design education is universal. Yet, it is easily ascertainable that a shared pedagogy does not actually exist. Based on my personal experience, this contribution aims to reflect on the teaching approaches in landscape architecture as applied in the mentioned working environment. Differences and commonalities will be analysed with the purpose of identifying the best methods to face contemporary global challenges. Starting from those significant transformations in landscape architecture, architecture, urban planning and design discourses that have led to specific modes of contemporary practice, this contribution focuses on the expansion in approaches and definitions that standard design concepts, such as context, program, processes, time and performance, have undergone during the last four decades and the consequent emergence of new design methodologies. The blurring of disciplinary boundaries between landscape and architecture, art, urbanism, ecology, but also engineering, technology, and science in a broad sense, has forced to expand and redefine landscape architecture's own terms and field of operations.

Particularly, after receiving several proposals to supervise master theses research projects on the development of a new parking complex or new infrastructural systems, as well as developing research projects with esteemed colleagues in the fields of hydrological, environmental, or civil engineering, I began to seriously think that a renewed approach was required. The most lacking aspects were a common and shared vision and "language" to communicate between the various disciplinary fields, and integrated design perspectives and approaches. In turn, these aspects became the main aims of my current research and educational approach. Referring to the projects of Frederick Law Olmsted or the Dutch design culture of landscape architecture it is clear how there has always been a mutual exchange of knowledge, envisioning, and wisdom of the specific competences of designs among different fields. Recently, this mutual empowerment and reciprocity has been gradually blurred and it has been replaced by strong barriers. At the same time, it is evident that the education of landscape has moved out of the school of agriculture, landscape architecture, and architecture by reaching schools in apparently less related fields (such as engineering, human and social science). This change is inevitable due to the contemporary socio-cultural-economic-ecological conditions and the uncertainties of multiple possible futures. Therefore, my concerns about the specificities, weaknesses and the added values of a school of architectural and building engineering became programmatic challenges to questioning the role of landscape education in such a specific environment. Can a specific, shared and operational methodology from the educational path of this school be outlined? If yes, what kind of improved knowledge, sensitivities and tools can landscape architecture offer to the "most scientific" and engineering disciplines? What are the added values and the specificities of these (new) practitioners? How and what can these figures offer in return, to advance and improve the landscape architecture culture and sustainable practice?

Understanding the contemporary landscape and urban phenomenon and the issues connected to it are key elements for the education of young landscape architects and landscape urbanists. The common methodology proposed, aims to enhance a cross-disciplinary education allowing to interpret and to design contemporary urban and natural spaces. This presentation will critically present the results obtained through the different student projects' experiences (design studios, master theses, doctoral theses) applying the following five-step methodology:

1. Context which aims to acknowledge the project's site characteristics, its problematic and potentialities. It highlights the real condition of the existing or lacking social cohesion, environmental qualities and local economies and energies (human and material).

2. A programme identifies the quantitative characteristics of required transformations, connecting them through an overall strategy that foresees new urban development possibilities.

3. A concept outlines a strategy that can valorise the project, describing the most intimate nature of the project through a figure, representing its essence and manifesto.

4. A vision represents the objectives of quality. The images of the future help to focus on strategic issues in order to mould processes of local development by exploring changes.

5. A process develops project feasibility through which its realisation becomes possible. It is the active master plan device that the city uses to ensure the quality of change for its citizens.

These five phases are not necessarily consequential. Very often the project starts from the process, from the desire or need to activate urban transformations. These five phases foresee a design methodology to be applied in a hermeneutic process of readjustment and improvement.

This methodological process is driven by the strong belief that the education of students has to be cross-disciplinary and connected to research activities and design experimentations based on real-life cases, through the sharing of knowledge and experiences between scholars. Therefore, the educational approach has been, and still is, to involve students in a scientific discourse that entails an educational process starting from the beginning of their studies. Courses, at different levels, aim to stimulate a critical sense on landscape design research by exploring the history and the theories of landscape as well as experimentation of landscapes' methodologies and techniques. Through the analysis and the design experimentation of the landscape in its different phases, students have the opportunity to acquire tools to interpret historical and contemporary, natural and artificial, open spaces and their transformations. By the end of the design experiences, students are able to: know and use tools for analysing the landscape; interpret and describe the sense of the places and the ongoing transformations in open spaces of the city (such as the physical/morphological context, economic and social landscapes, systems and flows); learn methodologies and techniques to design and manage the landscape in Alpine urban contexts; define and design a project for a complex area by verifying the compatibility with general plans and the consistency with the context (nature and history, transformability and constraints, natural and social dynamics) as well as adressing the European design research framework; define and represent a project idea that highlights the interpretation of context also through the experimentation of traditional or innovative tools (e.g. urban design, urban performances, artistic actions in the city and the landscape, digital devices and new media); communicate the project through a variety of tools to a large group of stakeholders (technicians, practitioners, citizens).

Students' projects from the landscape architecture studio, master thesis projects as well as doctoral researches, will be presented to illustrate the outcomes of this educational process and to support the definition of a theoretical and practical common ground for the current generation of students and the next generation of landscape practitioners.

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Theory of Weakness as a pedagogic method

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The aim of our study and research is to introduce the experience of an alternative pedagogy method for the landscape design of contemporary multicultural spaces, able to regenerate the current ideas of design. Even if there are experimental and vital texts on verification procedures, the consolidated practice removes them from a strictly educational approach.

Students, coming from multicultural backgrounds are provided with a few thematic lines (a sense of short circuit, trial, process of meaning), which underline an interpretation of knowledge in a horizontal sense, as Gilles Deleuze (1969) has defined. Students independently develop topics, following the instruction provided by this learning and researching method.

The Weakness theory has been developed by authors in more than 150 master theses since 2013, and by now has identifies more than 1000 weak places in the world, including developing countries, favelas, refugee camps, recovery landscapes, as well as shrinking cities and consolidated cities.

The research and its outcomes are intended as a transversal landscape course where students are called to specify solutions related to the theory of 'weakness' as a methodological, theoretical, and practical strategy able to create a short-circuit on our common idea of landscape planning.

We denote the term 'weak' as a crucial point, as the most productive in terms of research on contemporary design. In fact, we underline, according to Branzi (2006), that the infirmitas and weakness in design can accurately represent the contemporary city as a combination of synthetic and systemic categories. In more general terms, they appear to be fractural positions to be merged through a designative and definitive urban research, as was sought in the majority of architectural theories during the last century.

The paradigm of research paraphrases the 'Weak Thought theory', in Italian Pensiero Debole (1983), by the philosophers Gianni Vattimo and Pier Aldo Rovatti, in which they refute the latest all-embracing legitimizations within a post-metaphysical and postmodern framework. The research on weakness starts from the analysis of the meaning of the word 'weak' and, through its factorization and transposition, aims to delineate a theoretical/practical approach for a renovated urban design and planning.

The purpose of this pedagogical method is to experiment whether, inside the 'construction' of contemporary cities, a weak approach is able to defy the 'established' methodologies of urban studies and urban planning, by overcoming the designative

value of architecture and fixed shapes. The method identifies open spaces and landscape as possibilities to transform urban scenarios. In this vein, the notions of ecology and of ecological systems, as intended by Landscape Urbanism and Landscape Ecology, become the method's disciplinary infrastructure. The ecology is hence 'technonature' or an evolution of Nature in artificial terms, where transdisciplinarity plays a crucial role in transforming the codes and instruments of urban landscape design and planning.

According to this approach, Landscape Urbanism and Landscape Ecology are considered the basic platform of the pedagogic method with the following meanings:

Theoretical meaning: the critique of modernism and synthetic-exact approaches, and the adopting of transdisciplinarity as the scientific value to develop and reach a continuous space regeneration through the formulation of an adaptive urbanism;

Methodological meaning: the implementation of the substitution/hybridization of the ecological logic in urban planning, urban program, and urban design, the overcoming of the dual/dialectic concepts (as culture/nature, nature/city, figure/background), the promotion of a dialogic concept, as suggested by theory of complexity, and the introduction of the reduction of architectonic scale centrality as a topic in urban design;

Strategic and operational meaning: the promotion of horizontal surfaces instead of vertical ones, by reactivating the awareness of flat land as the ideal space for transformations and relations, acting the role of a performative surface.

This pedagogic method considers the theory as inseparable from practice. In this sense, students are called to define a 'theoretical practice' for their project research, so that their thinking is not dichotomous, but relational (Glissant, 2007) and synergistic.
The students' project work, therefore, involves both theoretical and applicative approaches: theoretical scientific literature and normative of praxis. And, in particular, they are called to interrelate the imaginative/conceptual process of the theory with the specific and contingent process of the practice.

The students have to consider weakness as a theoretical method that implicates relational, complex, rhizomatous, and transdisciplinary interconnections; as a word whose multiple variations and meanings generate from a paradoxical etymology; as a verb to operate an urban strategy activating effective and performative processes; as an adjective to mark operational tools to design the territory primarily through a conceptual lens.

In a way, weakness is a pretext to build cognitive meaning for a new world scenario, prioritizing a weak vision in multiple senses.

Far from any designative desires, from magnificence, from perfection, but rather as a mental landscape prior to a physical one: a landscape to chafe, to deform. Each student's thesis can be read as an open, expandable, fruitful, dynamic, combinatorial, independent work developed by a common analysis of different multidisciplinary subjects.

The topics have been independently developed by the students, so that they can be considered as authors of a new idea. This learning and research method supports each student in building her own vision of the world, without stereotyped positions. Students develop some thematic lines, which underline an interpretation of knowledge in a more transdisciplinary and horizontal sense.

Summarizing, students are free to develop their landscape project starting from some given data: A scientific platform of reference (projects, theories, methods) on weakness theory; the maps of the chosen research places; a first glossary of reference on weakness theory. Then, each student is called to further develop a specific platform of research, related to a specific place/topic, developing and declaring her/his theoretical/conceptual position, also elaborating a comparative analysis with other similar topics around the world (comparative atlas). This brings the student to submit a conceptual map and a design strategy focused on ecology and ecological systems (ecology interpreted in its multiple definition: as production, as natural elements, etc.), and finally to propose a simulation of her/his proposal within the real context through a final essay.

During the process, the student stays in contact with other experts or teachers, so that she/he can elaborate a series of external relations. Hence, the students are called to answer to two levels of meaning in their specific contexts and as open multicultural platforms for contemporary landscape research.

Through the interaction with professionals, institutions and foundations outside the academy, the students can become, during the development of their graduation thesis, experts of the cognitive field developed and able to interact at different levels.

Applying this pedagogic method, the authors stimulate students to 'read' the contemporary multicultural world based not only on assumptions coming from a mere design argumentation, but based on broader considerations related to their landscape architecture project – projects referable to a multicultural approach increasingly focusing on the exaltation of the magnificent, of the extraordinary potential of our contemporary world.

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Reorganisation of landscape architecture and planning education in Latvia

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Keywords: Education, reorganisation, landscape architecture, Latvia

The paper describes the detailed process of reorganisation of landscape architecture and planning education in Latvia, and the description of developed programmes. The new bachelor and master programmes are the result of the experience gained over the years of academic work and international mobility and exchange. The aim of the paper is to present the process and the results of the study program reorganisation. The empirical method – an analysis of the documents was used in the research. The analysed documentation consists of various documents, which were received and prepared during the reorganisation and are not available to the public.

Landscape architecture education in Latvia is available only in one university – Latvia University of Life Sciences and Technologies, Landscape Architecture and Planning department. The number of graduates has changed slightly. During the economic growth, the number of students raised to 34 graduates, but for the last seven year it is more or less similar with 20- 27 students.

The origins of landscape architecture speciality started 30 years ago, when in 1987 the first students in landscape architecture and planning specialisation enrolled in the Agricultural Academy of Latvia (LLA), Agricultural Civil Engineering faculty (LCF) in the civil engineering programme. In Europe landscape architecture education began 100 year ago. At that time landscape architecture specialization was completely new and unique in Latvia as there was no other establishment of higher education, which could educate landscape architects. A landscape architecture education programme was developed after being introduced to similar profile study programmes in the universities of Norway, Sweden, Finland, Denmark, Poland, Germany, England and Lithuania.

Before the reorganisationon of landscape architecture education, there was a second level professional higher education program 'Landscape Architecture and Planning' (study length: five years), and an academic master program 'Landscape Architecture' (study length: two years). These two programs complied with:
- standards of second level professional higher and academic education;
- professional standards;
- International Federation of Landscape Architects (IFLA) requirements and the definition of the landscape architecture profession.

In 2009 the Landscape architecture study programme received the international accreditation of the European Foundation for Landscape Architecture (EFLA) for the professional study program, which was also the basis for reorganisationon of the bachelor and master level study programs. Accreditation experts concluded that the programme can be fully
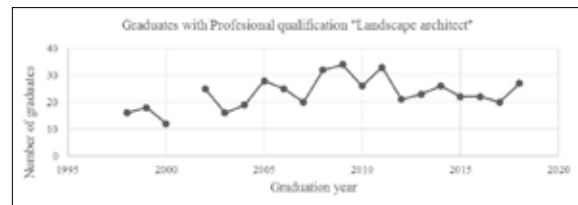
Figure 1. Graduates with professional qualification 'Landscape architect' in Latvia University of Life Sciences and Technologies
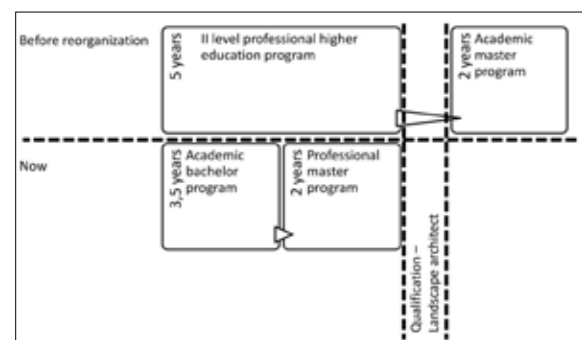
Figure 2. Scheme of study programmes before and after the reorganisation.

recognized by EFLA, but according to the Bologna Declaration model further development was needed.

Reorganisationon of the study programs was based on:
- the Bologna process guidelines, according to which the recommended study forms should be three years for bachelor and two years for master studies.
- IFLA suggestions in IFLA/UNESCO Charter for Landscape Architectural Education and Guidance Document for Recognition or Accreditation;
- ECLAS Guidance on Landscape Architecture Education;
- Knowledge and suggestions obtained in the Eastern Baltic Network of Landscape Architecture Schools (EBANELAS) project.

The aim of the reorganisation was to introduce the form of three-and-a-half-year academic bachelor and two-year master programs, which would be integrated, connected and complementary. The new form of education started in the academic year 2017/2018. It is important to note that the time period for receiving the qualification of Landscape Architect has changed from five to five and a half years. There was also a new approach to the study curricula – to base it on competences. It was decided that the study process must include more project-based education. A very important part of the reorganisation was the decision to develop both programs in English as well.

There were some courses available in English in the frame of BOVA, Erasmus +, and international summer schools before. Now the students win the qualification 'Landscape Architect' after graduating from with a professional master.

The *academic bachelor study programme* is the first of two successive study programs, which together provide the education necessary for receiving professional qualification and allow to have individual practice in the field of landscape architecture. The aim of this study programme is to provide students with the knowledge and practical skills required for setting up individual practices in landscape architecture under the guidance of a professional landscape architect or to continue studies in a professional master's programme. The content of the study programme includes:
• Art study courses training for creative and imaginative thinking;
• Human science and ecology study courses, which provide knowledge about humans and space;
• Modern project development methods providing techniques.

All the knowledge gained is presented in the bachelor thesis. The aim of the bachelor level studies is that by the end of the studies students can conduct the type of site research required before engaging in planning or design by collecting information about natural and anthropogenic factors, as well as characteristics of architecture. Students know how to develop functional zoning of landscape territory, compositional vision in accordance with the research, functional needs and the task of the project. One of the most important skills gained is the ability to develop landscape architecture projects for public as well as private spaces, including roads, squares, greenery, vertical plans, plans of elements and specifications. Students learn to prepare different documentation for different stages of landscape projects as part of their study process. As landscape architecture is a multidisciplinary field, concepts of team work, work organisation of a multidisciplinary team and time-management are also introduced.

The new study subjects introduced are:
• Presentation of Landscape Architecture Research;
• Landscape Architectural Design Graphics;
• Project Management in Landscape Architecture;
• Landscape Sociology;
• Material Studies of Outdoor Spaces;
• Digital Tools in Landscape Projects;
• Basics of Visual Spatial Modelling.

There are research-based projects in several subjects, one per semester successively –
• Natural Landscape;
• Park and Square;
• Single Family House's Territory;
• Public Buildings' Territory;
• Residential Buildings' Territory.

Each of the project study courses includes raising awareness in such fields as legislation, management, plant use, and normative documents.

The *professional higher education master's program* is the second of two successive study programmes, which provide the education required for a professional qualification and professional individual practice in landscape architecture. The aim of this study program is to provide students with the knowledge and practical skills required to work in the field of landscape architecture. Graduates are able to work both individually and, in a group, to conduct landscape, public and private space planning and greenery research, analysis, development planning, preservation, renovation and management. The content of the study programme includes theoretical and practical study courses specific for the field of landscape architecture, introduction to research, methodology, as well as practical skills gained during field practice.

All the knowledge gained is presented in the master thesis. The goal of master level studies is that by the end of the studies students are able to understand cultural historical landscapes and the value of natural heritage in the development of national economy. Students are also able to develop guidelines, methodology, recommendations for landscape management, protection, preservation and renovation. New specialists know how to deal with scientific and practical problems in the field of landscape architecture in consulting and design companies, government and municipality institutions. They know how to use the knowledge in the process of dealing with landscape ecology, aesthetics and social problems from the aspect of cultural and nature heritage preservation and sustainability. Master students gain in-depth knowledge about team work, work organisation for a multidisciplinary team and time management.

New study subjects, which are introduced for the master study programme are:
• Sustainable Landscape Development;
• Green Infrastructure Concept;
• Design of Industrial Landscape;
• Territorial Development Planning.

Currently the landscape architecture and planning department has little experience with the new program as it has just started. It will be possible to make conclusions about the results of the quality of the programme after a certain period.

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Landscape architecture in Croatia 1900-1990

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Keywords: Education, interdisciplinary, landscape architecture

The period between the two world wars in the 20th century was an intense time for forming the profession of landscape architecture in Croatia. At that time, the profession was called 'garden architecture' and, along with horticulture, belonged to the field of 'ornamental gardening'. Namely, by the end of the 19th century the concept of 'general gardening' (agricultural production) differed from 'ornamental gardening' (space design services). In this sense, Jelachich (1934) differentiated gardening services from gardening production - which he included in agriculture- and garden design or garden architecture. Gardening production is further divided into 'luxury' - plant production for aesthetic use - and 'economic' - plant production for a utility purpose. The service of designing gardens, parks and other public green areas is part of the practice and is divided into 'physical work' such as construction and vegetation maintenance and 'intellectual work' that consists of planting design or garden architecture.

There were multiple incentives to develop a landscape architecture profession in Croatia:

A growing general economic and professional specialization within the then gardening branches such as vegetable growing, horticulture and landscape architecture, required the specialization of education. Moreover, the collapse of the Austro-Hungarian monarchy meant the absence of high school and higher education in the field of gardening throughout the territory of the then newly established state (The Kingdom of Serb, Croat and Slovenes). In addition, at the end of the 19th century and early 20th century landscape design projects in practice were mostly carried out by outsiders, trained in foreign studies of landscape architecture. Landscape architecture as a profession at that time in Croatia was not legally regulated (Jellachich, 1934), but also in the economic sense the profession was at the very beginnings of its professional development (Jellachich, 1934, Vouk, 1934, Pirnat, 1935).

In the 1930s, the first Croatian landscape architects, former graduates from the Faculty of Agriculture or the Faculty of Philosophy at the University of Zagreb, who were sent abroad to specialize in landscape architecture, returned to Croatia.

They were:

Zdravko Arnold - studied in Vienna at the Hochschule für Bodenkultur and completed specialist studies of gardening and garden art in Paris;

Pavao Ungar - studied in Vienna and continued his studies in gardening and garden architecture in Berlin;

Cyril Jeglič - studied in Vienna and then continued and graduated from the Hochschule für Bodenkultur in Berlin;

Ciril Jeglič - studied in Vienna at the Hochschule für Bodenkultur and graduated in Berlin;

Smiljan Klaić - graduated from Berlin Friedrich Wilhelm University, Institute of Fur Garten and Landschafts-Gestaltung.

Their engagement brought upon the first progressive ideas about organizing the profession and education of landscape architects in Croatia. Related to this, in 1933 the Horticultural Society in Zagreb was founded representing both fields, 'ornamental gardening' - horticulture and landscaping architecture. The breadth of the society's activity was wide; it launched a professional journal 'Naš vrt', it promoted the profession to the public through professional lectures for a wide audience and radio broadcasting, as well as organizing professional excursions abroad. The society also participated through its representatives at international exhibitions and congresses such as the 1934 Vi Triennale di Milano – Mostra internazionale di floricoltura e giardinaggio and the 1937 International Congress of Garden Architects in Paris, where representatives of Belgium, the Netherlands, Italy, Germany, Poland, Sweden, Switzerland, the United Kingdom and the United States attended. The Horticultural Society's special merit was its contribution to development of high schools and higher education. With the engagement of that society, the first courses began with a variety of programs for amateurs and professionals. Within this, the first lectures started from the field of garden architecture- 'Garden Design', 'Garden Construction', 'Practical Geometry and Drawing Plans', 'Public Plantings and Parks', 'History of Garden Art', 'Small Family Gardens', 'Public Gardens and their Significance'. The maintaining of professional courses was considered only a temporary solution until the establishment of secondary and higher gardening schools. The first gardening school program in Croatia was compiled by the Horticultural Society in Zagreb in 1934. A particular emphasis was set on how education needs to be upgraded '... especially in the aesthetic and artistic direction' (Vouk, 1934), and why it is necessary for such schools to offer '...specialist lecture courses in natural sciences, agriculture and architecture ...' (Vouk, 1934c). This idea of interdisciplinarity within the education program is still preserved in the study of landscape architecture in Croatia. In this sense, high schools and higher education of landscape architects in Croatia had to be developed, but war events during the Second World War delayed these processes for many years.

The idea of study interdisciplinarity was first realized only in 1968 when an interfaculty postgraduate study program entitled 'Landscape design' was established at the Faculty of Agriculture, University of Zagreb. Namely, because of the complexity of study material, the organization of a comprehensive study of landscape architecture was to unify the segments of biotechnical, technical and artistic areas. This

included a joint study at the Faculty of Agriculture, Forestry and Architecture as part of the University of Zagreb. The proposal for the program of the studies was established by Milan Anić (Faculty of Forestry), Bruno Milić (Faculty of Architecture), Elza Polak (Faculty of Agriculture) and Pavao Ungar (Republic Department for Urban-Housing and Communal Affairs in Zagreb) and Ciril Jeglić and Dušan Ogrin (Faculty of Biotechnology in Ljubljana). This study encompassed and integrated bio-technical and other technical disciplines with arts, design and planning disciplines (Milić, 1976). The study was periodically held from 1968 to 1985 and lecturers included professors from all four faculties. In this interdisciplinary study, for the first time, a clear distinction was made between landscape architecture and gardening or horticulture programs.

The first college graduate study of landscape architecture was founded in 1996 at the Faculty of Agriculture, University of Zagreb. The study program was compiled by B. Aničić, S. Jurković, M. Obad Ščitaroci and L. Sošić. B. Aničić, the winner of the ECLAS Life Achievement Award in 2018, was the first director of the landscape architecture study.

Interdisciplinarity as an imperative for the education of landscape architects in Croatia is also visible today where six different faculties are engaged with the Study of Landscape Architecture at the Faculty of Agriculture of the University of Zagreb (the Faculties of Architecture, Philosophy, Geodesy, Science and of Forestry).

The curriculum contains an interdisciplinary set of knowledge affiliated with bio-technical, technical, natural, social, humanistic and interdisciplinary sciences.

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Landscape architecture education in Israel: Past, present and future

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Keywords: LA program, Israel, history, challenges

In 1977, the first and still only landscape architecture program in Israel was inaugurated at the Faculty of Architecture and Town Planning at the Technion, Israel Institute of Technology. At the time, the Technion was the sole architecture school in Israel, established already in 1924. Currently there are four additional academic institutions granting professional degrees in architecture, and two of them are in the process of establishing professional degrees in landscape architecture.

This paper surveys the evolution of the Israeli landscape architecture program via three distinctive perspectives: the curriculum, the faculty, and the students. Based on the archives of the Technion and of the program and on interviews with former and current faculty members it identifies the changing challenges that the program faced and its accomplishments, and points towards future potentials.

The paper identifies three significant periods in the evolution of the program:

The Early Period (mid 1970s – early 1990s), in which the Technion opened a small (24 students) four years Landscape Architecture (LA) program within the existing Architecture Faculty that offered a five years program for more than 80 students each year. This decision instituted the gap between the two programs and the implied inferiority of the LA program for the next generation. The Technion recruited faculty primarily from the US and established a curriculum that integrated the experience of graduates of Berkeley and Penn of the 1960s, with the Technion's architecture curriculum. The program had a strong western orientation, and due to political and ideological reasons ignored the landscape traditions and practices of the surrounding countries.

The Intermediate Period (early 1990s – mid 2000s), in which former students became the dominant factor in the faculty. They updated the curriculum to include more topics related to environmental planning and management, influencing the professional practice, which became dominated by graduates of the Technion. Despite the gradual and consistent growth in student and faculty numbers, the program was constantly struggling with Architecture, its sister program. The two programs competed for students and budgets and had on-going disputes about curriculum. Due to political changes (peace agreements of 1975 Egypt, 1994 Jordan, and Oslo agreement 1993), collaborations with nearby institutions started to evolve but never became prominent.

The Current Period (21st century), in which both global and local shifts shape the program. Concurrently with the worldwide growing awareness of landscape architecture's merits, in Israel the profession became a dominant player in planning and design circles, especially in state bureaucracy. At the Technion, several unrelated processes proved to be of great importance. The first was the establishment of a Research master's degree program in landscape architecture, which enhanced the graduates' abilities to cope with new professional challenges, and also advanced teaching. The second was the department's efforts to establish a joint unprofessional BA program for Architecture and Landscape Architecture, leading to separate professional MA degrees in both fields. While Architecture adopted the revised program, it was rejected by the LA program, which has decided to maintain its separate bachelor's degree and to develop a new professional MLA degree, which still has to be approved.

Examining these developments in light of the advancement in landscape architecture education exposes several issues whose significance extends beyond the local case study:
- The merits and difficulties of being a small program within a relatively large and longstanding Architecture Faculty.
- The merits and difficulties of being part of a research-oriented institution.
- The merits and difficulties of being the sole program in the country.

Landscape architecture education in Israel was based on the American model, as some of its founders were educated in the US. However, being part of the Architecture Faculty influenced the curriculum of the program as well as its status. Among the merits of this respectable institutional home are the emphases on design, the opportunity to share the faculty's limited resources for the benefit of the relatively small program, and the potential synergy with the faculty two other programs: city and regional planning and industrial design. In contrast, since the notion that landscape architecture is merely a specialization within architecture rather than a field in its own right still prevails among some of the department's senior members, everyday practice is a constant struggle over financial resources, students, and faculty. This struggle mirrors the competition between architecture and landscape architecture in the professional world.

Being part of a research-oriented institution contributes to the level of teaching, and to the students' exposure to new ideas and tools. Nevertheless, it deepens the gap between the curriculum and the skills needed in order to get a first job. This tension between academic merits and professional competence is astute, as the Technion is the only institution that grants academic degree in landscape architecture.

Future challenges are increasing as it becomes apparent that landscape architecture is uniquely capable of dealing with the future's complex socio-environmental problems, and of integrating spatial design with well-being and sustainable living. In order to prepare for such challenges, we are working simultaneously on the three components of the program: students, faculty, and curriculum.

- We have established a separate application track for the program for the first time, aiming to identify the best landscape architecture student's profiles (which are not necessarily identical to the architecture student's profile).
- We have recruited an ecologist as a faculty member in order to expand teaching and research on environmental issues within the curriculum. We are looking for international faculty members that will enable us to teach in English and to open the program for international students, making students exchange easier.
- We have revised the curriculum, suggesting professional LA degrees both on the BA and the MA levels. The graduate program will focus on real design/planning problems and will simulate the working process within an office in order to better prepare the students to the challenges of the 21st century.

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Landscape architecture education in Albania – the challenge of having a studio and research-based programme

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Keywords: Education, studio based, research, curricula

In September 2016, the Albanian Parliament adopted the law on Albania's adherence to the European Landscape Convention. By adapting this law Albania is committed, among others, to training for specialists in landscape appraisal and operations; school and university courses which address the values attached to landscapes and the issues raised by their protection, management and planning (European Landscape Convention, Florence, October 2000).

Albania has experienced enormous changes since the collapse of the communist regime at the beginning of the 1990s to the transition to a democratic society and market economy. During communism the landscape was organized according to the ideology of the time, state-owned, and according to urban general plans of the time. The period saw the creation of some of the major public squares and parks for cities.

After the transition, starting from the 1990s, for over a decade, Albania saw a boom in construction and rise of informal settlements in urban, suburban and rural areas. Increased urban pressure for transformation due to rural to urban migration, new building permits without having updated development strategies and City Plans, rise of private car transport and congestion led to the consummation of vast areas of land for housing, poorly planned spaces and degradation of the landscape in the process. The landscape was seen as land for building on or used for an economic activity, consumed or as an accessory of the building. The citizens are now more than ever conscious of the recent past developments and there is wide consensus on building cities and regions that are healthier and greener. Thus the very dynamic development of the Albanian landscape needs qualified landscape architects.

The history of Landscape Architecture programs has shown that their roots go back to horticulture, whereas in other countries it has grown out of environmental sciences or architecture and planning schools. Landscape architecture education has started from a broad range of higher education institutions such as fine arts, agriculture and forestry and technical universities in Europe (Teqja, Z; Dennis S. 2016-1). In developing landscape architecture programs, Albania should follow the best examples of other countries and, as a candidate country it should try to be in line with European Union developments.

Based on the market demand and trying to use their own professional resources in the best way, the Agricultural University of Tirana (AUT) in 2013 invited the Polytechnic University to join efforts for a Professional Master in Landscape Architecture, for students mainly from horticultural studies or related fields backgrounds. Following the success of the Master and the need for professionals in Landscape Architecture, the AUT has established for the first time

in 2018 a bachelor's degree program in Landscape Architecture. Being so late in developing such a program gives the opportunity to better learn from the experiences of others.

The education system in Albania faces many of challenges. The influences of the old education system, which focused on transmitting knowledge and building a storehouse of information in the students' brain, are still evident (Teqja, Z; Dennis S. 2016-2). Landscape Architecture is a multi-disciplinary field where creative, critical thinking and systems-thinking are crucial. The new program gives the opportunity to shift from the past to a new paradigm of university programs and pedagogies that is happening in the Agricultural University of Tirana.

According to Michael D. Murphy, Landscape architecture theory comprises the field of knowledge employed in education, research, and practice to describe the intellectual framework for understanding and managing the landscape (Murphy M. 2016). In this paper we present our efforts to overcome the obstacles presented by the educational system in Albania through curricula that promotes creative, critical and systems-thinking and where studio classes, research and practice have a special place. In composing the curricula we followed what John Motloch, in his text book "Introduction to landscape design," identifies as four foundations of landscape design education: art/aesthetic systems, technological systems, natural systems, and human systems (Motloch 2001). The new program takes clues from the past, present and future developments in teaching and practice of Landscape Architecture. The Agricultural university of Tirana has qualified human resources for technological systems and natural systems, and somehow for human systems while we do not have human resources for art/aesthetic systems. This limitation will be overcome by employing qualified staff and through the good collaboration we already have established with the Polytechnic University of Tirana.

The curriculum aims to have a good balance of courses, design studios and research. The taught courses are theoretical and may include course work, study visits, seminars. They take the major part of first and second years of studies. The intention of design courses is to apply the newly acquired knowledge of taught courses in the previous semesters and increase students' critical thinking and design skills in the process. The possibility to have a coordinated approach in one semester of taught courses and design studios is currently being evaluated. This would result in applying the knowledge acquired directly in studios and results in more complex and developed ideas of students, which will be assisted in the process with the review of all professors involved in taught and design courses.

The third year of studies will include elective and design courses at an advanced level. Three elective modules, professional practice and a final thesis will allow the students to continue studying subjects of their interest, have a practical work experience in the public or private sector and develop research skills.

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Applying LBSN data as a research resource to enhance landscape assessment skills in the wake of the European Landscape Convention

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In 2000 the European Landscape Convention -ELC- was adopted by several EU member states and the European Council started promoting initiatives in order to raise awareness of European Landscape identity patterns and features (Council of Europe, 2000). The underlying idea was to preserve Europe's territorial essence, and moreover, Landscape is a trans-frontier issue (Wascher & Pérez-Soba, 2004), enabling joint action to be taken for areas shared between two or more countries.

Based on evidence that landscape is an issue that bridges the gap between social, environmental and economic matters in research and government policy (Wascher & Pérez-Soba, 2004), the ELC represented a starting point for such initiatives — guidelines, regulations, urban and territorial planning document— concerning landscapes. From the outset, Europe comprised two distinct landscape perspectives. The first type of European country had a tradition in the practice and teaching of landscape as a specific subject necessary for spatial planning. The second type included countries with a weak tradition in landscape matters, beyond the protection of natural areas. In this latter case, new policies and training processes had to be implemented so that they could be incorporated into professional practice and into decision-making processes for planning and designing, which also included some degree of public participation. Spain is among the second type of countries.

In Spain, the study of Landscape as a specific subject, within the official training programmes for architects, was incorporated into the Polytechnic School of Cataluña (Bellmunt & Cervera, 2015) in 1982. In 1994, the Landscape and Urban Planning Journal published a special issue titled Landscape Architecture Education (1994; vol. 30), placing at the centre of the discussion reflections on the teaching/learning methodologies involving landscape architects training and professional practice (Vroom, 1994). Following the European trend and after the ELC by the beginning of the 21st century, landscape urbanism and landscape architecture were offered in other Polytechnic schools in Spain. Initially, these subjects were exclusively part of the so-called third cycle studies —postgraduate degrees, such as master's— or other specialist courses. However, nowadays, they are also included within the undergraduate degree programme. The ongoing process of understanding landscape, from a perspective that is not strictly environmentalist but encompasses an interpretative approach that is linked to a project, facilitates the inclusion of landscape considerations to multiscale planning and designing.

Within the Spanish territories, the Valencian Community was one of the pioneer Spanish autonomous regions that was clearly spurred on by the ELC from the very first moment —2004— (Vives, 2015). The regional government has established several methodological and administrative frameworks that provide guidelines for professionals involved in urbanistic and territorial development (Muñoz, 2012). Henceforth, academic programmes for architects started including landscape issues in the context of territorial and urban planning. Simultaneously, an increasing number of researchers began addressing work lines focused on landscape issues in urban and territorial contexts following the wake of the European Landscape Convention, in which the importance of space, place and territory (Hague & Jenkins, 2005) in relation with people became a core question.

Over the last fourteen years, new conceptual and methodological working and teaching tools to tackle landscape issues have been set derived from other European countries' traditions, such as the British Landscape Character Assessment (Swanwick, 2002). Furthermore, Geographic Information Systems (GIS) technology has been integrated improving accuracy and making it possible to track the changing processes that occur at local and territorial scale (Appleton, Lovett, Sünnenberg, & Dockerty, 2002; Cervilla, Tabik, & Romero, 2015; Malczewski, 2006). Technological advances have brought new lines of research that focus on investigating new data sources, such as Located Based Social Networks —LBSNs— from which user-generated content can be extracted, showing user preferences and activities (Martí, Serrano-Estrada, & Nolasco-Cirugeda, 2017; Alivand & Hochmair, 2017).

This paper shows how data retrieved from different LBSNs —e.g. Panoramio (Figure 1) — have impacted research on landscape perception and how research has been applied to the urban studies courses in the Fundamentals of Architecture degree at the University of Alicante in Spain (Figure 2).

Since 2006, landscape urbanism tools have been introduced as an integral part of the urban studies program. They have been inspired by the specific measures included in article 6 of the ELC preliminary text (Council of Europe, 2000), namely: a) awareness-raising; b) training and education; c) identification and assessment; and, d) landscape quality objectives. Subsequently, an explanation is provided for how the proposed ELC measures have been incorporated into the teaching program of Urbanism 4 at the University of Alicante (García-Mayor & Pérez-Payá, 2014).

a. Awareness-raising: This is stimulated by connecting place experience with a multisensory and cultural understanding, as introduced by Yi-Fu Tuan in Topophilia (Tuan, 1990). Additionally, approaching landscape as a form of language, with all the specific characteristics, equivalent to structure, composition and function in word formation or speech parts

Figure 1. Panoramio-Google Earth. Visual recognition: users and vistors photographic mosaic. Heatmap and Geolocated photographs. Data retrieved: 5 Oct.2016
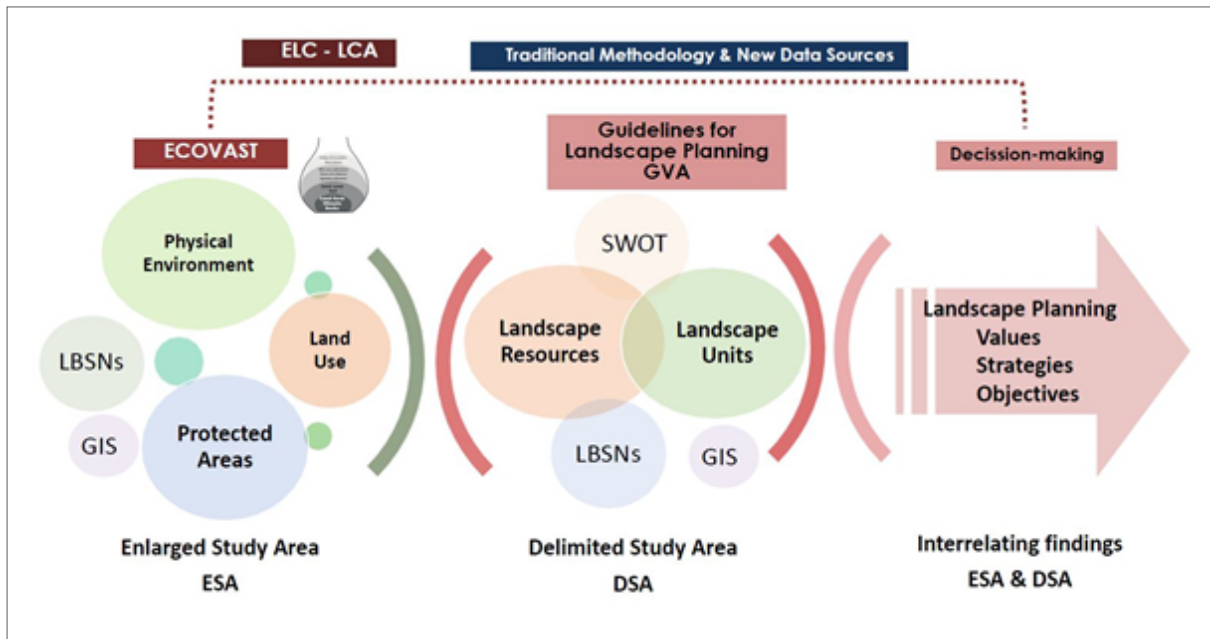
Figure 2.

(Whiston Spirn, 2013). Finally, learning to approach reality by using all the senses (Bell, 2012; García-Mayor, 2016; Lickwar & Crawford, 2014).

b. Training and education: The importance of the location, the place beyond the space. This entails implementing an organised system that simultaneously addresses the general and the local scale, relating information gathered at different levels. Adequate training and education also require the introduction of specific concepts and the terminology related to landscape urbanism, landscape architecture and landscape planning. Furthermore, diversity and symbolism of landscapes in relation with people and place (Antrop, 2005).

c. Identification and assessment: Teaching materials have been developed to help students identify landscape features. This involves combining different resources from professional and research fields. It is a multiscale approach to teaching landscape urbanism that combines Valencian Community methodological guide for landscape planning (Muñoz, 2012) and the European Council for the village and the small town —ECOVAST— landscape identification methodology (Spiegler, A. & Dower, 2006). Students learn to assess landscape features by merging the results from the spatial identification phase with the visual preferences of users, which has been gauged by extracting data from fieldwork as well as LBSNs. LBSNs, such as Instagram, Foursquare or Twitter (Quercia, Schifanella, & Aiello, 2014), as well as Instasights heatmaps (AVUXI LTD, 2018) permit the identification of activities – sightseeing, eating, shopping, and nightlife—, which in turn provides information on user preferences, from which it is possible to infer formal and informal landmarks.

d. Landscape quality objectives: Following the identification and assessment phase, students need to establish the overall objective of the area under consideration in the planning project. That is, what is the aim of the intervention? To preserve, restore, introduce specific activities, and/or to transform the area completely.

This paper demonstrates that the European Landscape Convention has spurred on the consideration of landscape urbanism issues in both the research and learning context. Nowadays, researching landscape to develop effective landscape assessment skills is increasingly reliant on the data that can be extracted from LBSNs. In the case of the urban studies courses in the Fundamentals of Architecture degree at the University of Alicante, incorporating LBSNs as a research resource has proven to be a worthwhile endeavor.

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Developing a technique to identify diverse professionals' attitudes towards blue-green infrastructure

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Keywords: European Landscape Convention, new landscapes, landscape perception and preference, community resilience, blue-green infrastructure

The signing of the European Landscape Convention (ELC) in 2000, with its concise definition of Landscape, provided a landmark moment in the examination of human response to their surroundings. The ELC defines landscape as 'an area, as perceived by people, which character is the result of the action and interaction of natural and/or human factors' (ELC, 2000). This definition has revitalised research related to human response to landscape in the field of landscape architecture professional education. The landscape, in both its material and intellectual manifestation, is a dynamic phenomenon and therefore subject to consistent change (Antrop, 2005). It is critical to situate novel landscapes within the existing knowledge associated with landscape perception and preference as well as to introduce the next generation of landscape architecture students to such new knowledge. Without the sort of scientific knowledge, landscape professionals and future generations of landscape architects/planners risk creating new landscapes that may not meet multiple social expectations.

Climate adaptation strategies foster the emergence of blue-green infrastructure (BGI) as one response for coping with issues arising from climate change and the resulting environmental impacts (Eggermont et al., 2015; Ham & Klimmek, 2017). Such new developments of BGI frequently have a different appearance that implies a different way of the design and the aftercare to traditional methods of dealing with water. The literature reveals that, in contrast to pipe-based grey infrastructure, the emergence of BGI has resulted in an alteration in the appearance of urban drainage systems by the inclusion of green roofs, bio-swales, rain gardens, constructed wetlands etc. (Austin, 2014; Desimini, 2013). The common social barriers regarding adopting BGI are associated with resistance from stakeholders, issues with partnership working and insecurity about the long-term aftercare of such unfamiliar infrastructure (O'Sullivan, Bruen, Purcell, & Gebre, 2012; O'Donnell, Lamond, & Thorne, 2017). For instance, resistance to change is viewed as a particularly relevant socio-institutional barrier for BGI, as 'institutional inertia and a preference for conventional approaches are the largest hurdles' (O'Donnell et al., 2017, p. 5). These barriers relate to uncertainties about human response to the design and aftercare associated with BGI. Research suggests that a better understanding of the knowledge base, perceptions and motivations of individuals and groups facilitates the identification of factors that influence behaviour and the potential construction of social barriers to adaptation to environmental change (Schwarz et al., 2011).

It is well-documented in landscape perception and preference theories that some human responses to landscapes appear universal while others vary and appear to relate to cultural differences (Appleton, 1975; Bourassa, 1992; Kaplan & Kaplan, 1989). The role of cultural experience in human response to landscapes has effects on the manner in which different social groups respond to their environmental settings, while the landscape is 'one form through with cultural groups seek to create and preserve their identities' (Bourassa, 1992, p. 91). From this, people conceive different attitudes to landscapes as well as its associated meaning linked with their values and identities (Kaymaz, 2013). Familiarity and the effect of expertise are viewed as two of the most influential cultural factors linked with people's perception of a setting (Kaplan & Kaplan, 1989; Kaplan, Kaplan, & Ryan, 1998). It is therefore particularly important to explore an understanding of different professionals' responses to BGI, as these people often take centre stage and play a major role in appropriate planning, design and implementation of BGI. Such knowledge gaps about those people's responses to BGI produce uncertainties linked with how diverse BGI professionals with different discipline backgrounds view and value BGI, as well as what kinds of factors that influence the perceptions and motivations of different BGI professionals in the process of producing BGI are. This paper seeks to develop a technique to investigate diverse professionals' response to BGI.

Landscape is viewed as a complex phenomenon that inherently involves both mental perception (i.e. subjective) and physical reality (objective). According to Lothian (1999, p. 178), the objective position assumes that 'landscape quality is an intrinsic physical attribute' of the tangible landscape components, such as landform and water bodies, while the subjective perception is based on the landscape quality that 'derives from the eyes of the beholder'. 'It is a critical difference - if it is an objective quality then it can be measured and evaluated from surveys of the physical landscape, but if it is subjective, no amount of such surveys will suffice - rather it must be based on an assessment of the community's landscape preferences' (Lothian, 1999, p. 193). This in-built duality requires a mixed-methodology design to investigate diverse BGI professionals' attitudes to BGI. The study consists of three research strategies, i.e. experimental strategy, case study and qualitative strategy, and two research tactics, i.e. photo-pairs experiment and semi-structured interviews. The potential participants involve BGI professionals whose works and research embrace perspectives and practices regarding the design, planning and implementation of urban physical environment. The developed methodology involves quantitative analysis and qualitative analysis to examine both objective and subjective positions of landscape assessment and aims to address the question regarding what the preferred BGI is and capturing the views and perspectives of professionals' differences in attitudes to BGI.

At the heart of the European Landscape Convention is human response to landscape. This paper contributes to this topic by examining nuanced aspect of such perception, namely an examination of attitudes towards novel landscapes associated with policies, such as climate adaptation strategies. As an increasingly important component of future landscapes, BGI provides a range of benefits to social-ecological systems (Eggermont et al., 2015). It is crucial that BGI respond to the needs of different professionals involved in the design and aftercare of BGI. A better understanding of how different professional communities perceive and value BGI and the associated factors that shape their attitudes are critical in developing appropriate design, planning and management strategies for BGI. In addition, the developed technique will expand the knowledge of landscape perception and preference in the emerging field of BGI as well as in contemporary landscape architecture education. The further contribution made by this study is to facilitate an innovative approach for partnership working with the aim of promoting community resilience.

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Re-constructing the ethic dimensions of landscape: the educational action of the ecomuseums in Friuli Venezia Giulia, Italy

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Keywords: Ethics, eco-museum, landscape education, Friuli Venezia Giulia, territorial citizenship

In Italy, eco-museums have played and still play a major role in recovering memories, traditions, practices and knowledge related to the landscape in specific territories with the aim of making communities aware of the identity of their local landscape (Maggi and Murtas, 2004; Maggi and Falletti, 2001). These strategies involve the conservation and promotion of the landscape as part of participatory and resilient policies, fostering a sustainable future for the communities. This educative action aims at applying the European Landscape Convention (ELC) underpinning an active role of the communities in constructing a collective perception of landscape (Council of Europe, 2000). In relation to the decision-making processes, the ELC offers an interpretation of landscape, which recalls its democratic meaning. In fact, the Convention not only implies duties and responsibilities for the entire population, but also delivers the possibility to define landscape values (Castiglioni, 2011), underlining the role of citizens/inhabitants in political terms and the right to landscape (Jones, 2016).

Eco-museum educational enterprises are strictly related to participatory activities relying on active citizen participation as a pre-condition to developing a sustainable governance of the territory, where the cultural, historical and ecological dimensions of landscape play a fundamental role. The collective production of knowledge toward landscape allows us to perceive the changing territorial dynamics in a more profound manner, rethinking the role of citizens in shaping landscape values and transformations (Magnaghi, 2011).

Within the context of Italy, the scarce attention given to landscape education in schools and university curricula has pushed eco-museums to focus on the landscape as a prime topic at the local and regional levels. In the case of the Friuli Venezia Giulia (Italy), the seven eco-museums have become the main counterparts of primary and secondary schools in developing activities of landscape education on the territory.

The research focuses on the ethic and political dimensions of eco-museum educational action in Friuli Venezia Giulia. In fact, the activities of landscape education at the community level, accompanied by a broader activity of education and knowledge dissemination involving lower school levels, are part of a process which continuously redefines landscape values in the society. Eco-museum activities involve several community groups offering a mirror of the changing perceptions which characterize the relationship landscape-citizens and landscape-stakeholders/groups of interest at a critical moment for the territorial policies in Friuli Venezia Giulia (this period has been marked by the approval of a Regional Landscape Plan and by the redefinition of the regional administrative offices responsible for landscape conservation and management, in 2018).

The research analyses the eco-museums educational activities, focusing on some key dimensions/abilities:
• the capacity of fostering the debate on landscape values;
• the ability of including different approaches/perceptions on local landscape (gender sensitiveness, plurality of visions on the same landscape coming from different social categories, age groups, migrants, etc.);
• the aptitude in understanding the various political meanings of landscape (and the drivers of such ideas) in relation to the ethical backgrounds of the stakeholders (ideological visions of landscape).

The research methodology is based on a mixed approach both in data collection (using mainly in-depth interviews and questionnaires) and analysis. In-depth interviews have been developed with the eco-museum directors and the members of technical and scientific committees, seen as key informants. The aim of this research activity consists in exploring landscape as a conceptual tool to develop practices of 'territorial citizenship' and understanding how the main statutory objectives of the various associations are actually pursued, both in terms of education-training and in terms of the cultural promotion of local areas and the protection of the natural environment. The interviews touched upon three thematic areas: the educational set-up of eco-museum activities; the capacity of such landscape education activities in triggering a more general redefinition of the relation citizen-territory, within the frame of 'democratic landscapes' (individual, collective, 'transferred', right-oriented approaches to landscape); the plural meaning of 'landscape values' (aesthetic, identity-related, action-oriented, political).

A questionnaire has been proposed to the eco-museum collaborators and to the participants involved in the educational activities. The aim of the survey is to understand how landscape values and local identities are understood by the various participants (with specific attention placed on their translation for young generations). The questionnaire includes evaluation tools identified to monitor the educational activities, offering instruments to reconsider and improve the entire eco-museum educational system. A specific part of the questionnaire is dedicated to community mapping processes: due to the capacity of engaging different categories of citizens (students, workers, etc.), participatory community mapping offers the opportunity for analysing the mechanisms of co-construction of places and local landscapes, the different sensitivity in identifying critical points and values in specific landscape areas and the processes of active citizenship in imagining future landscapes (Bianchetti, 2013; Clifford and Kings, 1996). Both

the participatory landscape analysis and the exercise of active citizenship promoted by eco-museums underline the central role of landscape in redefining the ethical frame embedded in the citizens-territory relationship, in all its poly-semantic meanings (de Varine, 2011).

In face of the weakness of the public administration and political parties in promoting landscape as a key asset for the redefinition of local identities, the research shows the importance of eco-museum educational action in the re-appropriation of landscape by the different stakeholders present at the local level, enhancing a real application of the ELC principles. The study underlines the current contradictions and the future challenges in eco-museum educational action, which is still limited by their scarce capacity of determining public policies on landscape and by the difficulty in overcoming the local scale, where educational activities take place. Exploring eco-museum experiences, the research ends by questioning our own responsibility as researchers in facilitating a global re-definition of the ethical and political dimensions of landscape.

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Ideas of landscape in educational contexts. Theoretical and methodological implications from a survey in Italy

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Keywords: Non-professional education, ideas of landscape, landscape literacy, survey

Landscape-related pedagogical initiatives present a multifaceted panorama of assumptions, approaches and goals, with some contradictions and common issues. They reflect the theoretical ambiguity and the inherent tensions of the concept of landscape itself (Wylie, 2007; Palang and Fry, 2003; Dematteis, 2010). In some cases, they suffer from object and objectives that are not well defined, in other cases they gather the richness and potentialities of the landscape complexity and successfully translate them into educational practices. In addition, aims, contexts and methodologies of educational practices on landscape are influenced on the one hand by the different national cultural backgrounds to landscape and institutional approaches to its protection, management and planning; on the other hand, they are also affected by the framework of geography and other landscape-related disciplines school-teachings.

In Italy, the legislative frame addresses landscape mainly from an aesthetic point of view, and it is oriented to preserve outstanding landscapes from change, for their 'high public interest'. Natural landscapes of mountains, forests, rivers and seashores are also considered as having 'high public interest'. In such an approach, much attention is paid to exceptional landscapes, described and identified by the experts, while ordinary landscapes receive very little attention. The strong importance given to landscape patrimonial values is one of the reasons why Italy is generally lacking a dynamic, future-oriented and pro-active view of landscape as an all-embracing arena, as it is advocated by the European Landscape Convention. Nevertheless, landscape is a keyword on everyone's lips when it comes to promoting local knowledge, tourism and environmental protection, often as a one-fits-all solution. At the same time, geography education is weakly diffused in the Italian school system, where landscape is considered mainly with a descriptive non-critical approach. For these reasons, Italy lacks a comprehensive strategy about education on landscape; however, an articulated panorama of initiatives at local, regional and national scale is present, although still almost unexplored.

This contribution discusses the results of a national survey conducted in Italy in 2018, with the collaboration of the Italian Ministry of Cultural Heritage and Activities, on a wide range of landscape-related educational projects and training activities, which are carried out in different contexts and by various institutions. The goal of this research is to explore: i) who is involved in landscape education in Italy, ii) in which contexts and iii) which approaches and methodologies are used, in order to provide useful insights, both for further studies and practical recommendations. It is based on a web-survey, which we intentionally opened to anyone who feels involved in landscape education, without pre-defining its scope

and boundaries, although excluding higher education and non-professional education. We collected 174 answers, concerning 312 educational projects, which are addressed directly to students or citizens in general, and 59 training activities, addressed towards teachers, educators or other cultural or environmental operators.

Beyond a preliminary mapping of public institutions, environmental and cultural associations and other actors of landscape education in Italy, the research offers some understandings regarding the approaches adopted. According to the previously described national background, the majority of the educational projects are strongly focused on past and present landscapes, while only a few of them aim at imagining future changes and stimulating creativity. Moreover, the subjective, emotional and personal dimension of landscape is secondary compared to a more rational and objective approach.

From the statistical analysis of the data, conducted with a principal component analysis, it is then possible to identify five different 'ideas of landscape' on which educational projects can be based: 'anthropic and lived landscape', 'perceived and green landscape', 'shared landscape', 'heritage landscape' and, finally, 'natural landscape'. Among them, the first idea is the most evident and refers to a comprehensive concept of landscape which is largely consistent with the definition of the European Landscape Convention, while the third idea gives emphasis to the fact that landscape is something shared and made up by different points of view. It is worth noticing that the statistical analysis shows that this 'shared landscape' idea is inversely correlated with the others, signaling a form of isolation of this approach among the educational projects.

Focusing particularly on this 'shared landscape' idea, we explore its potentialities and limits in the educational environment in relation to the debate on landscape power and democracy (Mitchell, 2003; Jorgensen, 2016; Egoz et al. 2018). On the one hand, the consideration of different points of view, functions and values of the landscape can be considered a first relevant step for citizenship, intercultural and sustainability education. On the other hand, a simplified and simplistic approach risks to force the 'appeasement' of any landscape conflict, especially when this dimension is taken into consideration separately from the other ideas.

In conclusion, the diversity of approaches identified through the survey proves the need - in landscape pedagogy - for theoretical frameworks and methodological tools to address the complexity of the issue through an insightful reading (Lewis, 1979; Duncan and Duncan, 1998; Mitchell 2008; Castiglioni,

2012; see also the proposal for the workshop 'Learning to read the landscape', within this Conference). To answer this request, we argue that the approach of landscape literacy (Spirn, 2005; Castiglioni, 2017) can offer a useful set of criteria.

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Walk and dance through landscape in design studio teaching
– reflective movement as an initial and explorative design tool

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Keywords: Choreography, landscape architecture, landscape design, representation, walking

Practicing landscape architecture through design involves landscape challenges, representational expressions, and design processes (Wingren, 2009). Teaching landscape architecture through design can be even more complex, as it involves pedagogic aims. This paper, based on my own teaching in a design studio at Master's level, discusses how different ways of moving through the landscape can enhance landscape understanding and design ability among students in initial phases of design processes. The course described has been run for 10 years and always involves 'moving through the landscape' as an initial exercise to provide an experience-based understanding of the landscape that should be designed; green and densification of cities, design in relation to sea level rise or inundations, or memorial sites close to the sea.

While walking through the landscape is a common method within landscape architecture to understand scale, space, materiality, topography (Foxley & Vogt, 2010; Schultz & van Etteger, 2017; Seggern & Werner, 2008; de Wit, 2016), it is used within art, choreography and site-specific performance to express feelings, situations etc (Birch & Tompkins, 2012; Pearson, 2010). The movement workshops discussed in this paper partly integrates these different uses of the movement or walking through landscape, and a work of special interest in relation to this is of course the interdisciplinary collaboration in the 1960s by choreographer Anna Halprin and landscape architect Lawrence Halprin (Halprin, 1986; cf. Hirsch, 2016; Merriman, 2010).

Aim and method
HOW to move through the landscape and THE RESULTS (depending on different ways of moving, analyzing, and representing) vary between different landscape works and also between the cases discussed in this paper. The two examples from 2012 and 2013 were organized in relation to an existing and planned landscape change (green and densification), and the two examples from 2014 and 2015 focused on future landscape change beyond human control (sea level rise). In the first, students 'walked through the landscape' representing experiences in 'diagrams' (Svensson & Wingren, 2012; Wingren, 2015). In the second, students 'danced through the landscape' representing experiences and developed thoughts about future landscape changes in 'physical movement' (Wingren, 2018).

The analyses of the movement workshops have been fulfilled from both a student and a teacher perspective. In the first case through questionnaires (course evaluations), and in the second based on self-reflection (fictive diary) from the process and when looking at the film 'Rising Waters' (Varhegyi, 2016).

Results and conclusions
Teachers' experiences are used as criteria for analyzing students' experiences; time used, level of abstraction, liberty to elaborate methods, representations used for communication, how artistic methods promote design abilities and individual positioning and finally how these methods promote landscape architecture discourse, and methods.

In the questionnaires from 2012-2013, 20-25% of the respondents valued the movement workshops as one of the most important exercises in the course. In 2014-2015 when a choreographer was involved, the number of students responding positively was 30-35%. The importance of the movement workshop for a feeling of 'togetherness' in the group was rated highly, as well as its significance for better understanding 'rising sea levels'. And even if it is early to draw final conclusions, the answers indicate that the time spent with a professional choreographer on site, might have been important for better understanding the abstract phenomenon of sea level rise.

Analyses in relation to representation and freedom for individual findings indicate that the simplicity of the two first year's methods for representing the landscape (principally with pen and paper) gave more individual freedom to elaborate one's own methods and graphics. The students using principally lines, points and concepts for representing density, sound or other qualities, came up with new, appropriate and different representational techniques, also for amplifying or diminishing experiences to describe relative density or intensity (Svensson & Wingren, 2012). This freedom was partly lost in the following choreographed workshops, involving collective work and other professionals. But the dance workshops had other types of instant results more related to communication with oneself and with the citizens, which can probably be used in explorative design processes and within collaborative design and planning (Germundsson & Wingren, 2017).

The results from the student questionnaires as well as the teachers' reflections, indicate that the use of bodily experience and artistic explorative methods for understanding complexity within landscape challenges and changes and is worthwhile investigating further to enhance landscape design processes; promote individual positioning and adapt design to societal processes. The results support as well, to some extent, the idea that choreographed movement workshops might promote conceptualization, forming of common discourses of landscape architecture and a 'common language of environment awareness' like Halprin's 'value actions', which might be useful and even necessary in relation to new contemporary design challenges (Hirsch, 2016; Wingren, 2018).

An important and final conclusion is how important it is to be aware of the challenges, for both teachers and students, to do such movement work in landscape

architecture courses. Thorough preparations and agreements on the working process or the future use of images or other material is crucial. It is also valuable to allocate time for a follow-up study at least a year after a movement workshop has taken place, to allow the embodied knowledge to become cognitive for having the possibility to improve the level of conclusion.

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The multicultural urban landscape and its somatic and emotional dimension. A participative and pedagogic methodology

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Keywords: Historic urban landscape, multiculturalism, intangible heritage, landscape of emotions, space of representation, community-based research, pedagogic-artistic laboratories

This communication presents a theoretical, qualitative and empirical community-based research related to the study of the multicultural urban landscape and its somatic and emotional dimension. It looks at two case studies in the consolidated historical neighbourhoods of Mouraria (Lisbon) and Raval (Barcelona). Both historical neighbourhoods are characterized by their multicultural communities, ethnic diversity, immigration, mobility processes and city tourism. I observe in both case studies the individual's experience of space and the creation of landscape as a multi-diverse community construction where individuals are not outsider spectators observing the visual reality, but they belong to the urban landscape, creating it with their own bodies. Therefore, the body itself mediates in the phenomenological relation with space transforming it into a somatic landscape. Sensorial experiences and actions are naked from all connotative referential discourses, transforming the collective and corporal experience of space into a platform for socio-cultural exchange and intercultural dialogue. The multicultural nature of the two neighbourhoods gathers 'multiplicities' that are built on different typologies of space 'connections' among the different cultural groups. These 'connections' may become 'assemblages', which establish an expansion and complexity in the nature of the connectivity (Deleuze and Guattari, 1980). The theory of 'assembly' and social complexity allows me to approach the concepts of cohabitation and interdependence of those cultural groups living in the same space (DeLanda, 2006, 2016), and the multiplicity and intersection of their trajectories (Massey, 2005).

I discuss the urban landscape as an active and predicative creation and the multicultural urban space as a platform of articulated discursive experiences and sensorial exchanges. In this sense, there is a difference between simply contemplating and observing the urban landscape as a visual and aesthetic environment, or producing space (Lefebvre, 1974), and experiencing the landscape through the body. This research analyses how these multicultural communities, in both case studies, are involved in the production of space (Lefebvre, 1974) and in the creation of landscape, understood as an active and predicative experience that involves a conscious, cognitive, sensorial and phenomenological participation of the individual and the group. I explore how this multisensorial urban experience involves the interaction of the body in space through processes of ritualized choreographic relations, gestures, sensations, thoughts, affections, and emotions (Whitehead, 1927, 1929; Manning, 2019) through the communicative role of the body as a non-verbal and non-representative language (Thrift, 2008; Anderson and Harrison, 2010). In everyday life there are forms of embodied practice, actions and interactions, which generate meanings and values. Social body

interactions with the environment are based on constant relations of modification and reciprocity with the urban space. My focus explores the performance of the body in space, in this continuous weaving of behavioural patterns that involves emotions, attitudes, actions, and interactions. In this sense, the social expands to encompass the multiplicity of everything in the urban space (all manner of material bodies) that take part in the world and the representation of the landscape becomes a presentation of an enacting world of corporal relations, events and affects. Therefore the body generates a space of affections towards the environment. Experiences appear through the body articulation with space, sometimes in movement, sometimes adding rhythmic qualities, and intensities or resonances to the past (Lefebvre, 1992). These resonances between the body and the environment are related to the sensorial engagement with the atmospheric and material spatial qualities, or to the intimate personal responses in isolation, or they are engendered in the collective participation and community sharing of space (Yi-Fu Tuan, 1977; Stewart, 2007; Butler, 2015). In this communication I discuss how I work with three types of memory: the memory of the place, understood as a historical and formal identity of space; the conscious memory of the subject, which determines lived temporal and personal references; and the autonomous memory of the body, which builds the sensorial references in the self.

In this methodological approach I developed pedagogic-artistic laboratories in the communities of both case studies, with the collaboration of plastic, audio-visual and performative artists, and addressed to different generational groups (children, youth and seniors). We adapted the activities for each generational group in order to observe interpretative differences and discursive discontinuities among them (Manheim, 1923). In these laboratories we emphasised the cognitive processes of landscape perception that deal with emotions, the psychology of the environment, the inner world formed by the most intimate psychological imaginaries related to the daily life of the participants. Therefore, in these laboratories, we aimed to observe those emotional processes related to the mental construction of the 'urban landscape', such as 'the sense of belonging', the 'redefinition of the affects', and 'the review of the memories of the place', as dynamic processes of constant evaluation and personal and collective reformulation of the urban space. In these laboratories we also enquired and mapped the 'perceived spaces' of specific urban realities experienced by the participants through their bodies and their senses (Lefebvre, 1974), and their spatio-temporal relationships and forms of differentiated spatialization (Lefebvre, 1981, Harvey, 1990), that involve spatial intensities and rhythmic values (Deleuze and Guattari,

1980, Lefebvre, 1974, 1992). All the different modes of artistic expression were centred on the body, where personal and collective identities are articulated. Therefore landscape was experienced and constructed both by a mental (psychological, emotional) and a qualitative sensorial matter.

The laboratories were structured in three stages. The first stage - Space Recognition - involved educating and training participants' awareness and sensibility towards the perception of the urban space and the observation of personal emotions and sensorial responses. Our activities were related to explorations and itineraries in the urban space. The second stage - Interpreting the Body in Space – was about learning to conceive and envision the urban landscape based on the interpretation of body sensorial responses to space interaction. We observed those subjective reactions (interpretations, feelings, emotions, memories, and imaginations), that can be also translated into body responses and gestures. A third stage – Communicating a Somatic Landscape – dealt with the predication and the creation of landscape. We worked with a process of translating emotions and sensorial experiences into an artistic creation that expressed subjective narratives. We worked with different modes of artistic expression (plastic, audio-visual and performative). I designated this artistic material a 'cartography of emotion', which translated the urban landscape into a language of aesthetic singularity. These 'cartographies of emotion' were inspired in the concept of the 'cartographies of the psyche' (Guattari, 2000/1989:37), developed by Felix Guattari in his work The Three Ecologies (1989). These cartographies, opened to an artistic language, define and display the creative dimension of those processes of singularity that express universes of subjectivity.

From this process I assert that this community-based research methodology can contribute to landscape architecture education as it reaffirms the importance of understanding the urban landscape as a social participative construct, in a constant process of identity reformulation, reinvention and creation under multicultural conviviality. From this perspective, the body becomes conceived as an expressive means of experiencing somatic urban landscapes despite cultural or generational differences. The self therefore is not only as passive spectator or mere observer with an institutionalized cultivated gaze but a participant and co-creator of the landscape.

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Felt-sensing, focusing and landscape architecture education

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Keywords: Embodiment, felt-sense, focusing, self-reliance, obscurity

In a 2014 TED talk Professor Uri Alon, from the Weizmann Institute, explains why truly innovative science demands a leap into the unknown (Alon 2014). He compares a scientist groping for an answer in the unknown, to flying through a cloud… This is similar to the feeling students encounter when groping with a design project. The exact sciences are discovering what we designers knew all along… and they have a wonderful name for what we do at the design studio: Project Based Learning (PBL). But do we, in the creative professions, really understand and know how to teach creativity?

Dealing with obscurity is at the core of what we do as designers. Design is a field which requires an ability to work with implicit meanings, yet the general theory of design lacks the vocabulary to address these processes. Rittel defined design problems as wicked problems, i.e. problems that cannot be solved by deductive logic alone, because the very essence of the problem changes with the solution (Rittel 1973). According to Dreyfus & Dreyfus five stage model of skill acquisition, novices learn by seeking well defined, context free, structured rules (Dreyfus & Dreyfus 1980). Our common cultural notion of knowledge as information only reinforces the novices' stance. Therefore, the encounter with the inextricable interdependency of design problems becomes a source of bafflement and stress for students. It even appears as if the closer bachelors get to graduation, the more design decisions are accompanied by psychological stress.
Why is that? Do students simply get 'burned out' by academia? Or is something else going on?

It seems that by this phase students have more than enough structured knowledge, but not enough experience trusting their intuitions. Although a great deal of creative discovery and thought depends on accessing the preverbal levels of our consciousness, harnessing one's implicit knowledge in the learning process is rarely taught in academia.

In a recent MIT publication on the Future of Design, the authors state that 'As scientists were finding evidence for the bodily basis of mind and meaning, architecture was caught up in convoluted cerebral games that denied emotional and bodily reality altogether' (Robinson & Pallasmaa 2015). Unlike the mind, which seeks reductive abstractions to understand, the body is 'at its element' in the situated interdependent complexity of experience, which is meaningful in other ways. The turn to embodiment in the cognitive sciences has significant ideas and practice-implications that may affect the way we do and teach Landscape Architecture. What may these be?

In his seminal book 'A Process Model' philosopher and psychologist Eugene Gendlin presents a philosophical model that fuses continental phenomenology and American pragmatism with a person centered approach. Gendlin coined the term 'felt-sensing' as a way to get in touch with the somatic 'knowing of living process' in which 'the implicit' is the ongoing process of coming-into-being of the explicit (Gendlin 1981). In the liminal, implicit state, knowing is a notion which cannot yet be expressed. Gendlin noted that having access to a dedicated listener has a powerful impact. 'The silent company of another person is no small thing. It changes one's whole way of being' (Gendiln 1987).

'Focusing', initially developed out of a therapeutic context, is a manifestation of these ideas. It is a peer-based practice which facilitates the 'carrying forward' through obscurity by an iterative process of articulating one's felt-sense. Focusing is often done in pairs of people who take turns Focusing and listening. The Focuser articulates her felt-sense whilst the companion learns to give empathic listening and resonance, attending to 'that which is coming through'.

What makes Focusing so powerful is that it enables and encourages the practitioner to experience a shift. The change does not take place as a result of having articulated a felt sense. Rather, we are changed by the action of articulating a felt sense. As the Focusing dialogue evolves, a development of fresh meaning 'comes to the foreground,' usually beginning with a sensory awareness of 'something calling' for attention. The shift is primarily felt as a sense of relief or reinstated flow, and often (but not necessarily) is accompanied by insight: a fresh understanding or 'a-ha!' moment. Focusing is rather easy to learn, and comes to most people quite naturally. Acquiring the skill to 'feel with the stomach' involves developing a tolerance to, respect for, and finally genuine interest in ambiguity and vagueness. As such it is beneficial for students, teachers and practitioners at all levels.

In the context of Landscape Architecture education, these aspects of focusing become particularly interesting, as the focusing dialogue takes place between the focuser and the 'place', which later becomes 'the project'. At the beginning of the studio, the students explored the locations of their projects, 'felt-sensing' an 'unknown meaningfulness'. Over time we returned in different ways to coming near to 'the vagueness', at whichever stage of the studio, and each time, a shift was made. Sometimes it was a radical insight, such as seeing a pattern which 'resolved' the project, and sometimes re-establishing a connectedness to the passion driving their desire to become a landscape architect in the first place.

A course graduate said: ' The most important thing for me is the feeling that intuition is a fundamental thing that can be trusted, and which guides me onward in my work'.

Focusing is a general skill relevant to all creative professions. However, if the body is seen as a situated process, then the act of 'focusing' should be turned

not only 'inwards' (as in the conventional psychological sense), but also 'outwards' to the physical environment; and in particular to the non-discursive meaningfulness of natural, living environments which are so crucial to our well-being. Fostering such environments is one of landscape architecture's most significant roles, and focusing provides ways and theoretical underpinnings to hone designers sensitivity to their meaning.

In 2014 I introduced Focusing at the Technion Landscape Architecture program, initially as a supportive course to the bachelor final project. The course was quite successful, and students stressed the importance of such life-skill courses to be given as electives. In the following years I was joined by Dana Ganihar, a professional focusing teacher and Gendlin philosophy specialist. In 2017, after three experimental runs, the course was formally embraced by the faculty and added as an elective to our catalogue.

The focusing course gives students a life-skill which is applicable in all life situations, of which studying is, although a very significant source of ambiguity and stress, but one. The course offers students an opportunity to foster their engagement in a deep and intentional exploration with the material, kindling their interactional self-reliance and a sense of community.

A young graduate told me recently: 'We used to call each other, long after the course was over, and say: 'Hey, I need some Focusing.' I learned that even when I was stressed out, I could be of help to my friend, and she could do the same for me'.

Focusing has radical implications in the context of education. By elevating the role of peers in the learning process, it has the potential for dissolving the traditional hierarchy between teacher and learner. It is a useful technique for the new generation of teaching methods that heavily rely on peer instruction (Angelo, Major & Cross, 2001; Mazur, 1997) and interactional contemplation (Barbezat & Bush, 2013; Palmer & Zajonc, 2010).

This presentation will be followed by an experiential workshop, offering some of the exercises we developed in our adaptation of focusing to Landscape Architecture education, such as 'Radical Listening' and 'Stonesensing'.

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Hypermediation: a resonance and a sociality. Consciousness-building in landscape-architectural sensory-aesthetic design processes

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Keywords: Sensory-aesthetic cognition, mediation, creative thinking, aesthetics, ethics

Introduction
Medium modulation is a key generative action in architectural practice and design education. Nevertheless, demands for sustainable solutions in design necessitate greater research attention to how thought is informed by experience and experimentation through sensory-aesthetic experiments, and how such kinaesthetic and synaesthetic impacts on imagination, consciousness and subjectivity-building can be taught. This presentation discusses experiential and experimental actions stirring relationships between students' affects and sensations in-between space and visual forms of expression. Acquisition of such sensory-aesthetic design skills is what we explicitly aim to teach in our courses 'Practice and Aesthetics in Landscape Architecture - Studio' and 'Landscape film – Studio' at Copenhagen University, Landscape Architecture and Planning. Sensory-experience and experimentation assignments throughout the courses working specifically with the shifts between drawings, models, photographs and films form the experiential and reflective spine of the training for bachelor's students and master's students in shaping space for other humans' sensory experiences. Our studio courses are pre-choreographed and at the same time co-produced by the students, who bring to the studio space their sensory experiences in the form of notes, photographs, drawings, collected materials and films from the explored site.

Positioning media and sensory-aesthetic experiential learning in landscape-architectural education the design education is thus framed as more than training students to shape 'objects'. Beyond its construction and functional aspects a central focus of landscape design is to affect the future user's experience of the 'object'. 'First we shape the things, then they shape us' stated by Steen Eiler Rasmussen (Bek, 2012: p. 10), a pioneer in addressing the intersection between our experiences of architecture, architects being we and us being humans in general tends to remain tacit, despite its prominence in design-pedagogic contexts.

Postmodernism inaugurated an interest in phenomenology of experience that is still prevalent in spatial disciplines. In the last decade, theories/discourses of presence, atmosphere and ambiance from philosophy, social sciences and media studies have extended the multisensory and sensory-aesthetic phenomenological perspective into architecture and planning, aided by Juhani Pallasmaa, Peter Zumpthor, Alberto Pérez-Gomez, Gernot Böhme, Don Ihde, Giuliana Bruno and Mark B. N. Hansen, among others.

Crucial here is that it is the experience as phenomenon that is in focus. Yet all media mediations—cardboard models, notations, photography and film entanglements—denote bodily involvement based in the haptic effects of moving at least one sense and often several, e.g. vision and hearing in film, or vision and touch in embroidery, drawing or model-making, penetrating the surface by folding thought, sensation and subject into one. This gestural bodily immersion (Cooper, 2018), where former bodily embedded experiences are reactivated by the moving action—as also happens with hand-drawing—is crucial for the empathetic connection and affect-revealing action that enable a designer to project affective architecture for other humans.

Research question
If knowledge is based in explorative, situated, bodily and intersubjective cognition, how can these actions be qualified as emotional transductions—hypermedia—an immediation context empowered to influence not only the subject, but design and society in general?

Methods
In order to show how a transductive relation between affectivity and perception supports students' own consciousness and how it functions as self-affection, we present possible transpositions of one student's process in both courses and relate it to positions in philosophy of experience and sensitive cognition, learning and media theory (Kolb, Dewey, Jørgensen, Massumi, Parikka). The assignments in the courses involve '(dialectically) opposed modes of adaptation to the world' (Kolb, 1984: p 29), since various media are used to stir the students' awareness of their own sensing and experience in real environments, as well as in the virtual environment co-constituted by the different media. A weekly focus with assignments as part of an iterative process is the backbone of the exploration of an individual project for eight weeks. Mediation is a crucial focus point in between media but indeed also in between a subject and the 'object' explored and both affecting and being affected in/of the making. Such transcendence is linked to sensitive cognition (Jørgensen, 2015), or context as encompassing affectivity, affection, affect and consciousness as well as the physical context.

Result
In the course it becomes clear that film, drawing, as well as embroidery, work as a strong transposition tool, transforming traces of sensation into threads of experience and back again. It stirs sensory cognition, informing ideation and imagination, and shapes the student's design proposal, especially her work with sensorial, material experiences/interactions and changes in e.g. the terrain (earth surface). In the presented student work visual forms of materiality, sentences and traces of (micro-)thought become visible and productive for the student's further explorations. Her drawings, models, photographs and

films work as separate montages, sentence-images or thought-expressions thanks to the transpositions of their various parts.

Here transposition becomes transduction or duration as the specific aspect of time: the continuous event in which that student becomes affected and consciousness is shaped. This seeking-doing is a thinking-feeling constituting actual experience of own affective actions and emotion, thinking hereof (Massumi, 2017). It is here that transcendence or duration as a resonance (self-affection) between affectivity and affect takes place. Thus, the earning constitutes subjectivity; and thanks to these emotional transductions, a meta-sensory cognition becomes visible and productive for the student(s), who use her(themselves) as self-affective media.

Discussion & conclusion

The Parallel emphases on the student, the study 'object' (actual and mediated sites, media), and the student's learning environment makes the course operate with what could be called a double sensual 'spatialisation'/sensation—an individual and collective affective event framed by the courses.

Working with media mediation means working in-between experience and cognition—'in the gaps in knowledge', moving 'thought-expression into the unknowns of the situation, where its effectively infinite potential self-reports' (Massumi, 2017: p 139). This denotes a radical pedagogy, and what sets it apart from mere learning is 'a collective-seeking that honours the autonomy of expression and tends to its intense impersonality, experimenting with very precise speculative-pragmatic techniques for

staging it and caring for its process' (Ibid). Such movement deals with the ontological status of how visual mediation works: a permanent, continuous 'becoming, emergence, event. Here you're not in your subject position, you're in becoming' (Ibid: p 108). In an educational context, that event of becoming can be seen as the object of thought-expression—when the event has taken the position of object and context simultaneously. It imbues empathy as a possible ethical stand. It can inform society through students' mastery of themselves as affective media, and through the sensory-aesthetic or resonant learning (design) habitus becoming a 'hypermedia' or 'immediation' context intertwined with the design field.

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Figure 1. Traces of sensation: threads of experience

Special session
Landscape architecture education in a globalized research context

Organisers:
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Landscape architecture and landscape architecture research—as addressed in the recently published volume Routledge Research Companion to Landscape Architecture, edited by Ellen Braae and Henriette Steiner—are both objects and agents of study, each on their own terms. The growing academization of architecture and design educational programmes as well as the increasing emphasis on quantifiable research outputs from educational institutions, raise questions about how the discipline will develop in the future. With this session, we discuss the hinges between education, research and practice and the way they depend on each other. We also consider questions of how different forms of scientific as well as embodied knowledge are reflected in education; of what we see as a paradox of a quasi-globalized profession working in particular local contexts; and of landscape architecture's position in the wider field of higher education today. To be engaged in education provides an importance to engage the practitioners, educators and researchers of the future, and it is a platform on which practice and research connect in intricate ways—landscape architecture education remains a dialogical setting for exchange, not least in studio-driven design programmes. The session thus aims to broaden our understanding of the institutional structures within which landscape architecture education takes place.

The contributors to this session represent different corners of the discipline, whether studio, history, theory, or adjacent fields such as urban planning and art. Their contribution to the Routledge Research Companion to Landscape Architecture volume's chapter on landscape architecture education forms the basis of their contribution to this ECLAS session and a point of departure for a joint conversation.

PARALLEL SESSION #2

The design critique as means to foster creative growth

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The design studio is a very special forum for education. It is a place for one to one interaction between the instructor and the student. The nature and goal of this interaction was probably best described by Walter Gropius in his comments regarding the teaching of Josef Albers. 'Albers has the very rare ability of a teacher who treated every student in a different way. When a student was unsure of himself, and he couldn't swim yet, so to speak, he pushed him into the water, and when he started drowning, then he got him and he was open for advice. He was just ingenious, doing that …He is really the very best teacher I could imagine because he brought the student to himself … and developed him out of his own qualities'(Gropius, 2007). It is this ability to treat students as individuals and to interact with them in a way that builds upon their abilities and fosters their intellectual and creative growth that we seek to achieve in the studio environment.

In many ways the studio exemplifies the constructivists roots of design education as a place where knowledge has a personal meaning that is created by a student's interactions with the problem and their classmates and instructors. The studio is often considered the most critical element of the design education process in that it is the place where problem-based instruction forces students to deal with ambiguity and commitment. Today design education around the world includes design studios that are intended to build and test a student's design abilities.

However, it is often the case that studio instructors are experts in their field of design but may have very limited knowledge of learning theory and cognitive development. In addition, there are very few studies that have attempted to systematically understand the nature of the communication and learning that takes place in a studio environment. Because of this, design studio instructors generally rely on their own studio experiences and informal feedback from colleagues and students to develop their studio teaching approach. In general, we often teach the way we were taught, modified by our own experiences, successes, and failures.

This study looks closely at one aspect of the studio experience, the one to one conversations that take place in the design studio between the instructor and the student. It attempts to identify the nature of communications that promote intellectual and creative development. What is remembered? What made a difference? What were the conditions that set the stage for a positive and impactful exchange of ideas that result in an individual's creative growth? What did the instructor say that had an impact?

The study employs a grounded theory research methodology. The goal of this qualitative research method is to build theory from qualitative data that is collected and analyzed systematically. For this study the qualitative data came from a series of open-ended questions sent out to approximately two hundred and fifty students currently enrolled in programs in landscape architecture, architecture, industrial design and graphic design. The prompt for the questions was the following. 'Please think of a specific time in a studio where you had a desk critique from an instructor that resulted in a realization/understanding that you feel significantly helped your development as a designer …'. The questions that followed were: What was the realization/understanding? What was the nature of the interaction with the studio instructor that resulted in the realization/understanding? What was said or done by the instructor and how did you respond?

The data was then subjected to a systematic content analysis to identify common themes and trends and correlated with information on major, gender, and level of academic study. In addition, the findings of this study were compared with findings from a second study that focused on alumni from the same programs as the currently matriculating students. These alumni ranged in time since graduation from one to thirty years. The intent of this comparison was to determine if time since graduation had an impact on the nature of the communication that was considered beneficial to the development of an individual's creative abilities.

In an earlier pilot study preliminary analysis revealed that critical interactions related more to questions asked by instructors rather than information provided. In addition, often 'extra' activities had a significant impact on changes in perception which led to creative growth. This study builds on this foundation to develop a clearer understanding of the nature of communication that can have an impact on studio-based instruction achieving the goal of fostering creative potential. It is hoped that by more clearly understanding the impact of faculty and student interactions instruction in the design studio environment can progress from hopeful communication to intentional communication designed to bring out a students' creative abilities. The long-term goal is to provide studio instructors guidance as to how to interact with students in the most productive manner.

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Integration of the green infrastructure approach into landscape architecture design studio teaching

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Keywords: Design studio, green infrastructure, nature-based solutions, research, teaching

Landscape Architecture and Green Infrastructure

Design studio teaching is the main form of training future landscape architects at the masters' degree of landscape architecture education. It is therefore important to integrate contemporary issues and trends of professional practice as well as current research and findings in landscape architecture and planning. Teaching Landscape Architecture in a global context demands integrating the global landscape planning concept and strategy of Green Infrastructure, which has been recognized and promoted among others by the European Commission since 2013, when the EU Strategy on Green Infrastructure was published. Green Infrastructure is a key planning strategy that fosters the implementation of environmental measures, such as climate change mitigation, stormwater and flood management, and enhancement of biodiversity and ecosystems in urban and rural areas through nature-based solutions. Besides environmental benefits and ecosystem services provided by green infrastructure, its social and economic dimensions also play a significant role. The EU Green Infrastructure Strategy promotes implementation of nature-based solutions in the process of creating resourceful circular cities and urban environments. Landscape Architects have a crucial role in transforming today's cities into sustainable urban systems as they are professionally trained to apply a holistic approach to planning and designing (urban) landscapes. This field built on the knowledge-skill trinity in nature, technology and art is highly suitable and competent for taking on a leading role in implementing nature-based solutions that can provide a wide range of ecosystem services beneficial for the urban biosphere and society.

Research and Design Studio Teaching

At the Department of Garden and Landscape Architecture, Slovak University of Agriculture in Nitra, we have been conducting research on Green Infrastructure within two national educational research projects supported by the Cultural and Educational Grant Agency of the Ministry of Education, Science, Research and Sport of the Slovak Republic – KEGA No. 001SPU-4/2014 Green Infrastructure and Urban Agriculture (2014-2016) and KEGA No. 001SPU-4/2017 Ecosystem Services of Green Infrastructure (2017-2019). These national projects have been embedded in international research activities through COST Actions TD1106 Urban Agriculture Europe (2012-2016), COST Action FP1204 GreenInUrbs – Green Infrastructure approach: linking environmental with social aspects in studying and managing urban forests (2013-2017), COST Action CA15206 Payments for Ecosystem Services (Forests for Water) (since 2016), and most recently COST Action CA17133 Implementing nature-based solutions for creating a resourceful circular city (since 2018). These science-networking projects have created valuable international platforms for exchange, though the focus is not on teaching, but on science and research. The annual ECLAS conferences and

LE:NOTRE Landscape Forums provide more targeted opportunities for international knowledge transfer and experience exchange with colleagues from other landscape schools across Europe within teaching workshops. From this point of view, the two books on landscape teaching, both published by Routledge in 2019, can be seen as valuable contributions to a further development of international knowledge capital in the field of landscape teaching.

The aim of the master design studios taught at our department is to link landscape research with design studio teaching and to introduce contemporary trends, approaches and concepts to the teaching process (Tóth et al., 2016). In order to link research with teaching, we used the same sites as design objects for studio teaching, and as case studies (study areas) for research. This way, we achieved mutual exchange of information which fed from design studios into research and provided a thorough knowledge base for the analytical and design process in our studios. The methodological principles used in the above mentioned research projects were utilised also in the analytical phase of design studios, while the knowledge and experience developed with students in design studios in cooperation with municipalities have contributed to the existing design theory in landscape architecture.

As examples, we describe two different design studios –one dealing with an urban space in the district town Levice and one dealing with a rural space in the village Maňa, both located in the Nitra Region, Western Slovakia (Tóth et al., 2016; Halajová et al., 2018). The analysis and design methodologies used in the teaching process are theoretically supported by thematic lectures within mandatory courses, international study literature and external lectures by practicing landscape architects. To provide further theoretical support for students, a new study book was developed (see Halajová et al., 2018).

Design Studio – urban context

In recent years, our masters' design studios have been taught in cooperation with villages and towns (Kuczman, 2015; Tóth et al., 2016; Halajová et al., 2018). We have been trying to integrate the green infrastructure approach in the open space design as the main task of landscape architects. In the district town Levice, students have been working on the revitalisation of a public park located directly at the walls of the medieval Levice Castle. This park is located in the historical centre, with a direct spatial linkage to a small river. Students developed four different design approaches, where they tried to link green and blue infrastructure and to get the water inside the park. All four groups created a small water reservoir functionally linked to the river, while creating an important open space quality in the form of a waterfront with aquatic plants. All student groups used the newly created

water body as the central point of their open space concept, which could improve the local microclimate and serve as a water reservoir and retention element, which would significantly contribute to the local green blue infrastructure. This student project has had a direct impact on the local community as the municipality has decided to realise one of the design concepts in cooperation with our department.

Design studio – rural context

Another design studio focused on rural green space restoration in the village of Maňa, where the task was to design a semi-natural recreational area with a pond at the boundary between the built-up area and the open arable landscape. This site used to be one of the backwaters of the nearby river Žitava with extensive wetlands. The different design solutions included restoration of small-scale wetlands, improvement of the biodiversity through planting native trees, meadows, aquatic plants and wetland vegetation and creating suitable habitats for insects, birds and other species in lakeside wetland vegetation. Similar to the project in the district town Levice, this project has also led to the realisation project phase. The revitalisation project authored by Attila Tóth has recently won the 1st place in the national design competition 'For Water' organised by Ekopolis Foundation, under the auspices of the Ministry of Environment of the Slovak Republic and sponsored by Nestlé.

Conclusions

In the last couple of years, we have been trying to respond to the EU Green Infrastructure Strategy and to contemporary trends and issues in landscape architecture through integrating the main aims and principles of this strategy in our teaching process. This approach has provided us with multiple opportunities to spread the idea of green infrastructure and nature-based solutions to students as well as to representatives of municipalities (Kuczman and Feriancová, 2013). Nature-based solutions are theoretically explained from the open-space-design perspective, but in the case of some specific projects, experts from other fields, such as ecology, water management and construction, are invited to our design studios to advise on specific aspects of the design process. In the last four years, we have worked with the district towns Nové Zámky and Levice and with smaller rural settlements – Svätoplukovo, Maňa, Golianovo, and Trnovec nad Váhom. Our aim is to continue this concept of design studio teaching, in cooperation with municipalities, while integrating and promoting nature-based solutions and green infrastructure through landscape architecture education.

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Teaching landscape design studio: a creative part of the design process

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Keywords: Landscape design studio, design process, creativity

The following text is based on a chapter by the same author 'Studio-based landscape design teaching' (Gazvoda, 2019) in a recently published book titled 'The Routledge Handbook of Teaching Landscape' (Jørgensen et al. (ed.), 2019). This occasion is used to present main emphasis from mentioned article and add some recent reflections to the audience at the ECLAS 2019 conference.

Landscape architecture is a highly interdisciplinary profession in which, depending on the definition of the problem, the field of work constantly shifts from a more research analytical approach through to creative solutions for creating new landscapes. The complexity of spatial problems requires a thoughtful approach by the teacher, in order to direct students to key phases and details of the planning process. Knowledge of solving problems is most efficiently delivered through design studios which are the predominant type of study programs in design schools including landscape architecture programs.

As studio projects usually vary, teachers of advanced landscape design studios must be flexible and must react to unforeseen situations. They must quickly and effectively adapt to the problem, clearly define it, articulate and establish a suitable approach. Students must then redefine the problem themselves, adjust their method and set about addressing specific work from case to case. They often see initial phases of design studio projects like data gathering, understanding the problem and proper analytical approach as easy steps considering rather easy and fast access to spatial data and examples they can find on websites. Another question is how successful they are in 'filtering' a large amount of information and how well can they remember as much information about the space as possible. Availability of spatial data in general doesn't mean that students are really familiar with the space. Awareness that information is at hand can be counterproductive and stimulation and guidance by the teacher is necessary in this phase of the design process. With the growing digitization of the learning process, the teacher ensures that students are able to connect all relevant information, that they learn how to evaluate the mass of data available to them and choose suitably.

A synthesis of analytical discoveries in a new spatial proposal follows. In the author's experience, students are usually quite comfortable in presenting general solutions to the problem in terms of defining a program and presenting a final spatial solution through existing examples. They have more problems with defining a final design and actually creating and drawing (in any media) a decent final plan. That a creative part of a design process when ideas must be conceived is a most important phase is not something new. On the contrary: we deal with this problem as professional designers or as teachers all the time. And while designers can process and search for ideas in their creative minds, teachers on the other hand must find effective methods to explain correct approaches to students and stimulate their creativity and lead them to a good final design. How to do that becomes even more important when we communicate with students from other disciplines. An interdisciplinary character of landscape architecture attracts students with various backgrounds especially at the master level. Students in question are already to some extent moulded as foresters, agronomists, engineers of horticulture, etc., and the educational approach is therefore more demanding, since pedagogical methods must be clearer and understandable to all. Although with different preliminary knowledge from a BSc degree, these students are already fully formed and skilled in a variety of aspects of spatial problems, they master spatial analysis, they can be excellent specialists, for example, with plants and the like, but they have a problem in creativity and in synthesizing the knowledge acquired into a final design solution. How to increase creativity is shown in this presentation through examples of three groups of students: already mentioned LA master students with various backgrounds (a landscape design studio in Shenzhen with Chinese students at MSc program), LA freshmen who are learning basics and are still searching for a suitable approach (from the introductory design studio in the 1st year of BSc landscape architecture program) and an international student workshop with Slovene students and a German professor. Examples
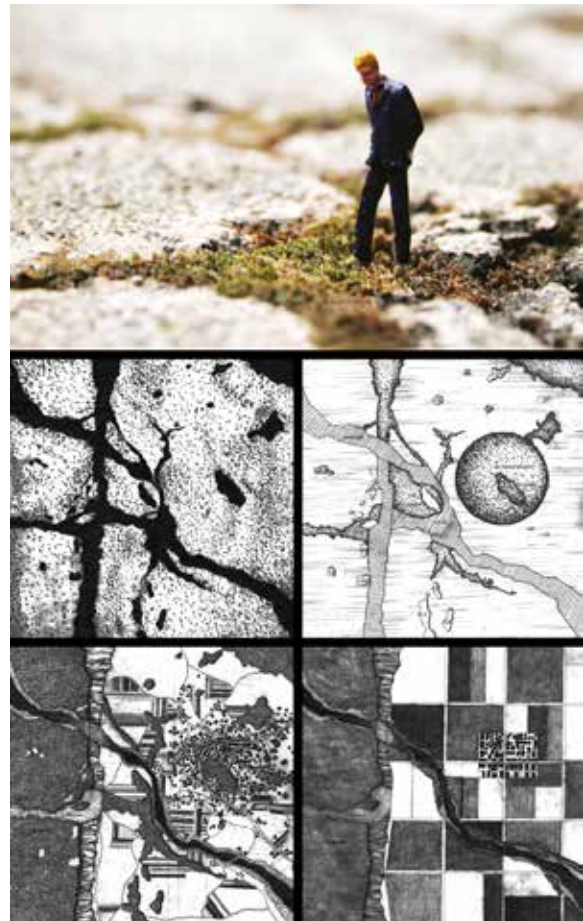
(also graphic) of good teaching practice obtained through the author's thirty years of pedagogic practice (at the domestic school and abroad) are used in the contribution, highlighting the best work products of students, which illustrate the presented pedagogic approach to the maximum extent. In the presented cases, the emphasis is on the creative phase of the design process, in which students must generate new landscape designs and offer an interesting final design. It is characteristic of all three more detailed examples that students quickly learn functional and technical requirements, and they already master the different aspects of the problem; they can perform excellent analyses, but they have problems with creativity. All three examples have in common that after spending some time working on a project, students are asked to completely change their approach and forget about 'the real' problems in a landscape. This phase involves interpretation of the location through freehand drawing, its abstraction, with added forms from the space and the development of a characteristic shape grammar taken from the ground plan, previously used shapes or any other source that can enrich the final design. Intentionally, at this stage of the process, students must move away from the originally set goals and play with abstract forms. Decomposition of a complex landscape structure into basic elements results in clean shapes and forms. Once the number of shapes is multiplied and put together in a proposed composition, the work continues with the next phase: a creation of a new abstract landscape, a '2D' painting and a 3D model. The last step is a fusion of this new spatial composition with the original assignment (a project for specific landscape design such as a garden, a park, a campus design etc.). Students must define which groups of abstract elements are suitable for

certain use and can be seen as specific landscape elements. Final design solutions in these projects are usually richer, filled with interesting forms, design approaches, composition rules and unusual elements when compared to initial designs. Students learn that there are numerous ways of improving their design when they are ready to step out of comfortable frames of technical and functional rules and requirements, and work hard yet relaxed in a creative mode they need to nourish through their entire studies and career.

The presentation ends with several questions that were raised through described the approach and should be addressed in the future, such as a question of the role and importance of new digital techniques in a creative part of a landscape design process, easy access and availability of a tremendous amount of information and its impact on creativity and finally, the ability of teachers to adapt to 'millennium digital students generation'.

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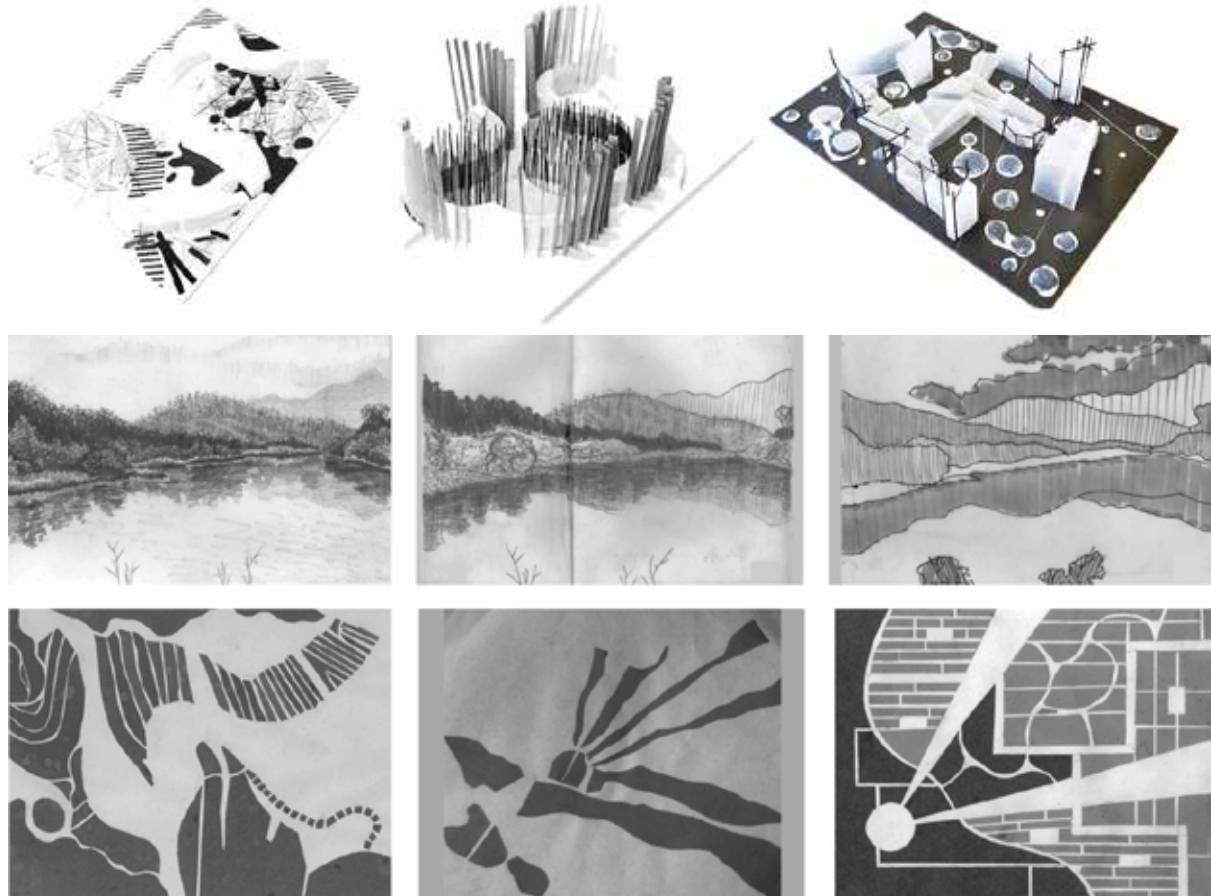
Elaborated photo diaries as tools for problem-setting and concept development within the landscape architectural design studio

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Keywords: Photo diaries, problem setting, landscape architecture, education, design studio

Visual documentation through photography is a crucial part of all stages of the landscape design process, including site research and analysis, concept and design development, construction documentation and observation, and in presentation and marketing. However, in teaching the design process, particularly to new students of landscape architecture, the initial stages of site analysis and concept development can benefit from a more structured approach, presented here as an elaborated photo diary. This paper will begin with an overview and brief history of the use of the photo diary within Landscape Architecture and related disciplines, touching on the improvisational urban diaries of Walter Hood as a generative inspiration, where he 'structure[d] the observations... [he] made over the course of a year in West Oakland... [where] scenarios of everyday experience construct new narratives...Each activity, event, or circumstance suggest a major theme for investigation' (Hood 1999, 155). It will then examine a number of examples that illustrate different approaches to photo diaries as a pedagogical practice, with a focus on the web-accessible curricular products of Jeff Hou's teaching at UW, to the authors' modification and adaptation of the technique in their own teaching in landscape architecture and environmental design studios. It will conclude with a discussion of the possibilities and constraints of this approach and its relationship to other key contemporary applications of this kind within other disciplines that use photos, sometimes paired with text, as visual and conceptual documentary narratives.

In this paper, elaborated photo diaries are understood as the pairing of a set of photographs with a statement, title and question which take the photographs beyond random documentation into a more focused and targeted narrative in service to a research question. This approach can be particularly helpful when the studio brief is asking the students to discover a problem for themselves, within a given landscape or urban context, rather than simply to produce a design for a tutor-delineated site, stakeholder, or program. In the absence of the structured approach provided by the photo diary, early site analysis photography (particularly in the contemporary smartphone era, where students tend to be well versed in documenting their lives through selfies and snaps of their everyday lives and lunches) tends to amass stacks of undifferentiated photos which are used by the student to (often unintentionally) 'objectively' describe the 'existing condition', often resulting in a lackluster, 'so what?'. However, if the exercise is guided by a more structured brief that asks the students to embrace the subjectivity of their observations, students begin to use the photographic documentation as a way to find

patterns, repeated instances, or trends, not just in the physical elements of the site or condition, but also with respect to social, cultural, environmental, and political processes. These photo-taking exercises can then be understood as a diary, a personal documentation using photographs as both a way to observe and document, but also as a way to transform the ubiquitous act of photography into an act of research.

This part of the process shares some of its methods with photo diaries and cultural probes (i.e. the practice of eliciting qualitative participant reflections through assigned tasks paired with artifacts such as cameras, postcards, diaries or maps) as qualitative methods for researchers to understand a particular target group, such as the daily lives of the elderly (Gave et al, 1999). It also tacitly positions the methodology within the codes and conventions of conceptual photography and recent research-based practices. When the students themselves are asked to do the self-reflexive work of the researcher in examining their own initial observations – sorting masses of photos into categories or types and being deliberate about the angle and framing/cropping – the photo diary begins to define a narrative and shape the outlines of a design investigation. These are then further conceptualized by the student through the delineation of a title, the asking of a research question and the construction of a brief statement. This may be presented as a short series, as a poster, blog entry, book, and/or a pechakucha style presentation. The exercise is ideally limited to 4-5 photos, preferably of multiple instances of the same phenomenon which then precedes the textual description. However, in some cases, many multiples or time sequences can be used to a greater effect, depending on the concept and question. This tension between a structured versus open method, and the opportunities and constraints of the practice in relation to the curricular focus and subject of the studio and the time frame allotted, as well as students' reactions and incorporation of these practices into their design processes, will be further discussed in the paper. Also of importance is examining elaborated photo diaries in relation to other disciplines, methods, and practices, such as the contemporary art and design practice of the photobook (Parr & Badger 2004/2006; Shannon 2017), visual ethnography (Kharel 2015) and cultural probes (Gaver et al. 1999). Following the notion that '[l]earning to design is always a process of self-awareness' (Schultz 2015, 88), the paper aims to discuss the use of elaborated photo diaries in landscape architecture teaching in relation to pedagogical and research aims, where the intent is not only to understand the 'other' or the outside or the site, but also to understand and define the interests and design direction of the self, the student, the designer.

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Pedagogic exercises for sustainable material selection

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Keywords: Pedagogy, assessment methods, sustainability, materials and constructions

This paper presents and discusses the result of a project aimed to make students practice their 'thinking skills' (McKeachie and Svinicki, 2006) by introducing exercises on how outdoor materials can be evaluated in complex design contexts. Assessing and evaluating sustainable aspects of outdoor material cannot be done through a few aspects and students must be given opportunities to practice critical thinking in order to make deliberate decisions in complex design situations.

Educations within the landscape architecture and landscape engineer programs at SLU in Alnarp, is strongly connected to the profession to which the students are heading. Within the professions there is a big and growing need for broad and updated knowledge regarding materials used in outdoor constructions and how these materials affect aspects of sustainability. This implies, among other things, that the student must be able to assess and evaluate the properties of different hard materials used within the field of landscape construction as well as have an understanding of their influence on the environment and the context in which they are expected to be used. All these considerations are necessary to practice in an educational situation in order to make environmentally sustainable material choices in the future. In order to do this, several dimensions have to be integrated in the design and construction design.

Our project began with the realization that the students only discussed and used very few of all the aspects that affect the degree of a material's sustainability or environmentally friendliness. Reflections on how sustainability aspects can change depending on the project's context and design were absent. There was also a lack of written material and matrixes for assessment, rating, and evaluation of these outdoor materials. We found only a few general approaches and guidelines useful when evaluating different materials and these approaches did not take into account the context of where in the material would be used.

Even if we agree with the quote from Calkins (2008, p.8) that it is 'an impossible goal given the wide range of performance expectations, site conditions, project constraints and client priorities within which construction materials must be evaluated', we still wanted to try out different pedagogic approaches, and make a step in the right direction to get closer to the goal of teaching students to make more informed decisions about outdoor material from a sustainability aspect.

In the project our first step was to create exercises and tasks aimed to encourage the students to problematize, reflect and think in a critical way. By doing this it is possible for the student and future professional to have methods to make more informed decisions in selecting and studying outdoor materials. We started with allowing the students to answer and discuss open-ended questions to generate multiple perspectives. Examples of the questions are: Whose perspective is missing in this design and what would it look like if it were included? (Brookfield, 2012).

During the exercises we realized that the students needed help to structure and put a framework around their reflections. We then started to work on different kinds of guidelines to support and emphasize a diverse discussion concerning environmentally sustainable landscape architecture materials, and the criteria as well as different dimensions that lie within it.

One of the outcomes is a compendium that can be used as learning material in courses where students frequently work with projects that in different ways include surface materials. The compendium helps the student to explore and assess relevant aspects when selecting surface materials with low environmental impact, including a landscape architecture design perspective. The main reason for concentrating on these surface materials is that paving and different types of coatings often represent a large part of the materials used in different landscape project, which implies that the impact that these materials have on the environment is considerable.

In the compendium, there are criteria of two different characters that aim to help the student perform a transparent investigation when assessing and comparing different materials. There are criteria that bring up sustainability aspects in a site-specific project with no selection between different materials (project management and existing site-specific properties and prerequisites) and criteria aiming to compare the feasibility between different materials at a specific site and project (origin and manufacturing, weathering and durability, design and design for construction). Today the compendium is used in the courses Ground constructions (bachelor level) and Design Project – Composition and Materiality (master level). The students use it both during design work and when studying already existing constructions. The teacher or the students can select and focus on specific criteria from the compendium that vary between different exercises and tasks.

Another outcome of the project is that we are closer to the goal where students clearly can make more informed decisions of outdoor material from a sustainability aspect. The students show, through reflections and arguments, that they have a broadened view on the variety of aspects that influence whether a material is more or less sustainable. Today the students consider a wider spectrum of aspects than they did before our pedagogical project. The students also show curiosity and an understanding of how the material age as well as how management and maintaining practices during a material's life span is crucial. This elaborated critical thinking even makes the students discuss and take responsibility for the chosen materials 'after life'.

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In-depth, dynamic understanding of context: Application of ecological landscape design method in graduate urban design research

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Keywords: Ecological design, urban design, Lebanon, holistic, expansive, landscape

The focus of this paper is ecological landscape design and its applications in graduate research at the Department of Architecture and Design, American University of Beirut (AUB), Lebanon. The methodology of ecological landscape design, I argue, expands the repertoire of architects and develops their ability to work with spatial contexts in dynamic and relational ways. Three examples are discussed, thesis research by graduate students, architects and landscape architects, to elaborate how this method helps them complement their undergraduate design training with graduate research skills. Additionally, the dynamic and multi-facetted contextual approach of ecological landscape design has the potential to address the repercussions of outdated planning practices in Lebanon that fail to respond to the country's characteristic bio-cultural diversity.

Ecological landscape design (Makhzoumi and Pungetti, 1999), was developed with designers in mind. Combining holistic, systems thinking from the ecological sciences and landscape's multi-dimensional, integrative framing with the creative, problem-solving sensibilities of design, the methodology secures in-depth, dynamic understanding of the context. The methodology proposes an alternative to conventional site analysis through the compartmentalized mapping of layers (natural, semi-natural and human-made), by encouraging students to locate Ecological Landscape Associations (ELAs), spatially articulate entities that result from the interactions of one or more of these layers. ELAs are then tested over shorter or longer evolutionary time spans and across spatial hierarchies through a dynamic, engaging and open-ended process that ensures in-depth understanding of the context. The outcome of alternative mapping of ELAs can serve as (a) a basis for exploring the research problematic and (b) as the building blocks for sustainable future development scenarios.

Ecological landscape design methodology is increasingly adopted by graduate students enrolled in the Master of Urban Design (MUD) at AUB. A studio-based, professional education program, MUD 'emphasizes the mastery of the design tools necessary for the effective practice of urban design [...] a multi-disciplinary understanding of contemporary urban challenges that trains them to position the design profession amidst other professions of the city' . In the following section I will discuss three examples of MUD research that apply the ecological landscape design methodology. Despite contextual differences and varying research objectives, all three students address the shortcomings of planning practices in Lebanon as discussed above.

Zeineddine (2014) explores innovative planning approaches that ensure ecological continuities and sustainable urban growth in rural southern Lebanon. The problematic as defined by Zeineddine was to overcome current generic planning that is 'static, fragmentary and [...] ill-suited to the dynamic attributes of living systems' (ibid. pp. 65-66). State approved master plans disregard terrain, geomorphology, streams and dry watercourses, key determinants that have shaped the traditional Mediterranean landscape and accounted for rural livelihoods for centuries. Administrative boundaries similarly fail to recognize landscape contiguities and the continuity of vernacular rural practices across space and time. Applying the ecological landscape design methodology Zeineddine locates agricultural and natural ELAs that bridge the administrative boundaries of seven villages in the province of Bint-Jbeil. His findings confirm that 'applying ELA methodology, which provides a holistic reading of continuities and connectivity of ecosystems, geography, built environment, social activities and practices' enables him as a designer to propose 'new boundaries and scale of interventions that spans several municipal districts' (2014, p. 64). Based on the ELAs he identifies, his design restores spatial and socio-economic connection and his recommendations amend current planning practices towards an integrated set of planning incentives and design interventions, respectively taxation and land use regulation.

Fayyad (2018) tackles the problematic of Masha, 'customary land classification that dates to the Ottoman rule in the nineteenth century, and that differs from other publicly owned legal land classification. For a number of reasons, Masha' was not recognized as a land category in the National Master Plan for the Lebanese Territories, ratified in 2009. Excluding agricultural lands, grazing lands and scrub lands historically classified as Masha' undermines their significance as active communal spaces. In her research, Fayyad establishes an expansive, in-depth ecological understanding of Masha' landscape in the town of Tibneen, by applying the ecological landscape design methodology. She identifies ELAs and tests them across temporal and spatial scales, the process helps her unfold the collective meaning of Masha', the local perception of rural landscape and privately owned by collectively managed agricultural lands and seasonal watercourses. Irrespective of property ownership, Fayyad proposes to reframe Masha' as land imbued with collective/shared social meaning, environmental and cultural values and that have the potential to contribute to sustainable development based on community inclusive scenarios. Adopting this definition, the thesis hopes to overlap ecological landscape classification, ELAs identified, in Tibneen, with conventional property classification thus allowing communal use and perceptions to trump private ownership.

In the third example, the researcher's concern is with the repercussions of 'land pooling and re-parcelization' the only state approved planning tool used in urban

development. Al-Sabbagh's (2016) research focus is in Saida, the third largest city in Lebanon. Saida municipal landscape stretches along the Mediterranean, a mosaic of building and orchards, punctuated by rivers and seasonal streams. The beauty of the verdant landscape and open sea view is increasingly targeted by market-driven, high-end development that use 'land-pooling and re-parcelization'. The West Wastani project that was implemented in the 1980s is one example that imposes orthogonal infrastructural layout and regular land subdivision that disregards Saida's exceptional natural and cultural landscape. Al-Sabbagh takes the second phase of the project, East Watani, still in the planning phase, to explore alternative planning tools, ones that are context specific, ecologically sensitive and socially inclusive. Building on the findings of the Saida Sustainable Urban Development Strategy, she applies the ecological landscape design methodology to locate geomorphological and spatio-cultural ELAs that can be integrated into as well as forming the building blocks in planning East Wastani. While abiding by the built-up to open ratios dictated by 'land-pooling and re-parcelization', Al-Sabbagh utilizes knowledge gained from in-depth ecological understanding to (a) preserve and integrate key ELAs, seasonal watercourses and historic orchards, into new development (b) break the homogeneity of generic urban planning tools by building on Saida's urban landscape distinctiveness and (c) propose culturally meaningful and socially just urban development rather than the exclusive ones.

So what prompts MUD students to adopt the ecological landscape design methodology? The question is all the more significant considering their choice was made independently from course offering. The answer lies partly in that students enrolled in the program, architects and landscape architects, are overwhelmed by the scale and complexity of urban design. Additionally, their undergraduate design studio training doesn't equip them with the skills they need to define the thesis research problematic, let alone undertaking the research in a systematic and comprehensive manner. Many find the logic and simplicity of the ecological landscape design methodology easy to follow and the process of identifying ELAs a sound starting point for understanding and ordering their research. This has been the case in all three examples cited . In the first example, Zeineddine uses ELA mapping to secure an expansive reading of regional landscape transformations in the province of Bint-Jbeil, develop strategies to overcome landscape fragmentation caused by state planning and restore traditional, sustainable management of environmental resources. In the case of Masha', Fayyad applies ecological landscape design to identify and map ELAs. She argues that ELA mapping, because it breaches administrative boundaries, are closely aligned with the idea of Masha' as shared land and natural resources that is communally managed. This becomes the basis for a 21st century definition of Masha' as a layered concept that implies sustainable management of cultural, environmental and ecological resources. In the third example, shortcomings of Lebanese planning tools are the starting point of Al-Sabbagh's research. As with the previous two examples, mapping ELAs is used to overcome the generic, top-heavy 'land-pooling and

re-parcelization' and ensure that natural, semi-natural and cultural landscapes that are integral to the urban fabric of Saida are protected and integrated into future development of the city.

Academic discourse aside, ecological landscape design has contributed to a better understanding of landscape architecture, an emerging profession in Lebanon. Students enrolled in the MUD program are for the most part practicing professionals. Ecological landscape design expands not only their conception of 'landscape' but in addition, broadens their understanding of the professional scope of landscape architecture.

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Designing with plants and nature – working with continuity, entities and design thinking in landscape architecture education

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Keywords: Even-aged stands, material form, natural science, parks, processes

The discipline of landscape architecture draws upon all three pillars of academia: the natural sciences, the social sciences, and the arts and humanities (Thompson, 2017). This broad foundation also applies to landscape architecture professionals, who formulate projects for the material forms and processes of vegetation (Dee, 2012; Murphy, 2005). When working within the field of plants and nature, knowledge of plant species and their growing conditions is needed to design human environments where vegetation is a core design component (Eckbo, 1950). In the landscape architecture curriculum at the University of Copenhagen (UCPH), specialized knowledge of plants and nature is outsourced to natural scientists such as horticultural botanists and forestry ecologists. Meanwhile, the discipline of design is taught in case-based design studios led by designers, such as landscape architects. Throughout our 35 and 10 years of teaching experience, respectively, the authors have encountered a recurring problem among our students: they are unable to combine the knowledge from sub-disciplines of the natural sciences with their design thinking. The students often carry out their design projects by selecting plant species (based on colour), and their design proposals are often static in time and space rather than kinetic, in the manner described by Garrett Eckbo (1910-2000) (Eckbo, 1950:94). Why does creative and critical thinking tend to become simplified when designs involve nature and plants? In this paper, we try to explain why creative thinking and methodical design progression often seem absent from these types of designs, despite the fact that nature and plants play an important role in landscape architecture and for many students personally. Since 2013, we have used a 100-year-old public park located centrally in Copenhagen (Fælledparken) as a design case study to help students bridge this gap and activate basic knowledge rooted in natural science.

The objective of this paper is to elaborate on the specific design exercise and discuss the integration of plants and nature as a pedagogical challenge. Furthermore, we introduce the specific case of Fælledparken, since the plantings in this park represent the omnipresent challenges faced by landscape architects who manage public parks with an even-aged stand.

The case of Fælledparken
Fælledparken was designed by landscape gardener Edvard Glæsel (1858-1915). Its centenary was celebrated in 2009, and in that same year, it became obvious that the mature plantings – mainly beech and oak trees – would not live forever. During a storm, a beech tree whose roots had been infected by giant polypore toppled onto a car. As a result of this accident, there have been yearly tree fellings every year since then. In 2012, the Municipality of Copenhagen completed a major renovation of the park that included planting some 150 new trees where
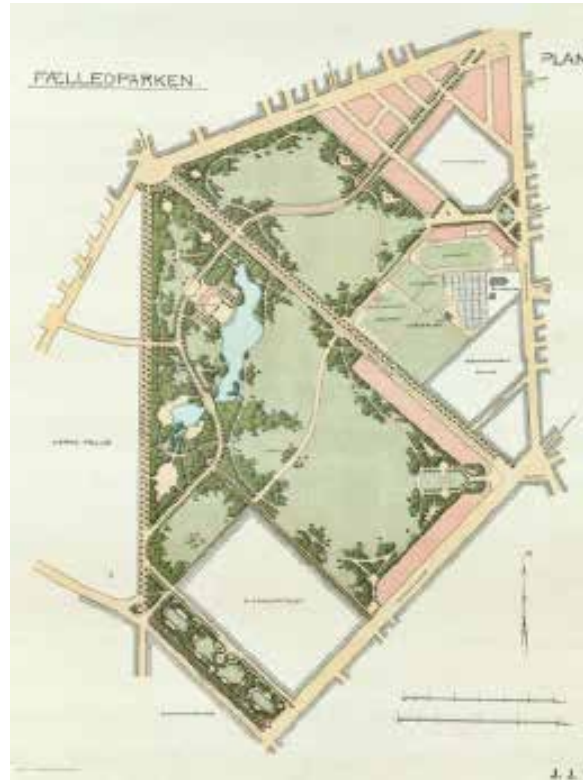
Figure 1. Fælledparken site plan, Edvard Glæsel, 1909.

original trees were missing. It was the first large-scale planting in a hundred years (Oustrup & Johansen, 2013).

The new trees were planted in 2011-2012 in groups of stemmed trees two metres tall, with an individual distance of three to five meters. The plantings Glæsel established in 1909 were based on forest-like principles, with many small trees intended to be thinned gradually. While the original plantings represented a kinetic planting design, the new trees represent a static point of view on plantings. There is a lack of creative and critical thinking about park trees, partly due to the fact that no plantings have been carried out for a hundred years, leaving the park with an even-aged stand. We anticipate that up to a fourth of the original trees remaining in the park will need to be cut down within the coming 10-15 years, posing a challenge when it comes to designing the park's spatial structure. The woody plantings that today close off towards the city along the perimeter of the park will become more open and visible. With this change, the envisioned park space will change, along with the park's function and identity. Using Fælledparken as a case study, the students experience different planting schemes as well as the long and hard perceivable timespan of tree growth.

Figure 2. Students at work in Fælledparken, where they (a) measure tree height and tree trunk circumference, (b) assess overall tree vitality and shot lengths, and (c) confer on-site with city officials.

The design task

Alongside working on their designs, the third-year landscape architecture students are given two lectures that review park trees in a historical context, as well as plant architecture and aesthetics, and (re) introduce some general concepts related to tree growth. In addition, the students visit the landscape laboratories at the Swedish University of Agricultural Sciences (SLU) in Alnarp and are introduced to literature including forestry tables on tree growth, classic writings by the Danish landscape architect C. Th. Sørensen and works by contemporary landscape architects such as Michel Desvigne. However, the core activity is an on-site survey in Fælledparken, where, in groups, the students observe and measure the above-mentioned tree plantings established in 2011-2013. Different groups of students measure the same plantings each year, and data from previous years is made available to them, allowing them to study the plantings over a period that is longer than a normal degree programme. The question they are asked to answer in their project is: 'What is the present situation and future potential associated with the observed tree plantings and the park as a whole?' The students conclude their assignment by presenting two possible scenarios for the observed tree plantings, presented in text and drawings visualizing the future 10 and 30 years.

Methodological reflections

Because they are given access to data from previous years, the students' horizon is expanded five years back into the past. Looking back enables them to estimate future tree growth and provides a basis for envisaging possible futures. Furthermore, asking the students to submit two scenarios for the future allows them to overcome a static, simplified view on plantings. Our aim has been to change the students' views and design-related thinking concerning plants from being a matter of choosing plant species towards a greater focus on aspects of continuity and entities. Eckbo (among others) has described the design task as that of dealing with the spatial issues first and other issues afterwards. The stages of this procedure have been described as: 1) mass, 2) texture, and 3) species (colour) (Eckbo, 1950; Olsen, 1999).

The observed lack of creative thinking and methodical design progression may occur because educational programmes stress the knowledge elements without placing them in the context of design thinking, and because design education avoids complex knowledge in order to provide a staged design progression with the students. When the balance tips and landscape architecture and creative design thinking are neglected, the risk is that complex knowledge reduces landscape design to a kind of evidence-based design which downgrades the aesthetic practices of landscape architecture.

Conclusions

Continuity, evolution and dynamics belong to the core values of landscape architects, both within academia and in the profession. Plants and nature are the very soul of the focus on continuity. Thinking about design is the backbone of the course in landscape architecture. However, when the design involves plants and nature, much of the education ignores elaborating design thinking from concept to continuity and entity. The new plantings in Fælledparken demonstrate that this shortcoming is not limited to students. We landscape design professionals also need to rethink how we utilize nature.

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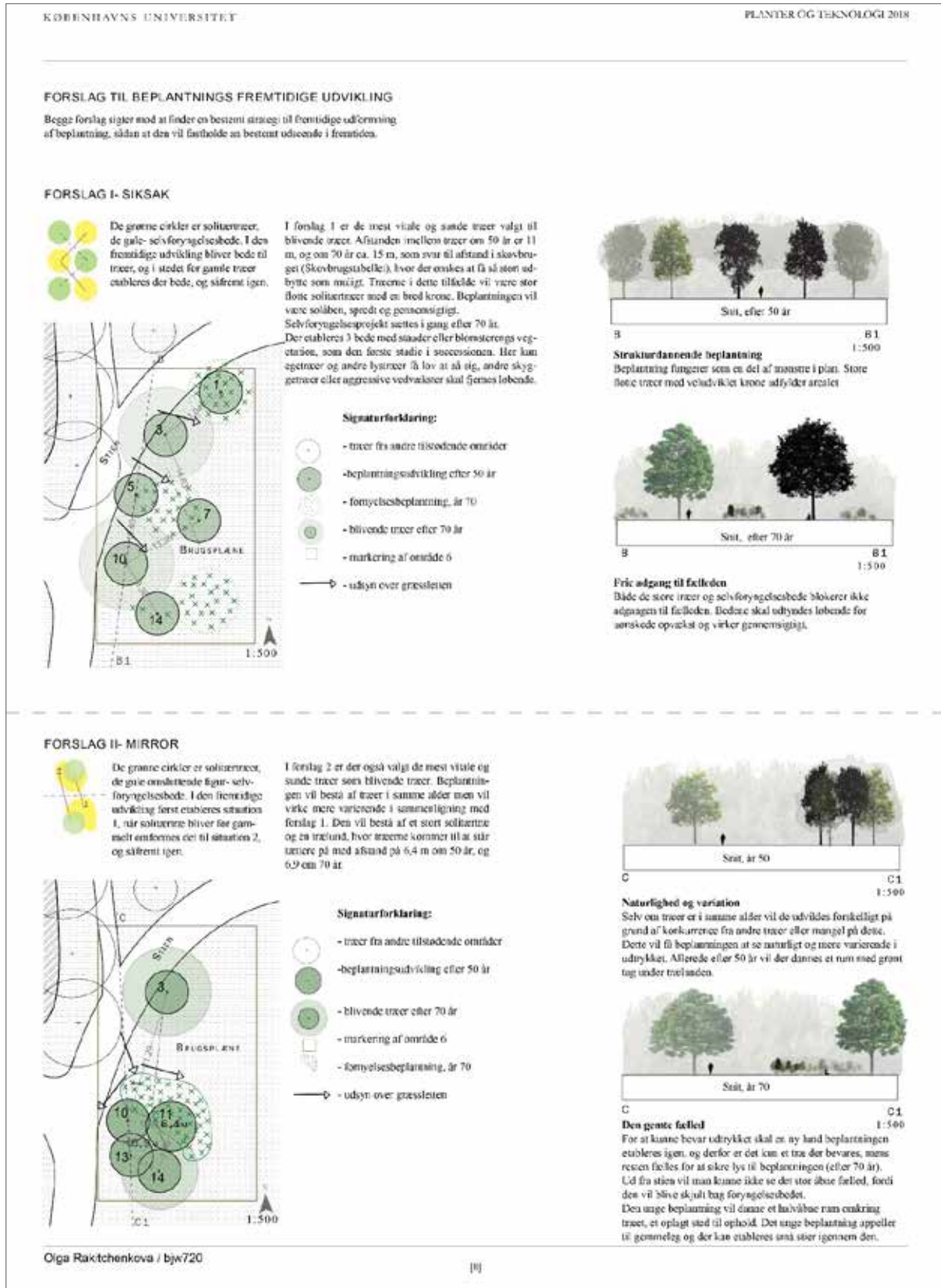
Figure 3. An example of an A3 submission by student Olga Rakitchenkova (2018).

Teaching applied planting design at the Faculty of Landscape Architecture and Urbanism in Budapest

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Keywords: School garden, arboretum, sensory qualities, material design, pedagogy & didactics, design in a living environment

Introduction

Earth, water, vegetation and planting are classic design materials in landscape architecture. Even though new functions of planting have emerged in the course of time, the material and its core role in landscape architectural design have not changed.

In this paper we will give a short overview and offer insights into the backgrounds of teaching applied planting design as part of the new program at the Faculty of Landscape Architecture and Urbanism in Budapest, which also includes the international Master (MLA).

Three steps in teaching applied planting design

We start with the three basic steps of learning how to use plants as design materials. First, students need to learn the names of the plants; naming and describing. The second step is learning what conditions are ideal for growing plants as design materials in different sites, functions and climates. The third step forms the heart of the matter; how to use plants as design materials.

Teaching on Bachelor's and Master's levels

In this section the focus is on how to teach planting design in the different types of studies, Bachelor's and Master's levels. It includes some thoughts about the teaching of plant materials and applied planting design as separate courses and as part of studio teaching. There are also special subjects covering topics such as the history of planting design in landscape architecture, the native versus exotic debate and the role of planting design in the creation of healthy environments for people. Climate change, which causes serious problems for humans and every living organism is a separate subject that also includes climate change's effect on urban climate. Climate change endangers urban livability to a higher extent than air pollution does, which used to be considered the most menacing component of urban life. Therefore, climate change requires solutions of different nature and in different time scales. It is not only a question of design, but also a question of public health to define what kind of plant species shall be planted in urban landscapes. Various plants own different characteristics. They can survive our cold winters, hot and arid summers, they can be allergenic or poisonous, and moreover they can have special demands regarding the type of soil and quantity of water they absorb from the ground and air. Hungarian teaching of planting design covers these questions and prepares students for new challenges in the use of plant materials.

In the context of climate change, we first draw attention to taxa that are most resilient, most adaptable to changing circumstances, and to taxa that are used rarely or that have not been used so far but, with change of climate, can become more and more important in plant application. Secondly, we explore the landscape architecture and planting design tasks that have appeared in the recent period as a result of climate change or its mitigation. Such tasks are the preservation of rainforests, the installation of green walls, roof gardens, etc. Urban plant application largely relies on education, as extreme conditions in cities greatly reduce the number of taxa that can be used successfully. In addition to the thematic collections at the lectures, as part of the planning tasks and on on-site visits we, together with the students, examine the viability of plantings in different parts of Budapest and the adaptation of plants to the urban environment.

Teaching planting design in Budapest is in an exceptionally privileged position, as its campus is located within the boundaries of a 7.5 hectare arboretum which also functions as an outdoor classroom for teaching. During the practical dendrological lectures the students get the opportunity for learning about plant species through direct contact and can experience a plant during all seasons. The arboretum has a variety of microclimates, including some areas with climatic conditions that are unique in Budapest. Therefore, species with very different demands can be grown and studied here. Apart from providing morphological knowledge, the presence of old trees in the Buda Arboretum enables students to experience and visualize how different taxa look in different stages of growth, which also benefits their long-term approach to planting design. The Buda Arboretum does not only play a major role in subjects on plants themselves (dendrology and ornamental plant knowledge 1-3), but also in primary subjects (geodesy, free-hand drawing), management (landscape construction and management) and in design courses (dendrology 3, planting design). The international courses of the Master of Landscape Architecture program and ERASMUS subjects also make use of the arboretum and its plants (Table 1). In addition the garden hosts special courses on the subjects of tree surveying, tree care and maintenance, soil studies, environmental education and environmental psychology, all of which contribute to the multi-disciplinary training of landscape architects of all levels at Szent István University.

Pedagogy and didactics

In the last section of the document specific backgrounds of teaching applied planting design are being discussed in the context of pedagogy and didactics. Pedagogy is the science of education. For planting design, time and the general principle of learning in real-life are key components of pedagogy. Learning by doing is another key principle that is

Table 1. System of teaching of plant knowledge and applied planting design

Bachelor's	Att.	Master's	Att.	MLA	Att.	Special subjects	Att.
Dendrology and ornamental plant knowledge 1-2	all	Plant use in spatial compositions 1-3*	only MA	Planting materials and planting design*	all	Designing plant compositions 1-2*	elective for MSc
Dendrology and ornamental plant knowledge 3 (plant knowledge of herbaceous species)*	only spec.	Applied dendrology and planting design*	only MSc	Ecology and plant materials of historic sites*	all	Special dendrology 1-2*	elective for all
Nursery Stock*	only spec.	Consultations and studio works on thesis focusing on planting design*	all	Planting design in landscape renewal projects*	all	Drought tolerant plants and planting design	elective for all

not only applied in studio teaching but is also quite important in teaching planting design.

When teaching plant application, we attach great importance to the practical deepening of the theoretical knowledge delivered through the lectures. In the courses students recognize plants by drawing habitus and morphological stamps, photographing ornamental plants at a given time, and assessing the flora of a given area. Master's students' knowledge of planting design is deepened by the thematic lectures, by consulting planning tasks, and by analysing the application of the recently implemented open space architecture works.

In didactics the role of the teacher comes into the picture because didactics is the science of teaching. Here, the interaction between theory and practice, between classroom and the outdoors form the core of the teaching approach. Another special issue is the relation between research and design. Especially nowadays the field of research of applied planting design is changing rapidly. How to implement and apply this knowledge in planting design requires special exercises and attention.

Our research results are integrated into education, such as the results of the Mycorrhiza project, during which we tested various inoculums marketed in Hungary. It assists students and professionals in planning on what design tools exist to endure heavy urban conditions. In the framework of multi-annual research, we have examined the behaviour of plants in extreme dry conditions, which is a good reference for the design of the given species. The results of this research will be incorporated into education.

Conclusions
In conclusion, the emergence of new functions and use of plants as design materials will make the design input even more important. The key question will be how these new functions and uses can be integrated in the plan as a whole in a meaningful way? Application of design principles does not only have decorative aspects in urban life, but it is also a question of increasing importance in public health. Moreover, having been planted according to a well-planned design and having been maintained properly, the different plants could help to increase biodiversity in both flora and fauna even in new ecological habitats.

The plants are the living building blocks of designers. In addition, plants are given a pronounced role in the perception of the built green surface. The more familiar the plants are, the more confident they can be that the good plants are placed in the right place in the plans.

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Land art: a creative ground for site analysis

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Keywords: Site, site analysis, land art, landscape design

Figure 1. Source: METU 'Arch 491 Landscape Research I' Fall 2015 term project archive: 'Exploring METU Campus Landscape'. Student group: Emin Kaya, Yasmina Bendik, Martina Bunino, Romain Maas

Thoughts and ideas that derive from a specific context are different from abstract concepts that don't derive from the experience of the particularities of a place: you have to make connections while evaluating your experience within the specifics of the context: thinking on your feet, so to speak.
–Richard Serra, 1998 (cited in McShine et al., 2007, p. 77)

Introduction
The transmission between site and designed space, both in practice and pedagogy, appears as a challenging task in landscape design. The source of this conflict might be attributed to certain focuses: a restricted understanding of the term 'site', a limited reading and documentation of diverse site characteristics, and the inert relationship between designer and site.

Including historical, temporal and geographic layers, sites have an innate complexity which mostly remains hidden. The understanding of site as a fixed plot and, inevitably, the restricted reading of the existing site features oversimplify the analysis process. Physical site factors, without judgment, typically lead site analysis. However, as stated by Meyer (2005), 'site reading and editing' distinguishes landscape architecture from other disciplines such as architecture, which has been criticized for seeing sites as plots to be filled with architectural objects (Allen, 1997; Burns, 1991; Hogue, 2004; Meyer, 1997). Therefore, the analysis stage should be exposed as a creative ground that contributes to every stage of landscape design: 'design as site interpretation, and site as program, not surface for program' (Meyer, 1997, p. 93). This critical position also necessitates the invention of new communication patterns between designer and site in which the designer performs an active role (Burns and Kahn, 2005; Jenkins, 2018).

Thus, this study reflects on land art's promising contribution to an expanded and experimental agenda for site analysis. After discussing the intertwined relationship between land art and landscape design, the study clarifies certain focuses: questioning boundaries, decoding space, thinking about time framework, and site narration. The elaboration of

these four topics will certainly inspire the development of new concepts, tools and methods that will also encourage the (re)surfacing of critical/creative thinking and aesthetic understanding in landscape design pedagogy and practice. In this way, the over-studied extended field of landscape architecture in the literature can, with transdisciplinary involvement, be transmitted to every stage of design.

The common ground between landscape and land art

The inseparable paths of landscape and art gained a new agenda with the emergence of land art in the 1960s . As argued by Weilacher (1996), the exploration of landscape both as a material and a milieu in land art introduced a new language in landscape design: simplicity/minimalism, transience and the sensitive perception of nature (Weilacher, 1996). The interpretation of material – earth, stone, wood, leaf, snow and ice – has exposed a unique spatial experience. As worded by Goldsworthy, through material, artists explore and express the history and the link between a material and its environment. 'The energy and space around a rock are as important as the energy and the space within. The weather – rain, sun, snow, hail, or calm – is that external space made visible. When I touch a rock, I am touching and working the space around it. It is not independent of its surroundings... ' (Andy Goldsworthy).

Besides material, the milieu of land art has also highlighted the common ground of land art and landscape. Following the first precedents – large-scale earth works implemented in deserts like 'Double Negative' (1969-70) or 'Las Vegas Piece' (1969) and small-scale touches in forests like 'Seven Spires' (1984) or 'Ash Dome' (1977)– post-industrial sites and urban lands became a milieu of land art where the fuzzy line between land art and landscape design became open to question. As seen in Herbert Bayer's 'Mill Creek Canyon Earthworks' (1982) and Alan Sonfist's 'Time Landscape' (1965), land art began to be manifested as everyday spaces in people's lives. Furthermore, as in Joseph Beuys' '7000 Oaks' (1982), which was identified by the artist as a social sculpture, artwork can become a creation of a participatory production process through the involvement of citizens.

This grounding of land art has undoubtedly affected the field of landscape and has been reflected in certain designers' works . As argued by Swaffield (2005), '...landscape knowledge can be grounded in different dimensions of human existence: mind, eye, imagination, body and hand (action). These dimensions are not mutually exclusive but provide a framework for different ways of knowing landscape' (Swaffield, 2005, p. 8). The temporal and sensory focus of land art can positively mediate the nature-culture continuum, which constitutes a major field of discussion in landscape architecture: 'Each spatial formation of design has the potential to provide a lacuna – a momentary sensing of 'nature within culture' or vice versa' (Dee, 2012, p. 37). Therefore, exploring a site through land art's concepts and means will provide a creative and critical design process in practice and in design-studio pedagogy.

Reflections: a land-art-based agenda for site analysis

'Site thinking must continually oscillate between material and conceptual, abstract and physical,

discursive and experiential, and general and specific points of view.' (Burns and Kahn, 2005, xxi)

Land art's contribution to site thinking can be reflected in four major focuses: boundary, space, time and representation. In any context – urban, rural, or natural – using land art knowledge as a lens can help the designer to uncover the historical, temporal and geographical aspects of the site and formulate basic site questions.

Questioning Boundaries

Site boundaries – property lines, topographical constraints or vegetative borders – generally appear as indisputable givens that turn into constraints in site thinking. Considering the continuous ground of landscape and the responsibilities of the landscape designer, however, the site should be observed through a wider lens, beyond its boundaries. At this point, the approaches of land artists can motivate an expanded site reading. Walter de Marias's 'Earth Room' (1977), by placing an endless material in an enclosed art gallery, not only encouraged the viewer to think about the sensory qualities of the material – earth – but also motivated him/her to question spatial boundaries. Certain American land artists' preference to work in the desert also originates from this desire to explore boundless space. Furthermore, Richard Long's renowned method, walking without following any defined walkways to extend the boundaries of the sculpture, encouraged the invention of new approaches to overcome designers' restrictions in site analysis. As will be discussed, however, walking not only encourages designers to question site boundaries, but also helps them to engage in critical thinking regarding time and space.

Decoding the Space

The blurring of the distinction between space and artwork and the provocation of sensory experiences through certain qualities of milieu and material have introduced another experience of space in land art. Land artists' interest in landscape as a complex milieu, covering numerous historical, geographical and temporal layers, can encourage the discovery of various spatial assets which remain mostly out of sight in a regular site visit. Land art's focus on the natural process and the local history might change the site analysis phase by valuing 'absence' to prevent site clearing in the design phase (Corbin, 2003; Treib, 1987). Such concepts also necessitate a shift in the designer-site relationship . Hence, Richard Long's emphasis on walking to explore the relationship between time, distance and geography and Robert Smithson's interest in the aesthetics and spatiality of destroyed post-industrial lands provide inspiring bases for conceptual and methodological discoveries.

Re-thinking Time-Frame

'The artist who works with earth, works with time.' (Walter de Maria)

'Our task in design, is, as it were, to sculpt time.' (Dee, 2012, p. 15)

Natural process is one of the enthusiasms of land artists. Manipulation of cyclical and linear time becomes a conscious decision of the artist when creating his/her artwork. Many land art works made of ice or snow are ephemeral, remaining only for

a certain time period. Some others change in state depending on the season or weather conditions, such as Robert Smithson's 'Spiral Jetty' (1970), which (re) disappears depending on changes in the water level. Thus, because its time differs from human time, land art has introduced another experience of time mainly based on the perception of nature (Weilacher, 1996). Since one of the major principles of landscape design is 'sculpting time' (Dee, 2012), land artists' approach can inspire new analysis methods different from an inert site reading fixed to a certain time period.

Narrating the Site
Considering the ephemeral quality and sensory emphasis of land art works, narration, rather than traditional graphic representation, can be said to be a stimulating means of presentation. Different methods and techniques can be experimented with when translating and documenting layered site knowledge. Narrating a site can successfully reveal the complexity of the existing site information and contribute to its (re)presentation. Emphasizing 'process' rather than 'product', Richard Serra's 'Verb List' (1967-1968) has inspired various fields, including landscape design. In her book entitled 'To Design Landscape: Art, Nature and Utility', Catherine Dee exposes an open-ended verb list for each landscape element – green, terrain, wet, dirty, wind, sky – to inspire landscape design strategies. Likewise, 'Verb List' can also contribute to the site analysis phase and allow the designer to creatively read the site while formulating the connection between generic verb and particular experience.

Conclusion
Regarding land artists' approaches to boundary, space, time and representation, a fresh site analysis agenda liberated from generic assumptions and traditional graphic presentation can inspire landscape design practice and pedagogy. The innate relationship between land artist and milieu can encourage the discovery of new communication pathways between designer and site. Such a dynamic relationship will enhance the extent of site knowledge and free the site from artificial design programs, instead introducing the site itself as the program (Andersson, 2008).

Knowledge transmission from land art to site analysis can be accomplished in several ways. First, the terminology should be reviewed, and even the term 'site analysis' should be reconsidered and replaced to break the routine. In the case of landscape-design pedagogy, a well-structured site analysis assignment grounded on land art methods and terminology could encourage students to discover more about 'out of sight' assets. This might work as a lens to help young designers in formulating basic questions, observing, reading and thinking about the site, gathering data and making syntheses. Therefore, one critical issue is to promote land-art-grounded terminology and methods in every stage of site analysis.

Lastly, inspired by participatory land art works, group work can be an ingenious way to generate creative discussions on site. Through group work, it is possible to include each designer's unique contribution in one composite work. This will undoubtedly enhance the 'process' and 'narration' with diverse mediums: poems, texts, drawings, photos, moving images, etc.

Moreover, it will trigger the discovery of integrated and hybrid site reading and narration methods in landscape design. Such a creative agenda will support a transdisciplinary design milieu where an expanded reading of landscape will be predominant.

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Testing the illustrative method: How to reveal hidden knowledge stored in traditional water systems

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Keywords: Student research, illustrative method, development of methods, landscape architectonic approach, water systems worldwide

The polder-boezem system, a traditional water system, is a step-up discharge system that drains water from the lowlands into the outer water of rivers and sea. In order to reveal the landscape architectonic structure and form of the Dutch polder-boezem system the form-layer method (Steenbergen et al. 2005) was applied and extended in the dissertation: The Landscape Architecture of the Polder-boezem system, structure and form of water network, water pattern and water works in the Dutch lowlands (Bobbink 2016). Originally the form-layer method is an analytical tool to understand the structure and form relation between a landscape architectonic composition (a project) and its site. Four layers are distinguished: the basic form, in which the relation between the intervention and the topography is unfolded; the program form, in which the structure and form of the intervention in relation to its program is clarified; the image form, in which the cultural and metaphorical expression is linked to the structure and form of the landscape and the layer of the spatial form, in which the structure and form of landscape and intervention is defined from the experience at eye-level perspective. In the dissertation, this method was used and adapted to analyse a cultural landscape (the polder landscape) instead of a landscape architectonic design. After identifying the landscape architecture form and structure of the lowland water system we felt the need to extend the method further to reveal the use, maintenance and the circularity of human-made traditional water systems in general.

Humans transformed and managed natural water flows in a particular area during decades for different reasons. Depending on its scale these water management measures shaped the landscape. Indigenous water systems are interesting study objects because they develop over a long period of time by trial and error, cut and fill and therefore store a lot of knowledge related to use, adaptation and climate variation. Many different water elements and works are developed to direct, drain, irrigate, retain, infiltrate and reuse water. Commonly different water elements and works are combined in one system, in which they most of the time try to keep the water in place as long as possible. Next to the benefit for humans, traditional water systems are relevant and valuable for ecosystem services due to their size and connecting capacity as part of blue-green networks.

The extended method, called 'the illustrative method' is tested by international graduate students and researchers of the TU Delft, section of Landscape Architecture in the Circular Water Stories LAB. All students within the LAB are interested in water topics and want to learn from existing systems. Nine traditional water systems are mapped according to the method. By evolving the drawings simultaneously, along with a set of theme-drawings and diagrams,

flanked by one legend for all cases is developed. Every drawing is drawn again and again until the best result, a meaningful drawing is achieved. Students and researchers learn from each other. During the process the understanding of which layers (soil map, height maps, relief etc.) need to be combined to express the essence of the waterscape have become clearer. From here the description of the method is explicated.

Each set of drawings includes: a short introduction, a description of the project, photos of the past and today; diagrams of the climate zone including the rain fall curve over the year and a diagram presenting the flow directions of the system; the water system drawn on the regional scale in relation to the topographical and soil map; the development of the water system over a longer time period, a more technical drawing of the catchment area and the different water compartments; sections and/or systemic and functional diagrams, in which the interaction between the water elements, water works, its ecology and the use is explained; a crucial detail which is representative for the system and a conclusion. In the conclusion students summarized their findings of the analyses by transforming general values into specific values. So far we have come up with six values.

Landscape values: Natural landscapes are transformed to cultural landscapes, through transformation the natural landscape is architectonically pronounced and is part of the cultural expression;

Strategic values: Smart use of the site to achieve maximum profitability with the minimum resources and infrastructures, by taking advantage of natural elements, topographic changes, slopes, river bends...;

Functional values: Water systems are constructions with simple formal and practical solutions;

Material and tangible values: Water elements and water works are a source of knowledge of traditional construction techniques, local materials from the surrounding area are used that adapt to climate and lithology, expression of rituals;

Values of sustainability and circularity: By using natural local and non-polluting materials of the surroundings. The water is used in the system for different purposes and brought back into the natural circuit;

Ethnographic and identity values: To encompass the knowledge of what were the main activities of the region.

The process of testing the method made clear that much of the work was essential, especially for those cases which are situated in countries that do not have open access to data. Sites had to be reconstructed

with the help of Google Earth maps, Open Source Street maps, and country specific National Databases . Computer and analytical skills were needed to process the amount of data and thereby visualise the spatial quality of the reimagined sites. Examples helped to figure out the path of the analyses. A description of the method was not enough to get a good result, intensive discussions are needed to improve the drawings.

Comparison of cases and ongoing reflection is essential for a valuable outcome of the research, this still needs to be done. For now, (March 2019) the material is on display in an exhibition at TU Delft and awaits comments of peers. This new input can help develop the method further and to come up with more circular traditional water systems that in the end can be published in a book. The graduation LAB is called 'Circular Water Stories' but so far we did not manage to work on the story part, since this involves more research, research in which we involve the makers and users of the system and dive into archives to learn more about its history.

Knowledge stored in traditional water systems can inspire spatial, smart and sustainable approaches on water management (Ryu 2012). To design with water, one has to understand the geomorphology of the landscape, the operation of the natural water system and its transformation in order to relate to it. The work of the students proves that the illustrative method can be used regardless of scale, complexity and cultural background of the water system to reveal knowledge on the relation between landscape, water management and people. In general, the research on traditional water systems delivers first of all knowledge from the past for sustainable, adaptive water design. For the students, the analytical work at this stage delivers tools for their final design-thesis.

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Chinampa, Mexico
Water System Diagram & Section

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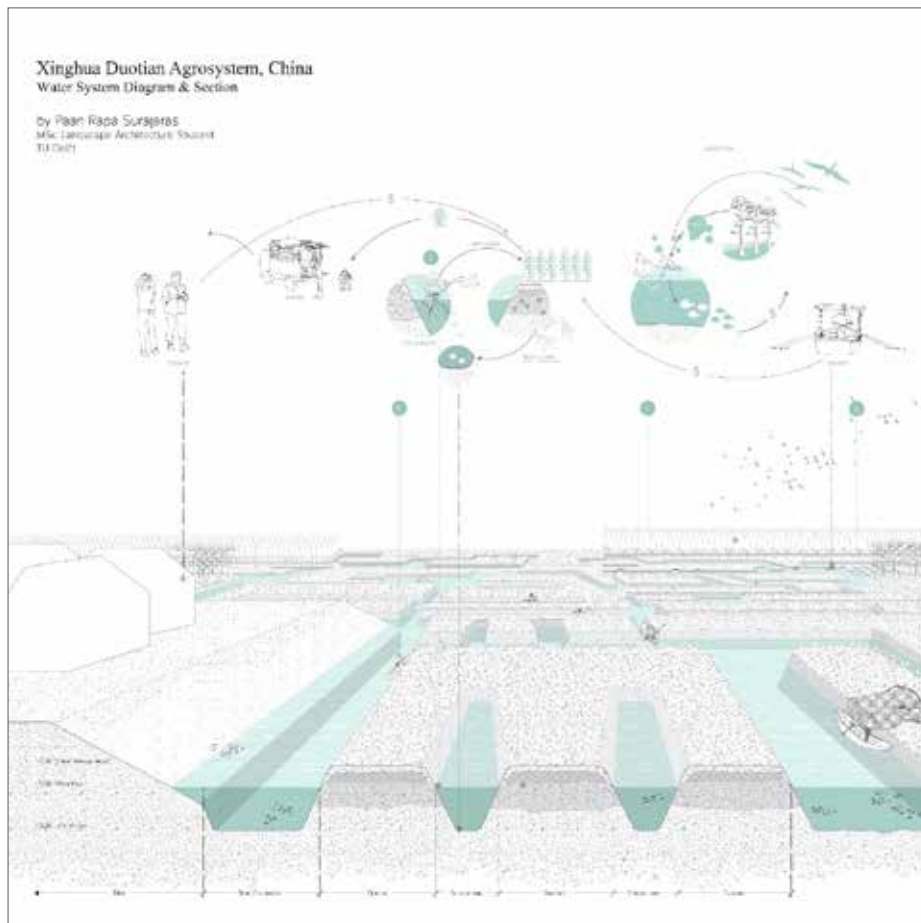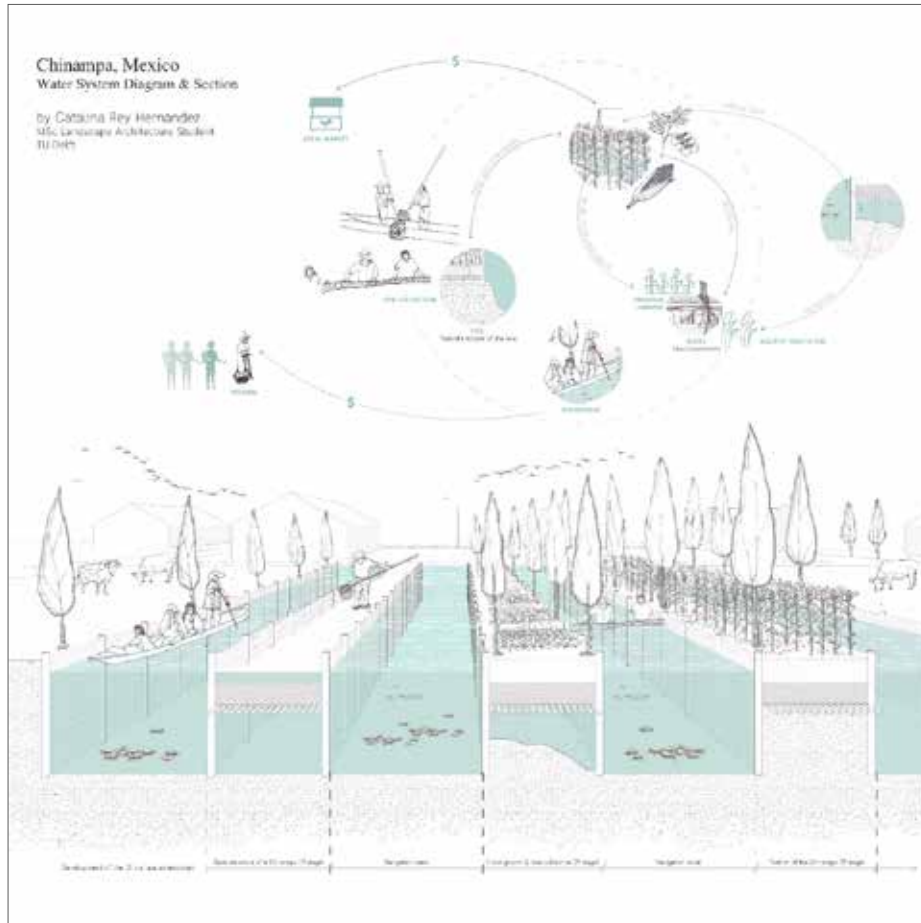
Landscape analysis for policy and planning — themes and current challenges for learning and practice

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Within spatial planning in general and landscape planning in particular there is rich tradition in landscape analysis, which plays a significant role in most landscape architecture curricula. Over time a number of analytical approaches for supporting landscape policy and planning with description, analysis and value judgements of landscape as space and place have developed, and new methods and techniques are continuously evolving as responses to new needs and technological innovations. Drawing upon influential publications, insights from our recent book, Landscape Analysis – Investigating the Potentials of Space and Place (Stahlschmidt et al. 2017), recent student work, and many years of experience in landscape analysis from teaching, research and professional work, we present and discuss developments in the theory and pedagogy of landscape analysis in terms of key trends and milestones, emerging ideas, and unresolved challenges.

There are many meanings of landscape (Wylie, 2007), which we summarise in three main categories: landscape as terrain and ecosystems (Forman and Godron, 1986), landscape as a way of seeing (Cosgrove, 1984), and landscape a social community of policy and practice (Olwig, 1996). Each set of meanings has stimulated different traditions of analysis. We trace these broad traditions through milestone publications such as the survey - analysis - design approach suggested by Geddes (1915) in 'Cities in Evolution', and comprehensively developed by McHarg (1969) as 'an ecological method' in 'Design with Nature'. Steinitz's (1990) framework for landscape analysis and planning is also included in this discussion of analytical traditions.

The approaches that focus upon biophysical landscape phenomena typically express the classical analytical method of separating landscape into detailed spatial attributes which are investigated and compared in various ways and finally synthesized into various analytical maps. Examples of European approaches such as the Hanover school (Kiemstedt 1967) and the Manchester landscape evaluation method (Robinson et al. 1976) are included in the review, as is a critical discussion by Turner (1991) and Stiles (1992), and consideration of the practical pedagogical challenge of combining systems thinking with spatial analysis. The concept of ecosystem services and its application to landscape planning as proposed by de Groot et al. (2010) may be seen in relation to this tradition of analyzing the bio-physical properties of the landscape to support decision making planning and policy. This approach has – as some of the others mentioned above been criticized for linking ecology to informing markets rather than governance (Norgaard 2010).

The second broad tradition we review is analysis of landscape as a visual phenomenon. We note the significance of historical values such as the picturesque, and the influence of the analytical techniques and vocabularies developed in Lynch's 'image of the city (Lynch 1960), Cullen's (1961) work on serial vision, and Bell's 'Landscape : pattern perception and process' (2012). Landscape character assessment (Swanwick 2002; Fairclough et al 2018) is another key analytical milestone, drawing upon geographical field techniques and more recently stimulated by the European Landscape Convention. In this section we discuss the pedagogical challenge of developing self-awareness of cultural norms and values in landscape observation and graphic representation, and the need for skills in visual critique.

The third category of landscape meaning we identify, of landscape as a living social community, has rarely been the point of departure for landscape analysis in education. However this is changing, and several analytical approaches with a focus on discourse and participation have emerged in recent decades. These include analyses that draw upon linguistic models such as Alexander's 'Pattern Language' (1975, 1977), and Spirn's 'Language of landscape' (1998); participatory approaches that engage landscape planners and designers with communities (Hester 1984, 2006); and action research that involves these both landscape planners and citizens in learning through landscape interventions (Altman & Zube 2012, Primdahl and Kristensen 2016). These types of analyses pose pedagogical challenges of incorporating an awareness of social values and knowledge and skills in community engagement in line with the European Landscape Convention. We conclude this section with reflections upon our experiences in bringing landscape analytical approaches into collaborative planning processes such as landscape strategy making and more generally into landscape democracy.

In each of the traditions we examine the pedagogical implications for analysis of different ways of framing landscape and reflect upon the opportunities and challenges of both rapidly developing digital technologies and of engaging students with analysis techniques that take them outside the studio and beyond the digital world, to involve direct social learning. A particular challenge faced within professional education programmes is the tension between developing student competency in rule based analytical procedures and the longer term developmental process of experimentation and learning through analytical practice or inquiry based studies that leads to higher levels of intuitive

expertise. Indeed developing the very competence to make choices in specific planning situations of what types of landscape inquiries will be the most adequate and who should be involved represent a significant pedagogical challenge in teaching landscape planning.

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Incomplete cartographies

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Keywords: Mapping, cartographies, drawing, landscape, cities, public space

Landscapes resist definition. The ephemeral and dynamic conditions of landscapes counter attempts to spatially and representationally control them. Landscapes offer partial understandings, incomplete knowledge and unfinished 'stories-so-far' (Massey 2005, p.131) of our designed and un-designed environments. If landscapes are always under construction, as Doreen Massey proposes for space (2005, p.9), then we must accept them as incomplete. But how do traditions of mapping specific spatiotemporal moments to create static drawings reflect such dynamic realities of landscapes? How can design and representational practices that attempt to fix time and complete space be opened up to incomplete understandings and unfinished constructions? How can designers and researchers embrace landscapes as collective endeavours while informing extraordinary future landscapes and exquisite representations?

In this paper I discuss a mapping project called Incomplete Cartographies – attempts to embrace un-finished cartographies composed from multiple narratives. Incomplete Cartographies frames ways of accepting the subjectivity of partial landscape representations, through advocating co-authored mappings with the aim of constructing complex spatiotemporal narratives of people, spaces and perceptions. In the paper I describe a combining of ethnographic and landscape architecture methods that I have explored in order to reconsider techniques of research and design and to create maps which can be read simultaneously for navigation, recording and proposition. I outline contexts of map making, primarily from art and landscape architecture, which question established cartographic conventions through revealing the potential of layering and collaging of multiple projections into single maps. By focusing on collective spaces that are constructed through the experiences and interactions of many different people and their environments – and without denying the significant act of editing – I also highlight the importance of representing multiple perceptions and narratives within single drawings.

I present three projects that explore Incomplete Cartographies, including: an ethnographic mapping workshop; open-ended research and design projects; and a mapping of multiple conditions, knowledge and experiences of landscapes. In the first project, I co-led a workshop during the NYLON conference at the London School of Economics (2013). Focusing on Elephant and Castle in South London, and in particular the daily market space that was due to be demolished, we developed a workshop where participants could choose between three maps and related experiences that focused on: working on a market stall with one of the traders; buying things from the market and adjacent shopping centre; or exploring the wider area through walking. Each map was partially complete, providing sufficient information for participants to engage with the different activities, but with many

gaps that were designed to encourage participants to add their own experiences to the maps. Following the workshop, I developed a seminar series where I worked with students to develop this cartographic approach as a collaborative research and design tool. Similar incomplete maps were prepared by the students, providing bases onto which the knowledge, experiences and ideas of a landscape were mapped. We aimed to use the maps as an opportunity for local people to spatilise and visualise their environments and to represent issues unknown to designers or researchers from outside the area. The iterative and additive technique of building on the map sequentially with different people realised the maps as collective archives of the landscape embedded with individual and common ambitions for the future. The third project that I describe in the paper involves the development of representations of urban spaces in London and the different ways that urban spaces are made and remade. Using collage, sketching and mapping I have attempted to map a range of contrasting conditions, knowledge and experiences. In contrast to the previous two projects, the maps that I present are not collaboratively authored but rather represent the narratives from extended periods of fieldwork and information collected through interviews, observations and document surveys.

I have found through these projects that the co-authorship of Incomplete Cartographies can be achieved in several ways, including: firstly, through different individuals sequentially drawing and marking the maps to build a layered composite drawing; and secondly, by a single person representing the conditions and experiences of a place and then mapping the subsequent conversations and interviews. I identified that the latter approach was particularly useful when interviewees and co-authors are less confident or less able to communicate their ideas and experiences in drawn maps. In contrast, what brings these three Incomplete Cartographies projects together, is that they are all attempts to investigate landscapes that are in-progress. Such repeated reworking of maps is embraced by some artists and cartographers through their cartographic methods. Artist, Larissa Fassler repeatedly returns to develop and update her maps over years and even decades. These explorations of the relations between people and places through drawing and collage become complex constructions of streets and public spaces to which she continually returns.

Incomplete Cartographies are composed from diversity of voices, such as designers, planners, community groups and school children, transgressing the constructed separations between professional and untrained authorship. The maps also challenge the tight distinctions between what is researched through academic approaches and what design practitioners propose. The approach is therefore useful to record site observations and spatial forms intertwined with memories of past events and spaces, along with

aspirations for the future. Incomplete Cartographies address the often-critiqued subjectivity of maps. That maps are a problematic method of representation for dynamic conditions of space is highlighted by Dilip and Da Cunha in their drawing of changes in spaces over time (da Cunha 2018). Incomplete Cartographies can be employed to embed rhythms of time and the changes inherent in landscapes that grow and erode or are demolished and rebuilt. In the paper I argue that new methodological tools are needed to reflect the subjectivity of representing landscapes in maps, the dynamic processes of landscapes and the collective narratives from which they are composed. I also conclude that it is not merely the role of the designer to rationalise and provide solutions or the researcher to provide conclusions. Rather, both researchers and designers must edit, frame, sift and make sense of information with precision while simultaneously remaining open to working with new ideas and knowledge.

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Teaching transdisciplinarity in landscape architecture curriculum for resilient urban places

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Keywords: Place making, community engagement, urban ecosystem design

Urban landscapes are complex socio-ecological systems that extend across private and public domains and different scales (Khan et al 2014). In this frame, urban space design has been identified as a primary argument to achieve cities' resilience and face the environmental challenges deriving from global change. Landscape architecture disciplines, in the specific, lead the way to tackle composite fundamental issues that require multidisciplinary approaches and diverse perspectives and represent an essential framework to guarantee urban space resilience.

Achieving spatial quality and increasing adaptive capacity are often contested areas in planning. This depends on the diverse perspectives and values which the actors involved invest in the transformation process. The sustainable management of urban spaces requires an integrated and holistic approach while a range of different objectives must be met simultaneously across social, economic and environmental pursuits.

However, research suggests that the environmental agenda is often a top-down process where the needs of local communities have been rarely considered (Anguelovski, Shi et al. 2016). Conflicting interests within the sustainability agenda may undermine the possibility to improve public space quality and support communities, while maintaining cities' resilience.

These complex and often opposing issues call for a collective effort that goes beyond the interests of single groups of stakeholders. The New Urban Agenda (UN 2016) envisages cities that are inclusive, promote civic engagement and people participation. Within this frame it is commonly acknowledged both conventional and non-conventional knowledge must be integrated to support effective responses to urban change with a plurality of perspectives, not just specialist ones. Comprehensive and integrated approaches to urban space design should take advantage of the emerging challenges as opportunities to trigger community's adaptive capacity. Shared decisions are needed to develop resilient communities and places if environmental goals can be intertwined with sustainability and social equity objectives (Palazzo 2018b).

Transdisciplinary approaches refer, in this sense, to the capacity to strengthen the collaboration across different institutions, the professions, fields of research and local stakeholders, including the community, to achieve the co-production of knowledge and incremental expertise (Lawrence 2015).

While the concept of transdisciplinarity is becoming more popular in landscape architecture practices (Palazzo 2018a), it is not yet clear how it will be effectively integrated in the pedagogy of landscape architecture teaching. Experiential learning courses or practice-based studios offer teaching methods that in part reproduce the planning practice and simulate the design process within a frame of safe-to-fail experiences. However, from a pedagogical perspective, these programs pose several challenges in their implementation and often do not prepare students to tackle 'wicked' problems (Balassiano 2011). For instance, these programs are very resource intensive and require professional skills that are rare among the academic instructors (Boyer 2018). Meanwhile, course objectives are limited by short time frames dictated by teaching timetables that undermine the possibility to establish a strong bond with the communities and local governments.

In this frame, a studio model delivered in Australia between 2015 and 2017, presents a teaching method that reproduces design practice, setting up concrete objectives and spatial outcomes to prepare more challenging studio experiences. This model showcases a possible direction to be explored systematically in the future, with students, local governments, communities and industry partners directly exposed to collaborative design experiences.

The studio was developed in the frame of the Urban ecosystem design lab, at the University of Adelaide, South Australia, and displays few tactics to overcome the challenges posed by experiential learning, through the application of three strategies:

An *experiential* approach or a 'learning by doing' environment engages the participants in community driven projects with a collaborative approach to design. Concrete spatial outcomes and projects' realization bring the project proposals beyond the mere design concept discussion, introducing a whole new level of complexity. Pilot and demonstration projects, ephemeral installations, etc. are aimed at illustrating how transitioning urban areas can be guided towards spatial and social resilience.

An *incremental* process of *knowledge building* is based on the development of the studio program across several years, where each studio is 'scaffolded' by the previous year experience. This builds up knowledge and creates a bond between students, researchers and the community in the long term.

A *transdisciplinary* research environment and multiperspective approach allow to build upon several fields of expertise that include also non-traditional knowledge and non-experts. Co-management and co-design activities build a strong link with local communities, engage key stakeholders, build expertise and enhance social commitment of the students/ designers.

This presentation will illustrate two experiences which tackled respectively environmental and social

resilience in the public space domain: the realisation of an integrated rainwater management system in a parking lot, in cooperation with industry partners; and a three years' experience in a regional community of South Australia that resulted in an ephemeral installation event.

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Who is responsible for realising spatial quality? Experiences from three interdisciplinary educational exercises

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Keywords: Educational exercise, research by design, child-friendliness, interdisciplinarity, participatory research

Interdisciplinary work: landscape architecture and social work

Practitioners and policy makers involved with space often focus on one specific aspect of space which, according to their expertise, is either the social or the physical layer of space (Loopmans et al. 2011). At the same time, it is generally accepted that these layers can never be seen as completely separate. Children and teenagers too rarely make this artificial subdivision between layers of space (Nordström 2010). This means interventions in space call for interdisciplinary work, where the diffused knowledge can be combined in specific projects. Much can be won from interdisciplinary work: it is a shared learning process (De Visscher & Sacré 2017; Sacré et al. 2016), it helps to create more supported projects, and it helps in finding integrated interventions that better suit social and physical realities of a space (Khan et al. 2013; Jacobs 2004). Therefore, we believe there is great potential in bringing together spatial and social educational programmes, as social aspects of space are often marginalized in spatial planning practices, specifically in landscape architecture (Brown & Jennings 2003). However, little is known about who does what in these interdisciplinary processes, specifically when there is participatory work involved.

Keeping this in mind, we set up three educational exercises, in which certain hindering factors for interdisciplinary work (e.g. financial difficulties and competition) were not present. These interdisciplinary exercises can be seen as part of a cooperation between the BLOK research project[1] and the educational programmes of Social Work and Landscape and Garden Architecture at the University College of Ghent. On the one hand these exercises serve as a laboratory for studying the roles and tasks each professional gives to themselves and others, and on the other hand it prepares students for working in interdisciplinary contexts in their future work.

Educational exercises as laboratories for interdisciplinary cooperation

The three exercises can be seen as a part of the research by design component (Zeisel 2006) of the BLOK research project. The given goal was to gather information about possible social or physical interventions that would increase the spatial quality as perceived by children and teenagers (Marreel et al. 2018; Horelli 2007; Horelli 1998). One interesting aspect of working with students was the observation of how different groups of students cooperated and managed the interdisciplinary work. In order for this to happen spontaneously, we asked students to organise themselves, without much interference from teachers.

The *first* case was a design exercise that focused on the neighbourhood Watersportbaan in Ghent, a modernistic high-rise environment consisting of social rental housing. We brought together students of Landscape Architecture and Social Work for the first time during the analysis of the environment and a second time in organising a feedback session with inhabitants (Figure 1). The *second* exercise was organised with visiting Landscape Architecture students of ELASA[2] (Figure 2), with whom we worked on the Watersportbaan again in an intensive two day workshop. The *third* exercise again included both disciplines. We worked on the neighbourhood Lange Velden in Wondelgem: a recent, medium rise environment with apartment buildings around a central grassy field. In this exercise the approach was different because students received participatory research information (Kind & Samenleving 2017; Cope 2009; Derr et al. 2018; Christensen 2004) before working on the project.

Reflections and conclusions

Analysis and reflection on the different academic exercises, and feedback from students, teaches us not only about the different roles and tasks that both disciplines assigned to themselves and to each other, but also about how the interdisciplinary dialogue was approached by students. Besides general conclusions about interdisciplinary exercises, we have also noticed a need for social awareness amongst the design teachers in order to guide the processes in a qualitative way (Brown & Jennings 2003). We have summarised five important lessons for socio-spatial intervention processes. We hope these lessons might help improve future interdisciplinary educational exercises, but more importantly, they might prove useful in the general exploration of roles and tasks for Landscape Architects and Social Workers in interdisciplinary planning practices.

1. A good understanding of the roles and tasks.
Of oneself, and of others involved in the planning process. We noticed that for students, it is usually clear what they need to do when working on an individual project. However, when being confronted with different disciplines, confusion arose about the tasks they were supposed to take on and what roles each discipline should play. The start of an integrated process is an important moment in which it needs to be explored how the skills, knowledge and frameworks of each profession can be beneficial, and this needs to remain very clear throughout the process.

2. Common grounds and goals.
It is important to know that different disciplines often have different ways of understanding and approaching space. Although their methods and vocabulary might be different, usually all professionals focus on working towards a shared goal. It is useful to know and to recognise each other's professional framework without letting go of one's own framework and professional integrity in accomplishing this shared goal.

3. Equal starting positions, time and resources.
Students felt demotivated when working on a shared project knowing that others had more time available or had already been working on the exercise for a

while. They felt like their opinion or expertise were less valuable since they did not have equal knowledge of the project.

4. Constant and guided dialogue.

We noticed that as soon as the two groups of students were not actively working together, many ideas were lost, and students started referring to their *standard library of ideas*. We believe it is important to have continuous interaction and dialogue, as well as interdisciplinary guidance from teachers, in order to ensure the quality of the proposed interventions without becoming too focused on generic, professionalised solutions.

5. Influence of the requested final result.

By comparing the different exercises, we noticed that the influence of the requested final result has a large influence on the process itself. Asking for a visual presentation on panels, for instance, is very specific and limits the amount of possible outcomes, and can also be very labour-intensive, which means less time is available for a qualitative planning process. Additionally, asking for a *visual plan* puts a clear focus on the physical and aesthetic aspects of a design, and might undermine the importance of the more social dimensions of space and other possible interventions. Finally, we could say that an outcome-focused evaluation automatically tends to shift the focus on the end result rather than the process that was conducted.

Notes

1. The BLOK research project (Hogeschool Gent, 2016) examines the meaningfulness, livability and opportunities for self-development of vertical housing environments from children and teenagers' perspectives. The goal of this interdisciplinary research project is to advise social and spatial professionals on possible interventions to improve spatial quality in these environments.

2. European Landscape Architecture Student Association (https://elasa18be.wordpress.com/)

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Figure 1. Students during the dialogue moment with children of the neighbourhood

Figure 2. ELASA students presenting their observation and ideas for social and spatial interventions

Pedagogy in transdisciplinary approaches to landscape: Training public administrations in renewable energy transition, the case of Amsterdam

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Keywords: Renewable energy transition, landscape architecture pedagogy, transdisciplinary, public administration, training, capacity building

Landscape architecture pedagogy is crossing the borders of our discipline, landscape architects are called to be facilitators for knowledge integration and reflections among different disciplines (Holmes et al. 2018). Among the grand challenges of the XXI century, landscape architects are active in the transition to renewable energy (Stremke & Sijmons, 2017). While central governments work on strategies for a sustainable future, local governments are called to increase capacity building in order to put in practice new directives and objectives through the direct engagement with sustainability science research, characterized by collaborative, problem driven and action oriented transdisciplinary approaches (Agenda 21, chapter 35; Kates et al. 2001; Clark & Dickson, 2003; Schmuck et al. 2013). We refer to the transdisciplinary concept as reviewed in Bernstein (2015). According to Vejre et al. the engagement of local governments in sustainability science research can improve their internal communication and skills of staff members (2013). Holmes et al. affirm that 'the perceived significant benefit of interdisciplinary and transdisciplinary working is its ability to provide socially robust orientations to real-world problems: problems which cannot be solved by any one discipline alone' (2018, p. 83). The aim of this contribution is to present and discuss the first outcomes of landscape architecture pedagogy in a research commissioned by the City of Amsterdam, The Netherlands, to the landscape architecture research group at the Amsterdam Academy of Architecture.

Some of the grand challenges need environmental design disciplines such as landscape architecture, to take a leading role in transdisciplinary transition processes. This is because design can integrate the knowledge among disciplines, practitioners and stakeholders (Nassauer & Opdam, 2008). Yet most of the future grand challenges such as the energy transition imply a landscape change that must be carefully designed; Nassauer and Opdam affirm 'landscape design can effectively link science and society in knowledge innovation for sustainable landscape change' (2008, p. 635). The majority of Renewable Energy Technologies (RET) has a spatial footprint in the landscape, such as the land needed to locate photovoltaic parks (De Waal & Stremke, 2014). Energy transition requires space and must therefore be supported by envisioning future landscapes (Stremke et al. 2012). In the last decade we have witnessed an increasing interest in landscape design and the role of designers assisting populations in the local/regional energy transition (see e.g. Minichino, 2014).

The City of Amsterdam has ambitious objectives with regard to energy transition: 75% less CO_2 emissions in 2040 (Agenda Duurzaamheid, 2015). The metropolitan region of Amsterdam, however, has a high population density (900 inhabitants/km^2) that requires evidence-based and innovative research through design (RtD). The City of Amsterdam and the Academy of Architecture (research group High Density Energy Landscapes) joined forces to work on sustainable energy transition. This multi-year partnership firstly aims at strengthening daily practices of the municipality, enhancing the substantial knowledge on energy transition in the Amsterdam metropolitan region and to give students the opportunity to work on real-world assignments. The second aim of this partnership is to advance landscape architecture pedagogy for public administrations within the special domain. To encourage transdisciplinary and knowledge exchange practices, to create spill-over effects between the 16 different municipality teams and consequently enhance 'capacity building' (Costa Junior et al., 2018, p.68). The research question related to this second objective is: What pedagogy methods and tools in landscape architecture can encourage capacity building in local governments, making different disciplines interact and facing the XXI century grand challenges?

The research design will apply pedagogy both within the Academy and the Municipality by means of specific case studies. While Academy design studios will employ Research through Design approaches, a transdisciplinary and pragmatic approach will involve representatives with diverse backgrounds of the municipal 'Space and Sustainability' department (in Dutch: Ruimte & Duurzaamheid). The goal of the latter approach is that public servants get inspired and trained in the field of energy transition through 'mutual responsibility, joint inquiry and shared purpose' (Holmes et al. 2018, p. 83). During the initial phase, individual interviews will be held with the representatives from each team. Then, a first focus group meeting will be organized to gather civil servants' perspectives from different backgrounds on common cases, arguments and objectives (Arler, 2011). This first stage (early 2019) aims at understanding the state of the art in terms of capacity to cross and mix borders into other disciplines' values and tools, and at collecting relevant information to orchestrate a first Masterclass in the summer of 2019. During this one-week intensive Masterclass, participants will be trained to address the emerged knowledge gaps in a mix of lectures, practical exercises and discussions. One of the tangible outcomes is a set of specific questions for the design studios at the Academy. The most important expected output of the Masterclass is that participants become 'forerunners' for energy transition within their own teams and, at the same time, 'ambassadors' for the collaboration between civil servants, researchers and design students at the

Amsterdam Academy of Architecture.

This contribution wants to share the training methods and tools and first results of the 2019 Masterclass with the ECLAS and UNISCAPE community, in order to engage in relevant discussions and to receive feedback that can help in future years.

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Thriving on transdisciplinarity: Designing at the kitchen table

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Keywords: Transdisciplinarity, design studios, phronesis, visual communications

De Jonge (2009) distinguished within landscape architecture three dimensions of knowledge (see also Figure 1): (1) episteme - scientific knowledge, based on general analytical rationality to discover laws of science; (2) techne - craft and art, oriented towards production of artefacts based on practical instrumental rationality, governed by a conscious goal to apply laws of science; (3) phronesis - deliberation about ethical values with reference to praxis, oriented towards action and based on practical value rationality. Currently, the Bachelor curriculum for Wageningen University Landscape Architecture and Spatial Planning education (BLP) has a specific focus on the virtues of making (techne) and thinking (episteme). The third virtue (phronesis), related to judging and valuing to underpin action, based on values, interest and power relations grounded in practical knowledge, has not yet conquered a clear position in the Wageningen University BLP-curriculum. Adding phronesis also encourages the connection between science and society, one of the priorities within the Wageningen Educational program for the coming years (WUR, 2017, p.15). To further develop this 'learning in communities', a project related to transdisciplinarity in education started in 2017 to link BLP-courses to regional developments in which students, lecturers, politicians, practitioners and other stakeholders meet, discuss and develop new knowledge. Descriptions of transdisciplinarity and its impact on science vary (von Wehrden etal., 2018; Hester, 2011; Stokols, 2011) as does the application of phronesis in teaching or when using visualizations (Noel, 1999; Schroth etal., 2011; Raaphorst, 2018). Within the project we base our description of transdisciplinarity on Tress, Tress and Fry (2006): 'Transdisciplinary research and education concern close co-operation between scientists from various disciplines and non-academic participants to identify a common societal goal and create new knowledge. This involves negotiated knowledge, such as jointly defining problems and developing strategy and actions.'

To understand a landscape phenomenon in a way that accounts for its complexity and diversity, it is necessary to integrate expertise and perspectives of a diversity of disciplines and various other bodies of specialised knowledge. Next to –standard- academic knowledge students gain practical knowledge when discussing landscape topics around peoples' kitchen tables. This combining of expertise enables us to develop a comprehensive understanding and to overcome the 'symmetry of ignorance'. To complicate it even more, in academic education one has to perform both FRONT stage- participate in a process, and BACK stage - reflect academically upon the process! (cf Goffman metaphor, in Boyd et al. 2015).

As a recent study has shown, effective and transparent visual communication is necessary within transdisciplinary planning and design processes (Raaphorst, 2018). To establish such meaningful communication processes landscape architects
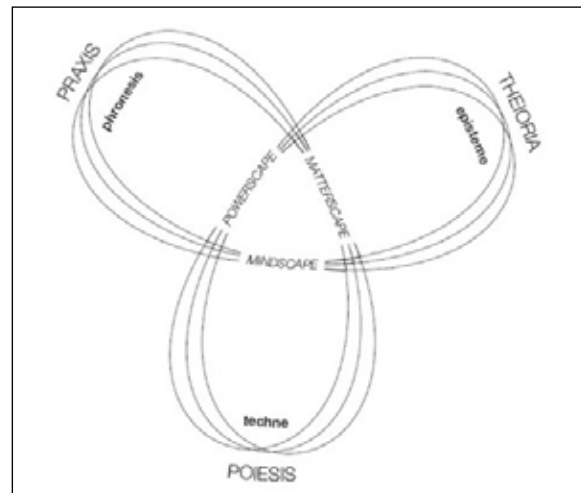
Figure 1.

and spatial planners need to develop a stronger sensibility to the complexity of stakeholder groups. Consequently, the teaching of visualization strategies in the classrooms of landscape planning and design education needs to better prepare students for the situational complexities of planning and design practice. To do so, we propose a clustering of three courses that each deal with the necessary components for a phronetic approach to transdisciplinary landscape design.

The BLP-curriculum embeds a diverse set of design studios and related informing and reflecting courses. This current sequence of separate Landscape Architecture courses is not optimal. Currently, each Landscape Architecture course makes use of an individual site. Results, including midterm ones, are only presented and discussed internally and not with actors in practice. Besides, students spend relative more time to inform themselves about the different sites used. Knowledge gained from engineering, drawing and detailing are ineffectively positioned in the curriculum, so this cannot be used to improve the design. Also, a fundamental transdisciplinary approach to inform the design is missing. This can be changed and can be aligned with a parallel course for Spatial Planning students, Concepts and Approaches for Planning Practices. Students in that course connect theoretical perspectives to performances that relate to practical situations.

In the new set-up of the curriculum, at the start of the second year, landscape architecture students have to design within the course Studio Site Design a landscape at a site scale (e.g. an estate or a cemetery). The design assignment is related to a contemporary design theme, on a given location, based on a client's statement, and a pre-selected program of demands. The students discuss and analyse an existing place, and project a future possibility of the site in which human beings can dwell and natural processes are enhanced. Various alternative models and scale levels are studied

and explored to determine sustainable and desirable qualities e.g. ecological, phenomenological, narrative and managerial. Scale levels vary in between 1:25.000 to 1:20.

In the same semester, landscape architecture students will follow drawing, planting and construction instruction in the course Planting, Construction and Representation. Modules of this course are scheduled strategically, to inform their design process and present it with elaborated hand-drawing/CAD-software. Students are asked to think about details, materials and management, and define a planting scheme. This setup allows for adjusted modules that foster better discussion with clients and actors.

In order to further ground their plan, students have to take a practical 'engineering' perspective within the course Landscape Engineering. In this course they familiarize themselves with spatial policy documents and the political ambitions that are embedded within them. Students are asked to provide a second opinion on their site plan, perform a rudimentary analysis, and write a spatial vision for the zoomed-out case study area for which they made their design. On the local scale the students are asked to perform financial calculations for land and real estate development to assess whether their spatial vision is considered financially viable. A cross-section for a particular street or square is further worked out, and the students are required to calculate the costs of demolition and construction of, for example, pavement materials and the planting of vegetation. This course confronts the students with the social, political, and particularly financial realities that shape the scope of possibilities for landscape design.

An adaptation and re-organisation of course methods and techniques is proposed to improve the alignment of the courses, and to embed transdisciplinarity in the design process:

1. A real case will be chosen and embraced during four courses. This stimulates the contribution of local actors, including a 'kitchen table approach', and the creation of in-depth local landscape knowledge. Real-life cases in education are already brought up by clients via the Educational Project Service of Wageningen University, but collaboration is insufficiently explored, especially when combined over different courses.

2. We take the approach that 'section rules, plan adapts'. This means that a well-defined section is necessary to inform a realistic design. These sections will be developed and/or verified in a transdisciplinary setting (excursions, interviews, sketch sessions at people's homes, etc.) to embed local knowledge and understanding of the regional landscape systems. This section-approach is expected to contribute to informed (regional) analysis, concepts and plans by:

- Explanation 'at the kitchen table', creating common understanding about the landscape system, (historic) vertical relations, principles and plan;
- Verification of vertical relations, informed by the people;
- Adding soft information (think of a 'soft section' in reference to the more commonly known 'soft map');

- Concept building and shared agreement.

3. Representations of (planting) plans (visualisations/drawings/Photoshop's/plans) will be communicated to the actors. Students are stimulated to create communicative products for their clients, instead of only for their teachers. Immediate feedback of the intended audience will be the result.

In this paper presentation we proposed to use a phronetic approach for this series of coherent BLP courses to start in September 2019. In our presentation we will highlight our set-up, the first experiences and we want to discuss continuation as a transdisciplinary example with suggestions from the audience.

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Early history of landscape architecture teaching initiatives in Romania

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Keywords: Landscape architecture, education, landscape protection, teaching initiatives, Romania

The first Landscape Architecture Education Program in Romania dates back to 1998 when it was implemented at the University of Agronomic Sciences and Veterinary Medicine in Bucharest. However, even from the 1920s and 1930s, foreign specialists (especially Germans and Austrians) had an interest in establishing a Landscape Architecture School in Bucharest and in other major cities in Romania. They were employed by the aristocracy and by the public administration to design private gardens and municipal public parks, but soon after they started working on such projects, some of them became engaged in an endeavor to popularize natural landscapes from the Romanian countryside (especially the mountainous landscape) and/or to teach garden design, urban greening and landscape protection to those interested in such topics – never studied before in Romania.

Out of a series of gardeners and architects from Western Europe, the German landscape gardener Friedrich Rebhuhn stands out as the most prominent figure of a foreign specialist who had a deep interest not only in garden design (he designed and/or remodeled numerous public parks and private gardens from all around the country: the Cișmigiu and Kiseleff public gardens in Bucharest, and the royal private gardens at Cotroceni Castle in Bucharest, Peleș Castle in Sinaia, and Bran Castle in Bran), but also in natural landscape protection and on landscape architecture education. He authored a book about the beauty and the need for conservation of the Romanian natural landscapes (Rebhuhn, 1942) and numerous articles – on the same topic – in newspapers from Romania, France and Germany. Regarding landscape education, a series of newly-discovered archival documents that show the first intentions of this kind in the country north of the Danube comprise his testament. These include his correspondence with other local and especially foreign landscape gardeners (from Germany, Austria, France, Italy and the UK), a draft for a garden design and landscape architecture education curricula as well as a series of plans and pictures of an improvised Landscape Architecture School within the Botanical Gardens of Bucharest.

Thus, a first question that arises is: why did such specialists have an interest in designing a study-program in Romania? Others follow: What were the challenges that Friedrich Rebhuhn and others alike had to face in order to be able to create a garden design and landscape architecture school? What did their curricula proposal comprise and what did they consider important to be taught? What difficulties did they have to surpass in order to be able to (partially) implement a study program? How did different political regimes influence their work? How did their work influence garden design and natural landscape protection during the second half of the 20th century? These are only some of the questions revolving around the legacy of the first attempts for the design
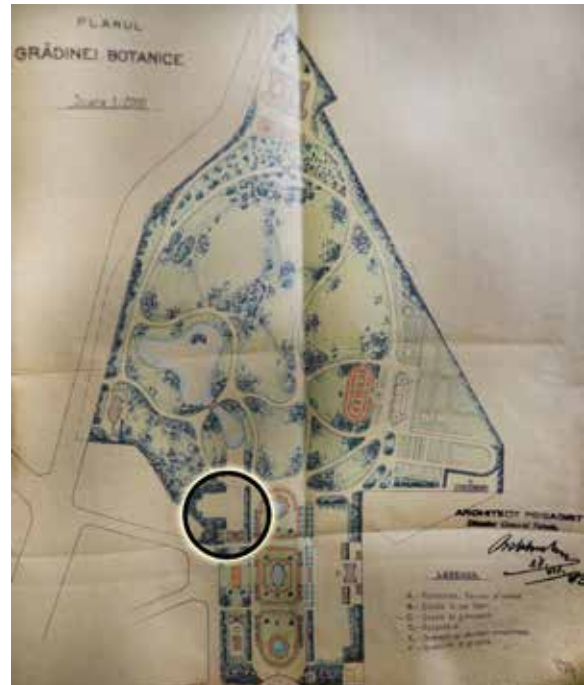
Figure 1. Source: ANIC-ANR, fond Fritz Rebhuhn.
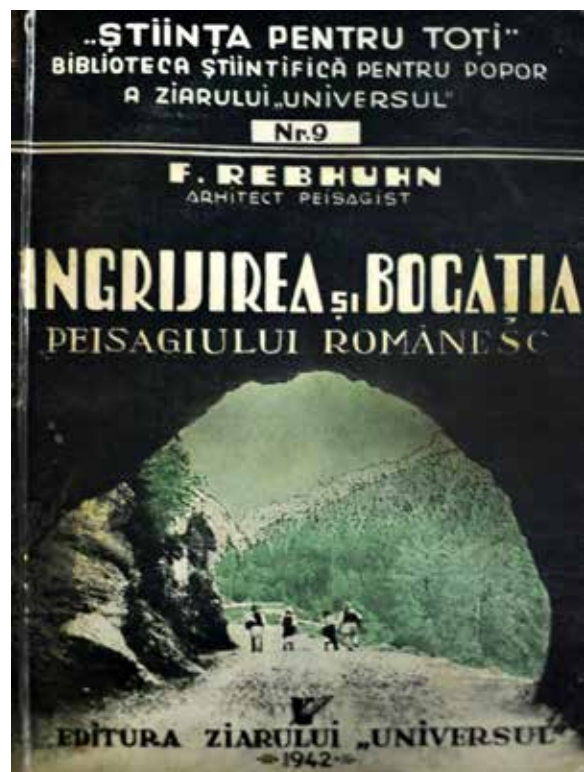
Figure 2. Source: ANIC-ANR, fond Fritz Rebhuhn.

of a Landscape Architecture School in Romania – questions that remained unanswered until the recent discovery of rich archival documentation.

To this end, this paper aims to respond to some of the questions asked above and especially to underline the significance of such intentions and initiatives in landscape architecture education, to discuss different historical approaches to the design of a first Landscape Architecture Educational Program in Romania based especially on Friedrich Rebhuhn's personal archive and his personal correspondence on this subject. It also aims to evaluate the impact that such attempts and teaching initiatives had had on the gardeners and architects that dealt with garden design, park management and landscape protection especially during the second half of the 20th century. The research will be based mostly on archival materials which were recently discovered in public and private archives in Romania and in remote bibliographical references found at the British Library in London, and at the Österreichisches Staatsarchiv (Austrian State Archives) in Vienna.

This research is part of a cultural and research project regarding landscape architecture heritage & history in Romania, and which is run by the SIMETRIA Foundation of Architecture and Urban Planning along with the Romanian Landscape Architects' Association, and the ARCHÉ Association.

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History of landscape education in Italy

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The aim of this paper is to present the evolution of Landscape Architecture education programmes in Italy, which are almost completely unknown in Europe, and the reasons for their slow diffusion. A more comprehensive knowledge of landscape architecture would improve the collaboration between Mediterranean countries and the rest of Europe.

Firstly, the paper mentions a series of aspects of Italy's socio-political history that influenced the cultural background of landscape education. Secondly, it examines the evolution of the concept of landscape in the Italian legislation from the 1900s to the 1950s. The paper then briefly examines landscape studies between the 1950s and the 1970s as well as how academic education programmes on this subject have developed from the 1980s. The conclusive part of the paper outlines the current situation of these academic education programmes. Landscape design is still confined to the margins of the design process. Unfortunately, it is widely believed that a specific qualification in landscape architecture is not necessary to undertake a professional activity in landscape design.

In the second half of the 19th century the long tradition, dating back to the 15th century, which spread in Europe garden design, as well as the first landscape scientific studies, started by Leonardo da Vinci, underwent a deep crisis. The main reason for this was Italy's complex social and economic situation, caused by several aspects, i.e. the foreign domination in the north of both Napoleon and the Austrian-Hungarian monarchy, the difficult affirmation of the middle class in southern Italy, and the late Italian unification (1970).

In the first decade of the 20th century, Nicola Falcone, a young jurist who died in the First World War, criticised a law proposed by Rosadi and Rava (1906), because the landscape conservation described in this law did not include marine flora and fauna. He also proposed that the text of the law should be modified, in that landscape is not something of 'considerable interest', but of 'public interest'.

The lack of space in relation to the high population density together with the conviction that modernization was necessary for the country favoured the affirmation of those professional activities that could radically transform landscape and accelerate the effects of the Industrial Revolution, which in Italy arrived later than in other countries.

The first legislative proposal (Law no. 3641/1909) to protect landscape, gardens, forests, water sites and natural elements was only partially accepted. The following law (Law No. 688/1912) introduced a substantial distinction between landscape, forest, and rock formation because they are not transformed by human action as opposed to parks and gardens.

In 1939, the scientific relevance of natural elements was added into the law (Law No. 1497/1939) for reasons in favour of the conservation of the beauty of landscape. This law introduced landscape plans, that became mandatory only in 1985 (Law No. 431/1985). By introducing the conservation of the beauty of landscape the law also recognised the right for everyone to enjoy landscape.

After the Second World War the Constitution of the Italian Republic attributed relevant value to landscape, mentioning it in the fundamental principles of the Nation (art. 9), but the law on Town Planning of 1942 (Law no. 1150/1942) did not consider the aspects related to the landscape.

In the academic field, Garden Art was just an optional subject in some Faculties of Architecture. From 1924 to 1930, Luigi Piccinato taught City Building and Garden Art at the Royal School of Architecture in Rome. The title of the course clearly demonstrates that garden architecture was considered subordinate to architecture.

In 1954 Francesco Fariello started teaching Garden Art at the University of Rome and in 1956 he wrote *Arte dei giardini*, the first relevant Italian book on the history of gardens from antique Roman villas to the contemporary gardens. He introduced in his education programme the themes on landscape architecture that were developing in Europe.

Degree subjects loosely related to landscape architecture started in the Faculties of Agriculture that, especially at the University of Bologna in 1968 with Alessandro Chiusoli who established the Floriculture and Gardening course.

Between the 1950s and 1970s landscape studies were carried out by university professors in an isolated manner and only in relation to individual research interests. Eugenio Turri, professor of Landscape Geography at Milan's Polytechnic School, emphasised the anthropologic and semiologic features of the landscape. Rosario Assunto, professor of Theoretical Philosophy at the University of Rome, extended the nineteenth-century romantic vision to a broader humanistic aesthetic concept. The agronomist Emilio Sereni described the history of Italian rural landscape as a result of the social and economic processes with a Marxist cultural approach. Valerio Giacomini, professor of Botany at the University of Rome, defined landscape as a set of ecosystems.

In the 1970s, the Faculties of Architecture offered only a few subjects on landscape architecture. In the Faculty of Agriculture there were even less subjects related to landscape. The corporative role of architects and the scarce awareness of politicians did not allow the implementation of landscape architecture as an autonomous education and professional field.

Table 1. Landscape studies in Italy (1960 – 1975)

natural sciences				
scientific approach systemic/objective	landscape ecology	Giacomini (1973)	Landscape = biosphere evolutionary process system of ecosystems (rural-urban)	space-time interaction morphology
human sciences				
humanistic approach socioeconomic	human geography	Sereni (1961)	Landscape = result of incessant human activity over time	physiognomy landscape types
romantic-idealistic subjective geo-humanistic	aesthetics	Assunto (1973)	Landscape = expression of the culture, space of memory and time	spirit of place identity cultural landscapes
	semiology anthropology	Turri (1974)	Landscape = perception and representation of natural-human features	landforms signs, meanings topophilia

Table 2. Landscape architecture courses in Italy (2019)

L.A. Bachelor courses not established by Ministry of Education, University and Research	
L.A. Master courses Class LM-3 Landscape architecture established by Ministry of Education, University and Research in 1999-2000 and in 2004	
University of Florence *interdepartmental*	Class LM-48 Physical, urban, environmental planning - LM-75 Sciences and technologies for the environment and territory *
University of Genoa, Milan, Turin, Turin Polytechnic *inter-university*	**Class LM-3 Landscape architecture**
University of Milan	**Class LM-3 Landscape architecture** - LM-69 Agricultural Sciences and Technologies *
University of Rome, Tuscia University *inter-university*	**Class LM-3 Landscape architecture**

* The inter-class courses are degree courses in which students must indicate the class in which they want to obtain the title.
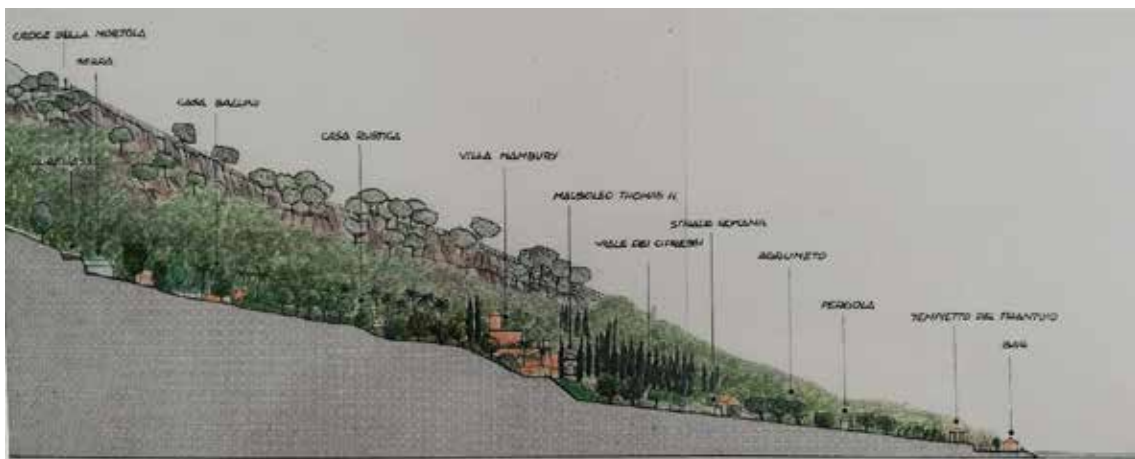
Figure 1. Mazzino F., The Botanic Gardens at La Mortola , Ventitimiglia, Italy, PhD thesis, 1991

Landscape design was mostly concerned with private gardens – we have very few examples of wide-scale public parks like the E.U.R. district in Rome planned and designed by Raffaele de Vico.

From the 1930s to the 1960s Pietro Porcinai, cofounder of IFLA, maintained the need for a specific education programme in Landscape Architecture, but his words went unheard by architects and urban planners. At that time they were involved in the post-war reconstruction and their main aim was to modernize the country, ignoring the positive impact of landscape planning and design on the quality of life. In 1980 Porcinai tried unsuccessfully to establish a school of landscape architecture at Villa Rondinelli in Florence.

In the same year the postgraduate school in Landscape architecture was founded in Genoa at the Faculty of Architecture. It was the first Italian university programme based on an 'interdisciplinary' approach. It was the first official recognition of landscape architecture education authorised by the Ministry of Education. In the coming years the Faculty of Architecture of Rome and Florence and the Faculty of Agriculture of Turin organized a postgraduate course following the example of the School of Genoa.

In 1999 the Ministry of Education aimed to apply the principles of the Bologna Process (Ministerial Decree No. 509/1999, Ministerial Decree 28.11.2000). The most relevant innovation was the master's degree in Landscape Architecture. The law reforming universities ruled that there could be no bachelor's degrees in landscape architecture.

The university reformation also influenced the regulation of professions (D.P.R. No. 328/2001). Landscape architects were included in the Order of Architects and in the Order of Agronomists. This means that architects and agronomists can work in landscape architecture without having a specific qualification in this professional field.

The Ministry of Education modified some sections of the previous laws (Ministerial Decree no. 270/2004), which resulted in a significant decrease in landscape architecture courses. From 2010 to 2017 the Italian National University Council organised meetings to reduce these negative effects, but a five-year course or a bachelor's degree in landscape architecture was opposed by various disciplines.

Much remains to be done to recognise the importance of a complete academic programme in landscape architecture.

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Mapping the history of landscape architecture programmes in Saudi Arabia

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Keywords: History, landscape architecture, King Abdulaziz University, curriculum

In 1976 a Bachelor of Landscape Architecture programme was established in the Kingdom of Saudi Arabia at King Abdulaziz University in Jeddah. It was the first in the Arab world and to our knowledge one of the first if not the first bachelor degree in landscape architecture in the Middle East. It was established as part of the School of Environmental Design in the Faculty of Engineering with the assistance and collaborations between King Abdulaziz University and Harvard University School of Design. Its aim was to supply the developmental ambitions and the local market with Saudi landscape architects and professionals. The programme has since undergone two major changes and a minor one. Thus, it can be concluded that three main bachelor curricula (and a variation on one) have been offered to students of landscape architecture over the past forty three years.

The main differences between the bachelors programmes that have been offered to students of landscape architecture over the years have been in the duration they will spend in the university and at the department. The first programme (1976-1998) was a six-year programme with three years spent in a core environmental design programme, thereafter specializing in one of the departments of either architecture, landscape architecture or urban and regional planning for a further three years. In 1999 it was replaced by a core environmental design programme that ran for only one year there
after a student would specialize in the afore mentioned specializations for a further four years, thus the programme spanned a duration of five years. This programme ran for only three years in the form described. In 2002 a Kingdom wide directive in Saudi Arabia to introduce a preparation year to all students entering universities meant that students had to add a year and a further 11 credit hours to their studies and duration, thus the programme that was supposed to become five years went back to being six with less specialist subjects in the fields of the built environments. This curriculum and variation ran until 2014 when the existing programme was initiated; it now relieved the students of one year by shaving off certain subjects and abandoning the core environmental design programme. Thus the Bachelor of landscape architecture today is five years with four of the five years spent in the department without the foundation of core environmental design subjects.

The International Federation of Landscape Architects (IFLA) has identified twelve main areas a landscape architecture programme should address and cover. These twelve areas range from history, social & political systems, natural sciences, plant science, site engineering, theory & research, design & applications, ecology & sustainability, computing, public policy & regulations, public outreach as well as ethics & values of the profession. When examining the King Abdulaziz

University bachelor of landscape architecture against these twelve directives many issues and topics are highlighted. While the duration a student spends in the department has increased from three years to four over the years, the percentages of knowledge areas a student gains from the studies as outlined by IFLA has steadily decreased with each curriculum variation. The only exceptions are the knowledge areas of information technology and computing as well as the area of communication and public outreach. The significant decrease in all areas of specialized knowledge is opposed by a significant increase in general knowledge and university requirements.

While the development of the curriculum of a Bachelor of Landscape Architecture in King Abdulaziz University did not follow a clear and defined model, nonetheless when compared with other programmes of similar age (established in 1970s) it compares well. The discussion section will examine the many different issues and pressures that led to each of the curriculum changes and the prospect for future developments. These issues include pressures from society, pressures from faculty and university, social needs and aspirations of students, economic situations and change as well as the global change in the profession and education.

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Nurturing education in gardens and gardening education in Portugal

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Keywords: : European prize, Lisbon city council, Froebel school, values of citizenship, gardening education, public gardens

Lisbon has been awarded the European Green Capital of 2020. This prize acknowledges the work that the municipalities of cities with more than 100,000 inhabitants had undertaken to improve the sustainability of cities in the areas of environment, biodiversity, mobility and recycling. This distinction is no more than a result of the policies that defend the importance of green spaces in the city of Lisbon and I argue that this distinction relies not only on the work made in the last years, but stems from a long tradition of gardening education, city council strategies and horticultural knowledge. In view of this, Lisbon has enhanced the reintegration of nature into the urban space since 1840. This paper will focus on two moments: the projection of gardening education in the cultural context of the second half of the nineteenth century and the resume of many projects between 1938-40, under the dictatorship.

As part of the Liberal agenda, the arborisation and creation of public parks were embedded in the politicians' strategy to modernize Lisbon, parallel to the construction of a hydraulic, sewage system, public lighting, tramways (Rodrigues 2017). Therefore, in the second half of the nineteenth century, under the umbrella of a true passion for horticulture, the taste for botany and gardening was cultivated and the seeds for landscape education were planted in Portugal through horticultural exhibitions, amateurs' collections, periodical publications on these topics, the creation of horticultural societies and the foundation of the first course for gardeners (Rodrigues and Simões 2017). During this period, the agronomist Francisco Simões Margiochi was behind all these initiatives and, consequently, he is the link between the need to train professionals and the expansion of green spaces in the city of Lisbon, promoted by the Lisbon city council.

Furthermore, gardening education was promoted in multi-faceted ways. The Estrela garden (inaugurated in 1852), stands as an example where botanical and horticultural knowledge was promoted and disseminated among the public in general, but especially encouraged in children. The first kindergarten ever established in Portugal was inaugurated there in 1882, according to the theories of the German pedagogue, philosopher and psychologist Friedrich Froebel (1782-1852). In view of this, children under the age of six began to attend an educational institution in which they were envisioned as 'human plants' and the educational auxiliaries hired for the Froebel school were women-gardeners, matching developments in other countries (Opitz 2013). As a result of education, engravings and photographs of the Estrela garden show children playing with garden tools and work contracts of gardeners as auxiliaries of education suggest the way in which the contact with nature and the taste for horticulture had been fostered in this context since an early stage.

Figure 1. Lisbon's plan offered together with the newspaper O Século (Lisbon: A Editora, 1909). Biblioteca Nacional de Portugal (BNP), Lisbon, C.C. 1323 R. BNP

Figure 2. Children dedicated to gardening, playing at the Estrela garden. Hiring gardeners as education auxiliaries reinforced the importance of pedagogical precepts anchored on contact with nature, 'nature-teaching,' gardening and the taste for horticulture as key to the education of young children, and the development of observation and reasoning capabilities. Photograph from 1927. National Archives of the Torre do Tombo (ANTT), EPJS/SF/001-001/0005/0706B. ANTT.

This public garden acted as a laboratory for landscape education by teaching horticultural and gardening techniques to young children, while stimulating contact with nature and a liking for botany. It also functioned as a school for gardeners once most practitioners of the department of gardens and green grounds of the Lisbon city council staged at the Estrela garden. At the same time, the Lisbon councilor Margiochi argued that gardening should be taught in an educational institution and created the first school for gardeners at the charitable house of Casa Pia (Rodrigues and Simões 2017). The passion and knowledge propagated by gardeners and horticulturists became the basis for the development of landscape architecture as a profession (Marques 2009; Raxworthy 2018).

In the late nineteenth century, Lisbon was a mirror of the environmental values shared by politicians, architects, engineers and gardeners during the last century. For them, reintegrating nature in the city was a sign of progress. Citizens' horticultural knowledge became a civilizational paradigm.

However, due to the political turmoil in the turn to the twentieth century, there was no continuity in most of the projects initiated during the previous period, including all Margiochi's initiatives: the department of gardens and green grounds of the Lisbon city council, created in 1840, disappeared in 1895; the Jornal de Horticultura Pratica (Journal of Practical Horticulture) ended in 1892, after 22 years of continual work; the projects for the Park of Liberty by Lusseau (1889) and for the Campo Grande by Ressano Garcia (1903) were not implemented; the Royal National Society of Horticulture dissolved in 1906; and the first course for gardeners did not succeed.

Most of these endeavours were only resumed under the dictatorship, due to political reasons (Tostões 1992). The department of gardens and green grounds of the Lisbon city council was reopened in 1938 not only due to the political stability but also to embellish the city for the great exhibition of 1940; the projects for the public parks were changed and concluded by the landscape architect Keil do Amaral c. 1940; the first course on landscape architecture was opened at the Advanced Institute of Agronomy in Lisbon, by the landscape architect Francisco Caldeira Cabral in 1941, after returning from his studies in Germany.

This paper aims to establish bridges between the history of gardening education in Portugal and the green city of Lisbon, as well as between landscape education and political power, following Brantz and Dumpelmann's case-studies (2011). The Lisbon public parks under the tutelage of the Lisbon city council acted as an environment to foster taste for gardening, botany and horticulture since an early stage, to educate practitioners that worked at the city council but also for private owners of gardens, to incorporate measures and equipment related with urban hygiene and public health. Greening the city of Lisbon in the second half of the nineteenth century, and resumed under the dictatorship, were the historical periods in which the seeds for the European prize of Green Capital 2020 were planted. I argue that they prepared the terrain for the development of a successful landscape architecture tradition as in this case gardening education was interrelated with the strategies of the municipality of Lisbon.

Figure 3. Frederico Ressano Garcia, Project of Lisbon with Campo Grande forest, 1903. Municipal Archive of Lisbon (AML), PT/AMLSB/CMLSB/UROB-PU/11/393. © AML

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Special session
UNISCAPE meeting: Landscape education after 20 years of the ELC

Organisers:
Tessa Matteini, Juan Manuel Palerm, Tommaso Zanaica
UNISCAPE

This special session, organized by UNISCAPE deals with the changes in Landscape Higher Education after 20 years since the signing in Florence of the European Landscape Convention.

How has the vision of the ELC transformed the range, quality and the objectives of Landscape oriented education courses in the different European countries? And what are, according with the ELC perspective, the urgent challenges and the most promising lines of research to apply and integrate in the various landscape oriented Education field?

UNISCAPE round table will host reflections on these issues, also presenting the recent 'Las Palmas Declaration of Rectors for University Landscape Education in Europe' signed in 2019.

'In recent years, local and regional authorities and civil society have been increasingly demanding that landscape – i.e. landscape as perceived by people, whose character is the result of action and interaction of natural and/or human factors – receive more attention from policy makers. Landscape is continuously changing due to a wide range of driving factors arising from almost every important sectorial policy and production process. Meeting the challenges of sustainable landscape development requires greater involvement by qualified professionals ('landscape specialists') as required by the European Landscape Convention.

Universities need to take up this challenge, overcoming the limitations of the present rigid and fragmented academic structure and disciplinary borders in order to support interdisciplinary landscape education, research and training aligned with the principles enshrined in the European Landscape Convention. These principles, further elaborated since the year 2000 when the European Landscape Convention opened for ratification, provide a new and solid framework, placing landscape in the foreground of European policies on cultural heritage, architecture, environment, urban and rural development, and spatial planning.

Differing from previous approaches that mainly focused on the protection and conservation of cultural and natural heritage, the Convention presents some important innovations. For the first time, landscape would be subject to a comprehensive vision, combining both natural and cultural aspects, with special emphasis on the social dimension of landscape, particularly on the well-being of people and their relationship with the environment they inhabit.

We foresee a rich panorama of opportunities arising from a landscape approach in the coming years. this will enable us 'to re-think and adapt the framework of universities to face such new challenges, finding synergies between social demands and environmental and spatial planning and design issues, for a sound future for European landscapes' (From *The Las Palmas Declaration of Rectors for University Landscape Education in Europe*, UNISCAPE 2019)

Workshop
Stonesensing: Evoking meaning with stones (90 minutes)

Organiser:
Ram Eisenberg
Israel Institute of Technology

'…Choose a particularly splendid stone and set it as the Main Stone. Then, following the request of the first stone, set others accordingly' (Sakuteiki, Ch. IX. Setting stones).

According to the cutting-edge concept of situatedness and extended mind theory, consciousness is much more than an abstract or individually embodied phenomenon. Situated thinking implies that our minds think differently in and with different places. In this workshop we will introduce a method of felt-sensing situated meaning via Stonesensing, a focusing game inspired by Karesensui, the art of the Japanese stone garden.

Written documentation of the art of evoking meaning with stones is found in what is perhaps the oldest text on landscape Architecture: *The Sakuteiki*, written by Tachibana no Toshitsuna at the height of the Heian era in Japan (1028–1094). The book was originally called *Senzai Hishō* - Secret talks of gardening. Unlike western thinking, A 'Secret' in the Buddhist tradition is not something hidden, but rather something which requires a 'key' to be understood. I propose that this 'Key', corresponds to the 'Felt-sense' or 'direct referent' in Gendlin's philosophy: a bodily sense of implied meaning in situations, which is beyond language and concepts.

The stonesensing game is based on Tachibana's instruction to 'follow the request of the first stone'. It requires developing a certain sense, that enables one to pay attention to a 'wanting' in the world. Playing the game heightens one's sense of the 'meaning in the relationships of things-in-the-world', as the 'feel' of the situation carries meanings which are beyond words and concepts.

Workshop
New practices of collaboration: Exploring landscape architectural teaching, learning and practice contexts (180 minutes)

Organisers:
Lisa Mackenzie, Elinor Scarth, Anaïs Chanon
Edinburgh School of Architecture and Landscape Architecture, University of Edinburgh
Frits van Loon
Technical University of Delft, Netherlands

This workshop will question what it means to undertake meaningful collaborative practice in Landscape Architectural education today.

The workshop will identify key theory in this field and surface critical questions during a 40-minute introductory session. The workshop will split into two internal break-out sessions for an hour, led by different academics presenting different approaches in their work. The workshop will conclude with a 50-minute chaired but open discursive forum to feedback conclusions from the internal sessions and open discussion to the floor.

In the break-out sessions the following topics will be addressed:

- Making with: how can design education embrace participatory practice and co-design within the landscape architecture studio project?

For over a decade, concern and action related to the meaningful integration of inhabitant participation in landscape architectural projects has come to the fore of landscape architectural discourse. Although methodologies for integrating the views and needs of inhabitants in landscape architectural design is evident in both scholarship and practice this break-out workshop will address a perceived gap in discussion around how this problem context is integrated within the curricula of landscape architectural schools. This workshop will be led by, Elinor Scarth and Anais Chanon from The Edinburgh School of Architecture and Landscape Architecture at The University of Edinburgh.

- Teamwork in landscape architecture design education (master level)

Group work is often applied in Landscape architecture design studios to make, for instance, analysis work more efficient. The students are condemned to each other and often feel that they need to survive this phase of the studio. After graduating they often have to work in teams, sometimes multidisciplinary, sometimes within their own discipline. To prepare them for this, we are developing a game in which we create a safe environment in so the students can be constructively unique. This way they can contribute, to the best of their abilities to the Team. The workshop, led by Frits van Loon will demonstrate this game that shows why unique perspectives are necessary and why everybody should be heard.

Both workshops will unite around the common ground theme by discussing the meaningful involvement of diverse views in the conception of projects: Involving colleagues, involving communities, involving clients. This means helping people to feel safe, helping people to feel free to speak and importantly to make mistakes. It also involves, landscape architects, as both facilitators and designers, listening very carefully during the processes of facilitation to what is said and significantly not said.

If you would like to contribute your views and listen to the views of others, please join us!

PARALLEL SESSION #3

Embedded spatial learning: Bringing studio to site

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Keywords: Landscape architecture studio, design intervention, build-design, phenomenology, site-specific, didactics

How do students in landscape architecture best learn to investigate sites and the complexities of the layered conditions they contain? And how do they conceptualize and design responses to these situations that both solve problems and create spatial experiences?

In design studios landscape architecture students typically develop their analysis and design work through various representational tools such as maps, drawings, photographs and models. The common representational modes are to some extent given and feature substantial techniques important for design work, but they can also cause a dilemma and a gap in the teaching setup in terms of site understanding and site response. To address these types of projects differently, teaching formats and studios including live-projects and the construction of physical interventions are a way of adding methods to the more classic modes of analysis and design proposals.

At the Urban Intervention Studio (UIS), we attempt to bridge the gap through a studio setup where students explore a specific site throughout the course and where (part of) their design response becomes full-scale local actions through spatial 1:1 interventions. It does not teach students all about the relationship between site and solution, but our experience is that the embedded situation of the course brings valuable lessons of how to merge and translate multifaceted site analysis into site designs.

Throughout its lifetime from 2012 until today, the UIS course has developed and adapted to various conditions, collaborative setups and sites. However, a series of design pedagogic frameworks are stable and continuously refined. The initial site analysis based on experimental mapping, a panel and dialogue debate with the most important stakeholders, the urban breakfast salon that frames onsite dialogues, the mock-up midterm with presentation and testing of rough prototypes as well as the final vernissage are recurrent elements of the course. By taking a point of departure in an embodied site analysis, various scalar approaches and by manifesting the thoughts in physical installations, we seek to explore the field of design pedagogy in terms of the methodological spectrum and the site challenges addressed, supplementing established representational modes and engagement methods.

Each year the course changes site and focus based on current urban agendas and challenges. Whereas during the earlier years of the course we addressed creative rethinking and activation of vacant areas in the city, we now increasingly address other types of sites such as housing areas affected by urban redevelopment or existing cultural and educational institutions in need of rethinking their relation to the city. We relocate our studio to the site setting-up working spaces locally in places that can be anything from a former military station, a run-down warehouse, to a culture house or a contemporary office space depending on the possibilities and character of the site. The studio itself becomes part of the site, which means that we can apply structured site studies easily, but the constant presence also means that the atmospheres and conditions are soaked up just through being there.

The Urban Intervention Studio is rooted in a phenomenological tradition where the sensuous embodied experience is complimented by exploration of social and strategic local agendas. Two notions of site-specificity frame this approach where the multiple layers of context are termed as being: 1) that of the phenomenological spatial experiential and, 2) that of the cultural, social and historical (Kwoon 2004). Both options shape the site analysis of the Urban Intervention Studio and both are applied as departure points for design interventions. On-site perceptual readings of spatial qualities and atmospheres is complimented by a strategic investigation via engaging local stakeholders and integrating historic conditions, policy documents along potential visions for the site.

The setup of the Urban Intervention Studio seeks to develop methods of site understanding that link and activate across scales and relate to experiential aspects as well as more overall urban development agendas. These poles meet on site and in dialogue with the site. The studio format allows us to research and test in a 'real life' laboratory how interpretation of a locality can translate into urban objects and how these urban objects interface and thus impact a particular site.

The brief the students are given provides a design challenge that addresses particular local issues and potentials always with the notion of shaping new public domains. Installations must create potential hubs for social interactions and for affording behavioural uses while simultaneously relating to the culture and historic traces of the local site through adding new layers of accessibility, experience, and meaning. It can be an attractor that draws us in, a setting that invites us to take a rest, an object that lets us experience the surroundings in a new way or a scenography that invites us to play and interact.

In 2016, we set up the studio at Lynetten Peninsula, a past military site now transformed into a theatre space. Here students' urban interventions responded to the current site conditions of both being an industrial derelict site and a potential cultural hub for urban interactions. In Theatre Quay a former small loading crane was converted into a swing hovering over the waterfront reprogramming a new logic onto a harbour industry relict. Water Within Reach addressed the relation between the harbour edge and the water surface through an intervention of wood decks descending stone boulders towards the water. Motus was a textile intervention that re-activated a series of abandoned lighting poles giving form to

the wind and creating an intimate interior ambience along the industrial waterfront. Joy – the Rocking Boat comprised a wooden boat placed in an area of high grass, opening up for physical play or contemplation and new interpretations of the wilderness at the site, by valuing and staging what could be considered a vacant unused leftover field, but what in this context is turned into a tactile space for play and contemplation within the pioneering planting.

Although students construct their designs on site, UIS is not a tool course. Rather we attempt to minimize the distance that can exist between site analysis and site design and between the actual physical place and the representational drawings. On the other hand, the building process prompts students to become precise about their designs. Concepts must be translatable into actual physical designs; measurements must be defined, and details must be solved. Students experience very directly how design decisions translate into design solutions and how they must adapt their designs to reach a desired outcome.

The process of working into an actual living context is complex. The student can meet obstacles related to the execution of their 1:1 installations, challenges that reveal themselves in the specific situation of the intervention but at the same time relate to larger issues such as politics, stakeholder agendas or regulation constraints. We regard these experiences as important learning points, since the students learn to navigate around issues they are confronted with in their professional lives in a very hands-on way. There is however a fine balance between students getting motivated and losing momentum from the kinds of responses they meet from the environment. The more contested a space is the more unforeseen challenges students (and the course) can meet and is something that we as instructors must be aware off. We want to give students the sense of agency and capacity through their independent actions and interactions with the site and its stakeholders. On the other hand we need to prime the local conditions in a way that makes it open for student interventions.

The Urban Intervention Studio cannot fully mimic what it means to operate as a landscape architect, but in many ways it does bring students close to conceptualizing and creating design solutions in 'real settings' while navigating multiple agendas and the entangled layers of site conditions.

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Studio crits as perceived by the landscape architecture students

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Keywords: Studio crits, design studio, landscape architecture pedagogy, students

The design studio lies at the centre of landscape architecture pedagogy, and studio crits which may take the form of peer reviews, desk-crits, pin-ups, midterm and/or final juries constitute an indispensable part of design studios. Housley Gaffney (2015: 118) defines crits 'as an instructional tool' which are 'designed to provide students with an opportunity to garner feedback about their design projects.' Despite their positive impacts on students' learning, crits are usually thought of as painful activities by students. Thus, it becomes vital for the landscape architecture educators to understand what studio crits mean for their students.

This paper aims to identify the components of studio crits as perceived by the landscape architecture students. Although in literature various studies (e.g. Blair, 2006; Eshun and Adu-Agyem, 2010) exist concerning students' perception of crits, this paper differs from them by focusing on the extraction of the components of studio crits from students' perceptions by means of multivariate analysis. The term 'studio crits' in this study refers to informal crits which occur between students and teachers.

The participants of the study were the undergraduate students of the Department of Landscape Architecture of Duzce University. A total of 65 students enrolled in the junior and senior classes participated in the study. The participation was voluntary and anonymous.

The participants were asked to fill in a questionnaire form which had questions concerning their gender and the year of study, followed by a list which was devised to determine the components that expressed students' perception towards studio crits. This list consisted of 24 sentences related to studio crits. The sentences were mainly derived from the frequent phrases of the students expressed to the authors informally during and/or out of the studio sessions, and from those which were noted at the common student-instructor meetings held by the Head of the Department from time to time. Each sentence in the list was presented in a five-point Likert scale ranging from strong disagreement (1) to strong agreement (5). The Statistical Package for the Social Sciences (SPSS) Version 17 was employed for the statistical analysis.

Twenty-four five-point items when factor analysed revealed five components of studio crits as perceived by the students. While the first component reflected students' perception of the studio crit as an activity influencing their motivations and self-awareness, the second component indicated the pedagogical dimension of the crit as an activity fostering development of certain skills and competencies associated with design. On the other hand, the third component designated the negative impacts of crits on students which occur during and/or after a crit session. The fourth and the fifth components demonstrated the affective dimension of studio crits. The students perceived the crit as an activity affecting

their mood and emotions, and extraction of two components concerning the affective aspect of crits implied that students experienced different moods/emotions associated with studio crits (anxiety, as well as excitement and discomfort).

The results of this study regarding the theoretical aspect of landscape design pedagogy are twofold. First, it is revealed that the studio crits, as perceived by the students, have both pedagogical and affective dimensions, and although studio crits can be considered as a means for influencing students' motivation and their development of self-awareness, as well as of certain skills and competencies associated with design, they cause some negative effects on students before, during and/or after the crit sessions. Second, owing to the reliability levels of the four components, those dimensions of the studio crits with the items under each, would make it possible to measure students' satisfaction from the crit sessions. However, the reliability of such scales should be confirmed with different sample groups. On the other hand, while arriving at these conclusions, particular type(s) of studio crits was/were not specified. Thus, whether or not these components differ due to crit type requires further research. Moreover, since students presented their moods/emotions as two distinct components, researchers of landscape pedagogy should give much effort to explore the affective aspect of studio crits. Indeed, such attempts were made by Austerlitz et al. (2002), and by Smith and Boyer (2015).

With regard to teaching practice, this study suggests that educators of landscape design should employ and/or develop different crit techniques fostering the positive aspects of crits while diminishing the negative influences of crit sessions on students. For instance, maintaining anonymity of the works that are pinned up for criticism would make both the students and the tutors concentrate directly on the work, and would create a secure atmosphere for those students who are shy of speaking in front of others and are anxious of becoming publicly disgraced. Hence, a descriptive feedback, which focuses on the work and supplies strategies for improvement, would warm students up with the nature of design crits, and help them understand the benefits of a crit as a means to enhance the work at hand. Moreover, engagement of students to comment on the work and/or to offer alternatives in order to achieve various solutions satisfying the design problem would help them develop skills in creative and critical thinking. However, despite its advantages, anonymous pin-up sessions would result in the occurrence of some queries that are left vague and/or unanswered regarding the designs which are being criticized. Thus, such an approach could be used at the beginning of introductory studios.

Indeed, development of both creative and critical thinking skills could also be attained by peer reviews conducted in small groups with the instructor facilitating the crit session. By accustoming students

to receiving and giving crits and by empowering them equally in the process, this approach would trigger active participation of the introverted students as well.

Undoubtedly, the tutor's role as a facilitator would lead to the creation of a two-way communication between him/her and the student during one-on-one crits, and thus, would reduce power asymmetries. Moreover, by asking guiding questions, rather than giving directives, the tutor would prompt the student to reflect on his/her own work, and make the student be aware of the deficiencies/mistakes in his/her design. However, at this point, the tutor should not forget to remind the student of the fact that mistakes are part of the learning process and offer him/her some suggestions on how to improve his/her work. Hence, by receiving a constructive feedback delivered in a safe and comfortable atmosphere and with clear explanations, the student would become more motivated towards crit sessions and studio works. Indeed, as put by Smith and Smith (2012 as quoted in Smith and Boyer, 2015: 274) 'Whatever the value of a practitioner's professional knowledge, if this is delivered without tact and empathy for the student's emotional jeopardy, then the value of what is being said by the practitioner/teacher will be undermined by how it is being said.'.

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Impervious to improvement, reflections on workload in the design-studio

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Keywords: Design studio teaching landscape architecture

Introduction

As a part of the education quality monitoring system of the landscape architecture programme at our university, each course is evaluated by students once they have finished the course. The satisfaction of the course is split into different factors like: the level of English used by the instructors, the predictability of norms concerning the examination, whether the course was perceived as useful, inspirational etc. In general the courses get good grades from the students, but when a score is below a 3.5 out of the possible highest score of 5, an improvement plan is developed. Despite several biases in the system, as illuminated for instance in Baldwin and Blattner (2003), in general the system works well, given adequate checks and balances.

However in particular for the design studios one score in the evaluation is impervious to improvement. The score for the perceived workload lingers around 2.5. This score is low compared to the otherwise good scores for these courses. Despite earlier efforts to reduce the number of learning goals and associated tasks and tests, this number remains low. This has given rise to scrutiny from education committee members from outside our own profession, suggesting this should be handled by lowering the goals, tasks and tests even further. However the design-teachers were convinced that matters were not that simple (Centra, 2003) and a research into this issue was started.

Research question and methods

In an effort to get to the bottom of this conundrum, an enquiry was made and this paper contains the findings of that exploration. The research question for this enquiry was: what are the causes for the high workload as perceived by the students in the studios of landscape architecture? To find the causes of the high workload a two tiered approach was taken. A first exploratory phase was followed up by in-depth research, through an enquiry. The paper will focus mostly on the quantitative results of the in-depth research.

The exploratory phase

A first attempt at splitting the different causes of the issue was made by the author. The causes and possible connected solutions were put on a large piece of paper. The range of causes ran from putting the blame with the students, them not just working full-time at the studios, holding side-jobs to pay for their tuition etc., or them being distracted by their smartphones on the one hand, to the teachers being responsible, due to over-asking and being unclear and disorganised. In the middle of this range there were some causes that are linked to the complex nature of personal design work. This paper with the range of possible causes and possible connected solutions was first checked with a small group of mature students. They were allowed to

stick post-its at the most prominent causes and best solutions. This exercise was repeated with the staff. Both students and teachers were also allowed to add new causes and new possible solutions. This resulted into an expanded set of possible causes and related solutions and some indications of the most important ones. Questions were also raised by the staff as to whether this high workload was problematic. It could be that the answer to the question: do you perceive the workload as high, was perceived as a simile of the question: did you have to work hard to get a result and that students scored this item as an acknowledgement of a fact, rather than as a problem.

In depth enquiry

At the second level of deeper investigation the list of possible causes and solutions and several open questions were turned into an enquiry. At first some questions were raised to ascertain the level of the problem, in order to find out whether the workload was high and whether that was problematic. Then an open question asked them to describe the cause and possible solution for the issue of the high workload (assuming that the answer to the problematic nature of the workload issue was indeed affirmative).Then the different causes and solutions could be rated on a five point scale on their importance in contributing to the issue and to being a possible contribution to solve the issue. Again, at the end the open question into causes and possible solutions was put to them, to see if they had changed their mind at that point. The enquiry was put out among forty-six 2nd year bachelor students and twenty-six 1st year masters students after they had finished their first studio of the year. This was done during the follow-up courses, achieving a near complete cover for all students involved in the studios. A second set of questionnaires will be put to the third year bachelor students at the end of May.

Results

(Here showing the first analysis on the quantitative results, this will be extended in May 2019.)

First of all the enquiry shows that students do indeed indicate that there is an issue with the workload. It is being considered as problematic scoring 2.37 for the bachelors and 2.31 for the masters on average for the group (1 being the highest possible score and 5 being the lowest possible score). The slight improvement of that score most likely being the balance of some students leaving after the bachelors phase, but also new students coming in from other perhaps more structured and or perhaps more relaxed teaching environments.

The results give an insight into the complex causes of the perceived high workload in the design studios. The highest score for causes of the high workload in both the bachelor and master studio was the combination

of the morning (theoretical) and afternoon (design studio) class, scoring an average 4.70 and 4.77 respectively (almost reaching the highest possible score of 5).

Other scores show how their own ambitions and students pushing each other are important components raising the workload. Though this is also one of the reasons for doing studio-teaching, i.e. students learning from each other and collectively raising the bar (Mor and Mogilevsky, 2013). But it may be that the teachers will need to be clearer about healthy work-life balances.

Though certain things were not seen as problematic the accompanying solutions were seen as important to improve; like improving the reflection by students on the feedback as provided. Asking them to repeat the three most important points of the feedback at the end of a tuition-session was seen by many as potentially helpful.

Conclusions

From the first quantitative analysis of the results it is clear that the most important cause and solution of the experienced high workload for both bachelor and masters-students at this particular moment in time lay in the combination of morning classes and afternoon studios. One of the actions has been to change the order of courses, as a consequence of this research. A problematic morning practical course for the bachelor students is now swapped for a formerly consecutive supporting class on drawing and planting, which can be more integrated with the afternoon studio. In the case of the masters-students the issue seems to lie in the fact that both courses had the same deadlines, and too little intermediate steps were in place to support the students in keeping the workflow going, which caused them to pile up the work towards the end. More insight into the variety of causes can help us to improve that which has been impervious to our efforts.

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Fostering design-research methods in graduate design studio teaching

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Keywords: Design-research methods, models, studio iterative

This paper reflects on six years of design studio teaching pedagogy focusing on the development of a design-research methodology.

How can a design-studio syllabus lay the ground for a critical exploration of site and systems and a more holistic design approach? One didactic goal is to work away from a linear to an iterative process of analytical and design work.

The three methods introduced here evolved by testing in design studio teaching during a sequence of comparative studios focusing on the sinking cities of New Orleans, Louisiana and Venice, Italy.

In order to break the false binary of analytic first and design work later, it has proven productive to start the term with a one-week sketch design, typically with a condensed problem. In doing so, students settle their impatience to design 'something' while picking up a topic pointing to related research questions. The studio instructor guides the student regarding the relevance of their individual discovery. Thereby the sketch design jump-starts a process of identifying an initial individual concern, while mandating a more in-depth study of its implications. This results in a call for research prompting a set of methods to help structure it.

Three Assignments: Mapping, thick 2-d section models, matrix of modernization

Building on each student's individual trajectory, a sequence of three assignments guides students towards establishing their own routine of a design-research practice. During the first half of the term the following three assignments are introduced to foster critical explorations and steer the site study work towards establishing questions and relevant observations related to the genealogy of the site and its corresponding systems.

1. Mapping or 'one good map'

One common observation and critic to semester-long studio work is witnessing less experienced students get lost in broad and undirected mapping practice. This can be avoided by structuring a question-driven approach combined with graphic means of focus and abstraction to express more precise interrogation of the site and its systems.

The assignment asks for a synthetic map in order to direct and edit the individual mapping material productively. 'One good map' challenges students to focus on one narrative or observation at the time, making one concise argument about an observation with the support of graphic means.

The individual construction of a 'case' helps students aggregating information to support a first hypothesis in order to be tested further along an iterative process.

The mapping assignment asks to identify a correlation between human scale (1:1) and territorial scale of 1:10.000 and larger.

In low water conditions the salt wedge travels upstream the Mississippi River estuary, threatening to reach the intake for the municipal fresh water supply of New Orleans. (See Figure 1)

Another map explores the potential of mangroves substituting less salt tolerant species in the deltaic plain.

What regimes at the territorial scale can be identified and what are their consequences and repercussions at a scale of material properties and performance? E.g. the relationship of salt tolerant plant species in the eco-tone gradient of a delta environment. How does a shifting salinity regime drive the local risk of soil erosion, relative to the soil holding capacity of healthy marsh vegetation? Can black mangroves migrating north with rising temperatures substitute less salt tolerant species; e.g. Louisiana´s bald cypress forests? In order to convey the insights drawn from scientific reports succinctly and effectively students are introduced to info-graphic techniques. Abstract diagrammatic graphics are utilized to synthesize and aggregate information in the format of a poster in order to support their argument.

2. Thick 2-D site models

Landscapes are often mistakenly reduced to the visual quality of their surface. A formalist and reductive approach would address landscape as topography or worse- as a landform. The multi-functional landscapes approach reminds us of the many other qualities to be addressed: ecological (soil, water, metabolic, habitat) economic, social and cultural; going far beyond formal and visual aspects.

The abstract concept of Landscape urbanism theory suggests the urban condition to be a 'thick living mat' a continuously evolving fabric (Allen, 2001). This assignment is triggered by the rhetoric and transforms it into a speculative material exploration informed by GIS and available databases.

Students are prompted to pick a representative site with a boundary condition or a corridor at a scale of 1:200, which allows representing the site in sectional models. In the first step an analytic interpretation of three discrete (sub-)strata is addressed.

Students are asked to identify a critical local boundary condition within a larger site cutting across critical infrastructure relevant for a systems perspective. The objective is to study site genesis based on a set of in-depth section models, including subsurface conditions of soil and water, as well as otherwise invisible technical infrastructure. (See Figure 2)
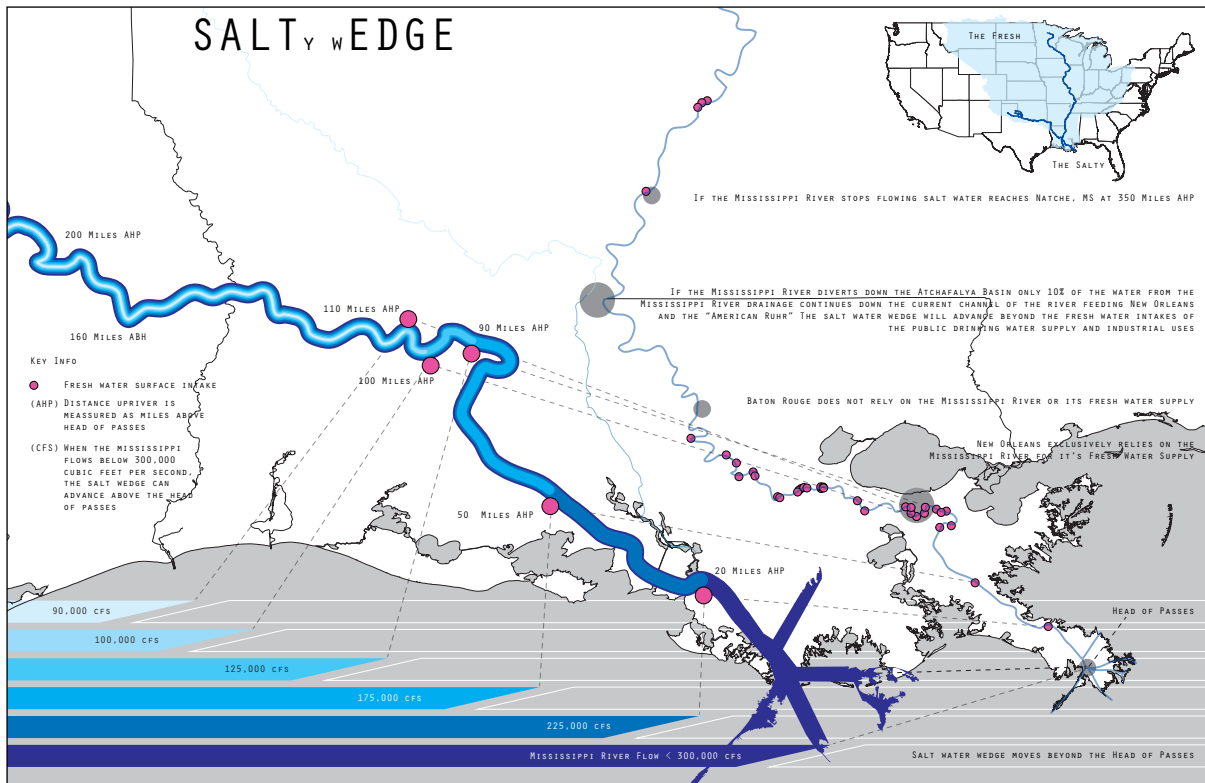
Figure 1. Map of Salt Wedge.

In a first step sketches analyze three strata as discrete spheres, to then explore their co-dependencies interaction and hybridization in the form of section models.

The provisional strata to be built from the ground up consist of:
• Substratum of geology soil and water.
• Urban Infrastructure mediating technical systems
• 'Urban crust' of constructed surfaces and built objects

In the process of investigating the relationship between urban metabolism interfacing with a deltaic metabolism the models explore less discrete conditions of the three strata. Tensions between rigidity of technical infrastructure vs. the fluidity of a deltaic environment become apparent. E.g. the interdependence of urban form with underground infrastructure and its correlation with layers of soil and water.

Three versions of the above section model are built in different temporal states based on
• historic state (pre-modern condition)
• contemporary state (present / modern condition)
• future state (proposed post-modern condition)

The assignment is to explore sectional qualities of a site in respect of its strata and depth regarding its performance.

If the conventional frame is focusing on urban form (morphological focus) this exercise emphasizes the correlation of urban form with urban flow (or urban morphology and urban metabolism) potentially interfacing with ecosystem services of a deltaic metabolism.

3. Matrix of modernization
At first glance designers may misinterpret uncharted territories like brownfields as dull, mute or even empty. Such judgments express a lack of engagement and knowledge. How can this sensibility and engagement be facilitated and how can it be understood as a path to design and become instrumental in establishing a design-research approach? This assignment is conceived to structure, analyze and represent the site genealogy in the light of a history of ideas. (See Figure 3)

The field condition of a matrix critiques the linear and one-dimensional constitution of a timeline. Instead multiple sectorial threads are mapped out in parallel, in order to explore their correlation and thematic entanglements.

How can the process of urbanization and modernization be understood as a driver for a specific site history? What ideas and innovations can be identified and how were they implemented? Which measures of adaptations can be identified and which should rather be critiqued as mal-adaptations?

First step, the history of ideas and their implementation in a sectorial fashion are identified, established and mapped out. E.g. transportation, regulation of waterways.

Second, correlations and co-dependences are identified and mapped across sectors.

Third, particular strands of path dependency are identified. How are certain systems hooked in the site?

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Interdependencies of innovation adaptation and site interventions are introduced to reflect current site performance. The assignment helps reflecting on the present conditions as a moment in an ongoing development. Any future proposal will be understood in a legacy of a history of ideas, including some descending voices. It helps students reflect on how any given site condition can be critiqued and questioned, as they understand the sequence of historic changes. This provides a consciousness on how sites evolve, benefit or suffer from prior interventions and how each intervention can be understood as a set of motives, priorities and often negotiation. It also reveals how sacrifices are made and helps identify unintended side-effects and externalities. The assignments help students in enriching their proposals by establishing links of theory and history to the site comprehension.

Summary
Reflecting a sequence of multiple studios these methods provide insight in reoccurring conditions, a phenomenon in the principles of modernization.

With some degree of abstraction these can be identified as reoccurring systemic problems e.g. regarding limitations of project boundaries and resulting externalities as such unintended side effects.

These insights induce fruitful discussions about reconceiving project boundaries in the favor of a more holistic project. E.g. The problem should define the exploration of implied networks past the constraints of a given local site.

The bigger picture helps students in framing more substantial problem descriptions regarding multiple perspectives and temporalities.

Students learn to comprehend how far problems may transgress the conventional constraints of a bound site and require a deliberate cross-scaling practice to explore the networks and systems a site is nested in.

Iterations avoid hesitation
This agenda is navigating the fine line between fostering inspirations, while avoiding design hesitation. The rigor of learning about the history of ideas gives the students greater self-consciousness in debating the relevance of their proposed interventions. Reflecting on the origins and intentions helps to convey why certain landscapes present themselves in particular ways. It also prevents naivety of young designers prematurely assuming originality and novelty of their ideas out of ignorance of history.

Outlook: Navigating knowledge, speculation and hesitation
These insights in a history of ideas may bear the risk of overwhelming the less experienced designer with the complexity of a site's conditions and implications. In order to stay nimble and productive it requires quick testing of working hypotheses through design iterations to refine both: the hypothesis and the design response.

One desired outcome is the ability of gaining a sense of authorship and authority by conceptualizing the encountered multifaceted and rich landscapes.

A deeper site reading through analytic work provides
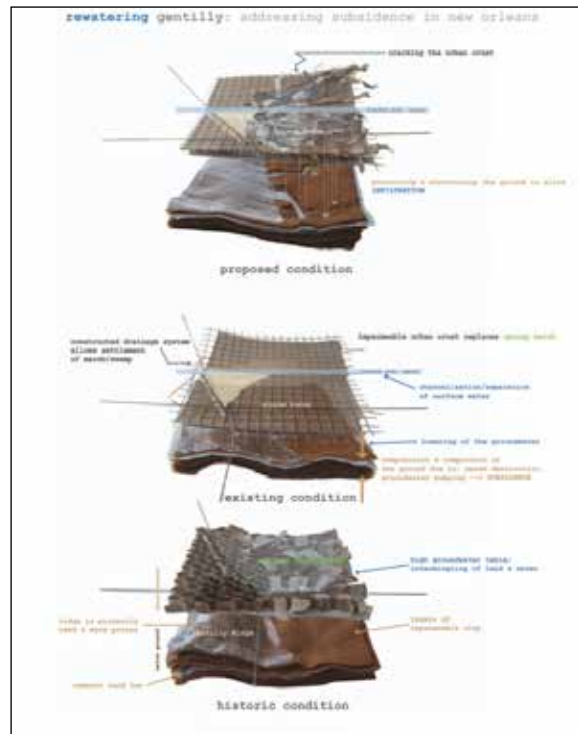
Figure 2. Thick 2-D section models NOLA

respect and acknowledgements towards the genesis of a site. This may result in a source of inspiration to some, but may also inhibit others in a free and unconstrained approach. Therefore it is important to allow for a degree of interpretation and speculation and postpone premature judgment.

Encouraging design iterations as a testing of hypothesis helps to refine both modes of conduct: building a sharper hypothesis and a better fit of the design proposals.

Reference
Stan Allen, 2001'Mat Urbanism: The Thick 2-D', in Hashim Sarkis, CASE: Le Corbusier's Venice Hospital, Munich: Prestel.

Figure 3. Matrix Venice

Special session

The history and future of teaching digital methods in landscape architecture

Organiser:
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Other contributors:
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Digital media have transformed design in professional practice and universities need to address new demands in their curriculum. Digital media should not be seen as mere tools (the 'tool paradigm') but digital media may enable novel approaches to design. In conclusion, teaching digital methods has to be more than the teaching of design with computer tools but higher design education will require the critical reflection and shaping of digital design theory. In this session, we will explore and discuss how teaching digital methods in landscape architecture has changed over the years and which question we need to ask in the future.

In the first session, *Olaf Schroth* will analyse the diverse historical phases of digital design education in landscape architecture. Cornerstones are the role of Computer Aided Design (CAD), Geographic Information Systems (GIS) and Geodesign in the context of vastly increasing data from UAV-based remote sensing to laserscanning, environmental sensors, crowdsourcing and Citizen Science. Today, Building Information Models (BIM) face landscape architects with new requirements for integrated workflows. This introduction will conclude with a list of questions for digital design education.

In the second presentation, *Pia Fricker* will introduce computational design methodologies, which start from understanding topography, merging to data-integrated/knowledge-informed design thinking, linked to machine learning, to the topic of blurring boundaries between reality and virtuality, e.g. storytelling. Using case studies from ETH Zurich and Aalto University, the importance of a new understanding of digital landscape architecture education will be discussed.

In the third presentation, *Ulrike Wissen Hayek* will demonstrate how to design training courses on GIS-based 3D landscape visualization, so that students not only gain software skills but also are able to critically reflect on the visualization process and the product. Based on a brief review of technical aspects of 3D landscape visualization as well as why and in which way a critical reflection is required, concept and design of a training course are presented.

The session will conclude with a panel discussion led by discussant *Ulrich Kias*, who has taught digital methods in landscape architecture for over 30 years. Anticipated outcome is a draft identifying the needs of future landscape architects, the potential of new technologies, and a list of priorities for 'essential' and 'optional' skills to match needs and available technologies.

Diverse historical phases of digital design education in landscape architecture

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Keywords: GIS, CAD, BIM, Photoshop, 3D landscape visualization, geodesign

In response to the ECLAS topic 'Lessons from the past, visions for the future', I am proposing a session about the teaching of digital methods in landscape architecture. The historic part goes back as far as 50 years to the first publication of 'Design with Nature' by Ian McHarg, which prepared the conceptual foundation for Geographic Information Systems (GIS).

As one of the seminal theorists in design education, Schon (1997; 1997) highlighted the importance of design media, e.g. sketches and drawings, in teaching design. With the so-called information revolution, digital media has transformed design in professional practice, and universities need to address these new demands in their curriculum. Mitchell (1990) and Mitchell and McCullough (1991) further analyzed the relationship between architectural design and digital media stressing the high importance of digital media in design education. A key argument picked up by Kvan et al. (1997) is that digital media should not be seen as mere tools (the 'tool paradigm') but digital media provides novel opportunities for new representation methods and examining the cognitive process of design. Kullmann (2014) and Kingerey-page & Hahn (2012) discuss the aesthetics that result from the new technologies.

In conclusion, the teaching of digital methods in landscape architecture has to be more than the teaching of design with computer tools but deeper reflection and shaping of digital design theory for the purpose of higher design education is required.

Main questions for discussion are the role of Geodesign (Steinitz, 2010), Geographic Information Systems (GIS) and Computer Aided Design (CAD) with regard to new developments such as a quickly increasing number of new sources from UAV-based remote sensing to laserscanning (LiDAR point clouds), environmental sensors, crowdsourcing and Citizen Science providing vast amounts of environmental data ('big data') and new requirements for integrated and optimized workflows through Building Information Models (BIM).

More specific questions are:
- whether future landscape architecture graduates require scripting or even programming skills to cope with parametric modeling (Westort, 2016)?
- how to teach BIM in a multi-disciplinary environment?
- how to integrate digital methods in studio workshops?
- how teaching digital terrain modeling can benefit from unmanned aerial vehicle (UAV) surveys, BIM and 3D printing (Cureton, 2017)?
- how new displays such as Augmented Reality (AR) and Virtual Reality (VR) may facilitate teaching landscape architecture?
- how to balance teaching analogue design with digital design techniques?

Expected outcomes include the first draft of a future curriculum for teaching digital methods in landscape architecture identifying the potential of different new technologies, barriers to teaching digital methods and a list of priorities for 'essential' and 'optional' skills.

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Educational landscapes of the digital age:
Challenging the frontiers of digital landscape education
— a discussion on future-oriented computational design thinking

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In the era of the 4th Industrial Revolution, oversaturated with the diversity and arbitrariness of digital and social media and rapidly evolving technological possibilities, it is time for serious reflection on the future of digital tools and methods in the area of landscape architecture.

Already in 2016, Klaus Schwab[1] described our current time as being at the beginning of a revolution that is fundamentally changing the way we live, work and relate to one another. A time characterized by new technologies fusing the physical, digital and biological worlds (Schwab, 2016). What significance and what kinds of possibilities are open to this much discussed area for curriculum design at the university level?

This debate, which has already taken off in the area of architectural education since the 1990s and anchored through the establishment of a number of innovative Chairs and Institutes in the curriculum, has only just begun in the field of landscape architecture. Fostered by pressure from professional practice, but mostly demanded for by students, we are currently standing at the threshold of developing entirely new concepts for teaching in the area of computational design thinking that go well-beyond mainstream application-oriented topics such as GIS , CAD, BIM/LIM and the mere teaching of tools and software. It requires a fundamental rethinking and openness for a new area of knowledge, in order to recognize the potentials for teaching and research without losing the direct reference to landscape architecture (Girot, 2012).

The main focus of the paper is to introduce and reflect on an integrative computational design thinking approach, which requires the melding of computation, design and theory as an answer to the complex challenges facing the profession of landscape architecture. At this juncture, exemplary concepts will be highlighted, which have been developed and implemented at ETH Zurich and Aalto University. An essential part of the new approach lies in the fact that systems thinking provides the theoretical basis connecting the individual components.

Furthermore, focus is placed on the passing on of interdisciplinary knowledge and skill building. How can we teach students to be capable of quickly and flexibly navigating their way among digital media, as well as have access to key expertise in the area of machine learning in order to be able to link data with relevant information and broader concepts? The goal must be to inspire students for professional practice with a positive attitude towards Artificial Intelligence and emerging technologies, in order to strengthen them to use the technological possibilities at our disposal in innovative and creative ways and ultimately develop critical, bold, future-oriented approaches that will stand the test of time.

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Enabling generation and critical reflection of GIS-based 3D landscape visualization for collaborative planning

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Keywords: 3D landscape visualization, participatory planning, visualization techniques, critical thinking, design of training courses

Landscape planning and design is evolving towards collaborative, information-based design projects with GIS-based 3D modeling and visualization tools as key element. For generating valid, credible, and legitimate tools, however, adequate training is required. The central question addressed in this paper is, how training courses on GIS-based 3D landscape visualization can be designed so that students not only gain software skills but also are able to critically reflect on the visualization process and the product. Based on a brief review of technical aspects of 3D landscape visualization as well as why and in which way a critical reflection is required, a concept and design of a training course is presented. Thereby, general goals for a critical thinking curriculum are considered, which call inter alia for students to try to be well informed, to give reasons and appraise the quality of arguments, be able to plan and judge implementations, and develop and defend their position for the decisions they make. The core idea of the course is to combine practical visualization exercises with targeted theoretical inputs on general ethical principles and examples of how parameters chosen for 3D visualization can affect people's responses. In the end, students transfer the gained knowledge on creating a prototype for a planning situation and defending this in the discussion with the whole student group. The reflective thinking in specifying the prototype and arguing for its appropriateness for the intended purpose can help making better informed decisions in the visualization process. Overall, raising awareness for the visualization's possible effects of people's perception and decisions, and fostering critical thinking is mandatory. Because otherwise designs developed on basis of these visualization tools might in turn affect the real world in an undesired and unsustainable way. Continuous consolidation of research findings to 3D visualization guidelines and their integration into training courses is crucially required.

The historical development of landscape architecture education in Slovakia

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Keywords: Czechoslovakia, Slovakia, education, garden design, landscape architecture

The context
The availability of landscape architecture education in a country is a fundamental precondition for a fully-fledged professional practice. Slovak landscape architecture builds on a rich tradition of garden art, with 339 objects of historical green spaces- mainly gardens and parks (Tomaško, 2004). Until the 20th century, there was no higher education in landscape architecture in the Austro-Hungarian Empire. Secondary education in Horticulture was provided in Vienna and Budapest. A progressive development started in the 'First Republic' (1918-1939) and continued after World War II in reunited Czechoslovakia (1945-1992). Between the world wars, horticulture and park design were taught as part of Agriculture at the Agricultural University in Brno. In this period, many modern villa gardens were created. The after-war period brought about the creation of extensive open green spaces in dynamically growing residential complexes. In recent years, many public open spaces were revitalised in Slovak cities, towns and villages from EU funds.

Secondary landscape education
Secondary education in garden design started with the establishment of the State Agricultural School in Malinovo in 1923. This school provided education in two fields-Agriculture and Horticulture. After World War II, four new secondary schools in Horticulture were established in reunited Czechoslovakia (Jureková, 2005). In the following decades, more than 20 secondary agricultural schools were established in Slovakia (then part of Czechoslovakia). In recent years, schools have been trying to update and develop their study programmes according to requirements of professional practice and the labour market. Many study programmes have modified their names to Horticulture, Garden Design and Greenery, Landscaping, Exterior Design – Garden Architecture, Flower Binding and Arranging, Agribusiness, Agritourism and Recreation, and Nursery Production. Currently, there are 18 secondary schools of this kind in Slovakia. Their graduates work in different fields (desig, establishment and maintenance of green spaces, cultivation and reproduction of ornamental plants and others). Some of the secondary school graduates continue their studies at the university level, in the Landscape and Garden Architecture programme at the Slovak University of Agriculture in Nitra, which is currently the only institution that provides university education in Landscape Architecture in Slovakia at all three levels of study (Supuka, 2018).

University education in landscape architecture
The political environment in former Czechoslovakia was generally supportive towards landscape architecture education. It built upon traditions and experiences of horticultural schools in the Austro-Hungarian Empire. University education in the field of landscape architecture was provided within differently named study programmes at today's Mendel University in Brno (established in 1919). Until 1950, Horticulture was part of the study programme General Agriculture at the Faculty of Agronomy. In 1951, the study of horticultural programmes was dislocated to Lednice (South-East Czechia), where landscape architecture was part of the study programme Horticulture from 1962 until 1979, when an independent field of study 'Sadovníctvo a krajinárstvo' was created. 'Krajinárstvo' refers to landscape architecture at the planning scale and the today rather outdated term 'Sadovníctvo' refers more to the design scale. 'Sadovníctvo' derives from 'Sad' (orchard), which was used as a term not only for orchards, but also ornamental gardens and parks in urban areas. Landscape architecture practice was enhanced by a complex document on design and protection of residential green spaces adopted by the government in 1979 (Benčať et al., 1979). This brought a higher demand for landscape architects in the project design practice, and indirectly also for landscape architecture students. In 1985, the new Faculty of Horticulture was established in Lednice, as an organisational unit of Mendel University in Brno. Between 1962 and 1993, 623 students from Slovakia graduated from this school. After the division of Czechoslovakia (1993), the field of study 'Garden and Landscape Architecture' was established in Slovakia in 1995. This was the first time, when 'Architecture' was included in the Slovak name of the programme.

Landscape Architecture Education in Slovakia since 1995
After the split of Czechoslovakia in 1993, both states have been developing their own programmes. The Mendel University in Brno helped create the new study programmes in Slovakia. In 1995, the Faculty of Horticulture and Landscape Engineering (FHLE) was constituted at the Slovak University of Agriculture (SUA) in Nitra (established in 1952). This faculty acquired the accreditation for university education, among others in the field of Landscape Architecture, in a joint 5-year study programme. In 2003, within the new accreditation process, the Ministry of Education approved the right of providing higher education in the field of 'Garden and Landscape Architecture' at the 1st, 2nd and 3rd level of study, as well as the right of habilitation (associate professor appointment) and inauguration (university professor appointment). In the following accreditation process in 2013, the field was renamed to 'Landscape and Garden Architecture'. In 2012, the Landscape Architecture programme of the Slovak University of Agriculture in Nitra was recognised by the International Federation of Landscape Architects (IFLA Europe) for the duration of 5 years, which has been recently extended from 2018 to 2022. The number of landscape architecture

graduates at FHLE SUA Nitra has reached more than 800 since 1995. Graduates can apply for authorisation and membership in the Slovak Chamber of Architects since 2000, when SUA Nitra became member of the European Council of Landscape Architecture Schools (ECLAS) and students have started to be actively involved in the European Landscape Architecture Student Association (ELASA). Graduates of landscape architecture from Nitra work mostly in design studios, firms specialised on implementation and maintenance of green spaces, in state administration, regional and local self-government (Supuka, 2002). Between 1990 and 2013, landscape architecture was taught also at the Faculty of Architecture of the Slovak University of Technology (STU) in Bratislava. At the beginning, it was part of an Urban Design programme and after the new accreditation in 2003, an independent study programme entitled Park and Landscape Architecture was established. This programme lost its national accreditation in 2014. Currently, there is a relatively good balance between demand and supply of landscape architects on the Slovak labour market, mainly in the field of project design. However, there is a lack of professionals in establishment and maintenance of green spaces, as well as plant (re) production. The existing legislation does not provide sufficient support for municipalities and state administration for creating job opportunities for landscape architects in coordination (planning) and management (maintenance) of green spaces. Our landscape team in Nitra has already started working on the innovation of the landscape architecture programme, in order to address also this issue.

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The role of the botanic garden of Ajuda in the affirmation of the new profession of landscape architecture in Portugal

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Keywords: Botanic garden of Ajuda, Lisboa, landscape architecture, profession of landscape architect, Portugal

The profession of landscape architecture (LA) in Portugal has its origin in 1942 with the creation of the first landscape architecture course at Instituto Superior de Agronomia (ISA, School of Agronomy) in Lisbon. This course was founded by Professor Francisco Caldeira Cabral (1908–1992), an agricultural engineer at the ISA who had studied landscape architecture at the Technical University of Berlin, and upon his return proposed to ISA the creation of the new LA course.

The LA course is based on four areas of knowledge and training: Ecology and Earth Sciences; Humanities and Arts; Project Formation; and Territorial Planning; applied to design and planning. The theoretical training takes place predominantly during the first years and ensures thorough knowledge of the biological processes, building on a centennial school of highly recognized knowledge of the management and production of the national landscape. Aesthetic dimensions in LA are combined with scientific teaching, so that these areas converge for the design exercise. Also, the computer tools indispensable to design and planning are an important teaching and research area. This training contributes to the development of professionals able to elaborate, collaborate, and coordinate landscape architecture projects, landscape and territory planning plans, landscape management plans, landscape heritage restoration projects, and studies of the environmental impact; professionals who will continue to successfully mark their 'impression' on the landscape.

The Botanic Garden of Ajuda [BGA, Jardim Botânico da Ajuda], the first botanic garden in Portugal, was created in 1768 and has been under the tutelage of the ISA since 1910. The BGA plays an important pedagogic support role within the LA course.

The BGA was built during the reign of King D. José (1714–1777), whose minister Sebastião José de Carvalho e Melo (1699–1782) invited the Italian Domingos Vandelli (1735-1816) not only to lay out the Royal Botanic Garden of Ajuda and acquire the plants, but also to build the Museum of Natural History, the Cabinet of Physics, and the drawing house of Lisbon. The second Director of BGA was Félix of Avelar Brotero (1744–1828), the author of the first Portuguese flora (Flora Lusitanica, Lisbon: 1804), and he also started the first practical school of Botany of the country in BGA.

When the LA course began at ISA, the BGA assumed an important link and served as a laboratory for the practical lessons of landscape architecture.

Figure 1. The Botanic Garden of Ajuda bird eye view (drone)

Figure 2. Landscape architecture students at Botanic Garden of Ajuda

Figure 3. Restoration works at the Botanic Garden of Ajuda (coordinated by landscape architects)

The first final report degree in landscape architecture was elaborated in 1948 by Manuel de Azevedo Coutinho (1921–1992), under the guidance of Francisco Caldeira Cabral. This study establishes the knowledge-base on which the first restoration of the garden was carried out after it was severely destroyed by the cyclone of 1941 that devastated Lisbon.

As the landscape architecture course is interdisciplinary, the BGA as a pedagogic and research laboratory offers the possibility for students to practice the various disciplinary areas of the course, such as:
• Botany, Phytosanitary, Geology, Pedology, Climatology, Hydraulics and Irrigation;
• History of Gardens Art and Restoration of Historic Gardens and Cultural Landscapes;
• Plant material and horticultural applications;
• Site engineering including materials and methods of construction;
• Landscape design and planting plans;
• Ecological studies;
• Database and computer drawing informatical.

Over the past 77 years, the BGA also has served as a LA laboratory providing:
• a place for scientific investigation in the areas already mentioned;
• a place for the propagation of plant species and their acclimatization, contributing to the diffusion of new species for green space projects carried out by LA;
• a space for students and professors to garden together.

Since its establishment, the BGA has been the focus of several restoration interventions, the latter having been important interventions since 1948 to present day, carried out under the coordination of landscape architects, thereby becoming a pioneer school in Portugal on the know-how of restoration of historic gardens.

Regarding botanical diversity, this garden is a biodiversity hotspot, characterized by the climatic conditions that Lisbon offers, its geographic location in South-West Europe between the Atlantic and Mediterranean, and between Africa and Eurasia, as well as its proximity to the estuary of the river Tagus, which affords it a mild climate associated with extremely fertile soils, since Lisbon is located on the best soils with agricultural aptitude of the country.

The choice of place and its design are lessons of LA. The place chosen was a hillside exposed to the south, overlooking the Tagus River and Belém (Jerónimos Monastery, Palace of Belém), and the water, either for irrigation or for feeding the lakes, was captured in natural springs and led by gravity through mines on the hillside coming from the Serra de Monsanto.

Since the 18th century, the BGA has played a prominent role in the introduction and acclimatization of new species of flora with economic and ornamental interest. For example, the jacaranda tree, native to the biogeographic region of South America (Bolivia, Argentina, Brazil) was introduced in Portugal in the 19th century, being planted in the BGA. The BGA has become a diffusion core of new plants for other gardens, namely Lisbon's public gardens, such as Jardim da Estrela and Jardim de São Pedro de Alcântara, as well as for street trees.

These lessons from the past in areas such as botanical, horticulture, landscape architecture, and gardening are an essential step to the XXI century and play a crucial role in pedagogic, research, and environmental education, as well as offering the students a live encyclopedia to study from. Also, the aesthetic value of this garden, its strategic location, and its heritage make it a perfect place for leisure and tourism. We believe that the beauty of the place and the genius loci of the BGA will continue to contribute to the aesthetic education of LA students, playing a crucial role in affirming the profession of Landscape Architecture in Portugal.

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Timeline of knowledge creation of Latvian landscape architecture

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Within the Western context of the concept of landscape architecture, several questions regarding the Latvian case arise: What is landscape architecture in Latvia? Who should be considered a landscape architect in Latvia? How, when, where and by whom was knowledge of landscape architecture formed in Latvia? Where does it sit compared to Nordic or ancient Eastern cultures?

Art and culture form nations' identity. Thus Latvian landscape architecture has to have a Latvian national character, but that has not yet been conceptualized. At the same time identity is a dynamic ongoing process.

This research is about Latvian national landscape architecture traced back to the first Latvian national awakening of the mid-1800s. The aim of the study is to identify the roots of the national landscape architecture field in Latvia, key factors that have influenced further development up until nowadays.

The first Latvian national awakening was a cultural and national revival movement that started in the mid-1800s and opposed the dominance of cultures led by foreign occupiers. The important part was the establishment of a national education focus on the Latvian language, traditions and culture.

Landscape is closely related to nature. In a deeper sense, the birth of landscape architecture links to beginnings of human culture. Spatial formation of human settlements and patterns of human flows through the lands and waters has formed the Latvian landscape. National awakenings are searching and self-referencing ancient roots of indigenous nations. Latvians throughout times have kept a personal connection to nature and preserved a pantheistic worldview. Dainas – Latvian folk songs embody mythological heritage of nature human connections.

At the same time, landscape architecture in Latvia is stigmatized for various reasons. The first is political, economic and ideological and the second is relationships with architecture professionals.

First, a landscape is closely related to land. Land and its ownership for several centuries have been the subject of political and economic conflicts and a tool for ideological manipulation. Occupations have been directly related to alienation of land ownership. Due to occupations by foreign nations Latvian indigenous nations had none or only short-time or small-scale ownerships of land. The independence of the indigenous nation slowly started two hundred years ago by an emancipation reform.

The Soviet mass deportations in 1941 targeted mainly families who had members in leading positions in state and local governments, economy and culture. The second Soviet occupation of Latvia in 1944 and 1945 led to a mass of Latvian refugees fleeing to the West. Landowners were one of the targets of the Soviet mass deportations both in 1941 and 1949. All this led to the loss of intelligence educated in garden design and architecture and loss and gap in knowledge development of the discipline.

The Soviet period strengthened the image of collective ownership that has positive results nowadays in that agricultural lands, forests, sea, large rivers and lakes are freely accessible for all inhabitants to enjoy nature. That maintains people's personal connection to nature possible.

Historical research can today employ new digital tools. The large part of research data for this study was found in the recently opened periodicals database of National Library of Latvia http://www.periodika.lv/. It holds digitalized access to periodicals and new facts to be discovered will help in the future to review the history of ideas, the lexicon used and actual topics in the discipline.

Knowledge imports due to increasing globalization are understandable . There is a process of formation of understanding of phenomena, adaptation and rooting in local knowledge. The creation of concepts and formation of professional language is a part of knowledge creation. Still, the changing and developing terms and their meanings are unclear to professionals, relative disciplines and society.

The term 'landscape architecture' originated in 1828 gaining prominence in Western culture after the Second World War. In periodicals, the Latvian term for landscape architecture 'ainavu arhtektūra' was first mentioned in 1960.

Over two centuries several organizations led by gardeners, floriculture specialists, architects and finally landscape architects have been involved in landscape architecture. Over a century knowledge creation and education in the field of landscape architecture in Latvia have been organized by both formal, non-formal and informal education. The field is represented by professionals and amateurs. In the knowledge creation, the strong lead was held by landscape architecture professionals. The field was influenced by a plants' breeding boom.

Throughout the years the various organizations, educational institutions competed for ownership rights of the discipline. The care for the discipline was passed from one organization or knowledge centre to another. In addition, political ideology whether led by occupiers or nationalist movements and the existence of strong educational and professional personalities presents vocal opinions and different angles to approach the same topic. That enriches and at the same time fragmented the field.

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An outstanding multidisciplinary education concept of Professor Mőcsényi

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Keywords: Professor Mőcsényi, Hungary landscape architecture school, multidisciplinary education, challenging and volunteering type of education

The year 2019 has been declared a centenary year of Mihály Mőcsényi, professor in landscape architecture and a Doctor of Sciences of Hungarian Academy of Sciences (1919-2017), by the Faculty of Landscape Architecture and Urbanism, Budapest. This presentation will focus on education development and teaching methods of Mőcsényi, as his achievements are still relevant and exemplary for Hungarian landscape architects and the wide scale and complexity of content to be delivered to students and professionals. During his long and successful carrier, he has furthered the development of the practice and education of Hungarian landscape architecture and enhanced its appreciation both nationally and internationally. One of his greatest successes in the Hungarian educational development is the deed of foundation of the Faculty of Landscape Architecture in 1992. He has built up wide international professional connections, which he always utilized in the interest of furthering education in landscape architecture.

Professor Mőcsényi was a man owning an outstanding multidisciplinary education and far ahead of his time, both in his development of the Hungarian landscape architecture school and the contents and methods of teaching the profession. His lifelong achievements have been awarded by the highest Hungarian state awards, and by ECLAS and also by IFLA 2012' Sir Geoffrey Jellicoe Award.

As an internationally renowned and acknowledged professor of the Hungarian landscape architecture school, Mőcsényi was given the opportunity to create a new university institution as the result of the constant development of education from traditional garden design to landscape architecture. During his exceptional, eight decades of professional life, his conscious efforts and broad interdisciplinary knowledge and vision were the fundament in taking on new professional tasks and development paths ahead of the field. The contemporary Hungarian landscape architecture school, the independent university faculty in Budapest is the tangible heritage of Professor Mőcsényi, while the openness and development ability of the education theme and training methodology are the still relevant intellectual, intangible legacy. The famous Latin proverb '*non scholae sed vitae discimus*' could be added by his professor's attitude: *non scholae sed vitae discimus ex*.

The presentation will introduce the outstanding professional life of professor Mihály Mőcsényi who has played a determinant role in the development of the Hungarian landscape architecture school with a constant effort to develop the educational palette and the content and method of training. His persistent work and long-term thinking have culminated in the

foundation of the independent faculty of landscape architecture.

Professor Mőcsényi, who was probably one of the last veritable polyhistor, was instrumental in the rise of the landscape architectural profession in Hungary both at educational and professional levels. His life journey was hallmarked by a continuous undertaking of many challenges, constant learning and teaching embracing a broad range of disciplines. According to his transcripts and certificates Mőcsényi has confirmed 36 academic semesters. He received his first diploma in the field of horticultural studies, that included garden design and art as a special course. Later he studied economics, history of art, museology, architecture and urban management, as well as aesthetics. With all these additional studies he expanded the boundaries of the landscape architectural profession. Being a dedicated teacher, he introduced new fields of knowledge into his lectures and the curriculum.

His educational activity started as an assistant lecturer in 1945, after WW2. The reconstructions and the new industrial development constantly brought new challenges and required new ideas and ways in planning and design, among others the introduction of open space planning, environment and landscape requirements in urban and spatial development programs, and also the elaboration of landscape evaluation methods for a better understanding of the processes and the effects of landscape development. The mass housing construction program carried out with great momentum included a huge amount of landscape architecture tasks, from urban green system planning to open space development plans and to object level design. It was Mőcsényi, who renewed the Hungarian urban open space planning practice with a complex landscape architectural concept taking aesthetical, functional and technical aspects into account in the planning process. The introduction of contour lines, as a new representation technique in topographical design in the 1950s strengthened the position of Hungarian landscape architects in the planning firms dominated by architects.

The scale and functional diversity of the tasks required the extension of the knowledge base. The program for landscape architecture education, that ran as an independent program after 1963, developed constantly by the integration of related professions like architecture, urban planning and regional development, social sciences and ecology, environmental and legal studies, nature conservation and landscape protection. Theoretical approachs, planning and design practice, and university education have gone hand in hand in Mőcsényi's life. He developed the curriculum and the teaching

practice with a series of new courses and practices based on his former studies and the requirements of professional life. His vibrant personality made his lessons inspiring and demanding for his students, who did not have too many books or textbooks, since not only the curriculum, but also the topics of the courses changed and developed continuously.

All his life was devoted to learning and teaching. His special teaching method stood out from the academic style of the time, when traditional lectures and practices ruled the universities. Mőcsényi's ruthless personality and his sparkling mindset created workshop and seminar type courses where note-books or lecture books were less important, than inspiration which forced students to think, to ask, to be innovative and to develop their problem-solving skills. He never left the students to have a rest or not to follow the lecture or work with attention. It was challenging to take part in his classes and also to work with him. He kept on taking part in education and delivering lectures regularly throughout his 70s.

Mőcsényi laid stress on international teaching practice and doctoral studies of his young colleagues, and he was always ready to help them through his extensive international network of contacts in finding the best foreign institute for self-development. He always encouraged his students and young colleagues to go on study trips abroad, even in times, when this was not an easy way to travel to Western Europe from Hungary due to political circumstances. Thanks to his international connections, and the great results in national garden design competitions of the WIG and IGA garden festivals, new possibilities opened up for international students' workshops and summer practices. Since the 1960s workshops and practices have been available for Hungarian landscape architectural students all over Europe.

The intangible Mőcsényi legacy is traditionally relevant in the present school in teaching methods and program content, like in the strong, direct master and student-like training forms, and the interdisciplinary and innovative approach, and research-based planning and design. The international links developed dynamically during Mőcsényi's IFLA presidential period drove the strong fundaments for further education cooperation, among others in the ERASMUS and ECLAS membership. In the tradition of wide scaled development issues of the Hungarian school, an English speaking, international master program of landscape architecture and design was started in 2014, while the Doctoral School in Landscape Architecture and Landscape Ecology has been traditionally open for international students.

The history of Hungarian landscape architectural education is strictly bound to professor Mőcsényi. His oeuvre received much international appreciation and was analysed often in the past decades.

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Making the case for service learning: Pedagogy that fosters professional leadership in landscape architecture

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Service-learning is a pedagogical approach that has been widely used in higher education in America and is growing in popularity in Australia. Courses taught in the service-learning mode offer students the opportunity to engage with real projects, and with a real client as a credit-earning endeavour within the context of their degree program. Undertaken as built environment electives, they are typically organised as a community-based design studio, incorporating aspects of research and community consultation and conducted in a variety of social settings where students from different disciplines work with a diversity of client groups.

This paper discusses the experience of delivering a service-learning program in a built environment faculty. It also reports on an action research project which found that practicing landscape architects place a high value on service-learning and community engagement experiences in preparing landscape architecture students to become professional leaders. On the strength of this evidence, it is argued that courses based on service-learning offer students crucial real world experience which directly contributes to their acquisition of leaderships skills and is valued by their profession.

In higher education there is an increasing interest in how service-learning and community engagement-based courses can enhance learning experiences and provide opportunities for students to gain 'practical wisdom' in the context of their undergraduate education. As Nussbaum (1997) asserts, university experiences are where higher education can develop 'intelligent citizenship' through learning experiences which challenge individuals to look critically at their own values; to see themselves in relation to other people; and gain insights as to how others' lives differ from their own.

Built environment educators aim not only to meet the specific expectations of their professional accredited degree programs, but also to prepare students to contribute to their profession and to society. As well, they commonly aspire for their students to become leaders in their respective fields. A capacity to act not only professionally but with social, cultural, and emotional intelligence is keenly desired. Courses based on a service-learning pedagogy are particularly well suited to provide relevant opportunities for students to develop these skills.

Service-learning refers to a credit-bearing educational experience in which students participate in an organised activity that meets identified community needs and requires them to reflect on the service activity in such a way as to gain further understanding of course content, a broader appreciation of the discipline, and an enhanced sense of civic responsibility (Bringle and Hatcher, 1996, p. 222). As discussed by Metzger (2012), pedagogical approaches to teaching civic engagement and concepts such as social justice and diversity through service-learning have also been successful (p. 98). The means of assessing the impact of the service-learning are now also well documented, giving increased institutional support to this teaching and learning approach (Gelmon, et al. 2018).

In the context of the contemporary research-intensive university, academics face a number of challenges when seeking to implement service-learning courses. Central to this is this question: is service-learning relevant to the 'core business' of the university; that is, does it generate research outputs that are recognised and valued? For academics who are conscious of how their teaching workloads are allocated and are building their case for tenure or promotion, there can be some uncertainty around the activity: is it teaching, research or service?

In research-intensive universities, that is, those which give priority to research productivity, there is often a noticeable disconnect between teaching, learning and research. In these institutions, research is often perceived as a discrete activity having little relationship to what goes on in the classroom. However, in the case of service-learning courses, and in particular since the advent of Boyer's scholarships (1990), community engagement can certainly be viewed as a scholarly activity, thus strengthening the argument for service-learning as a means to connect student learning, teaching and research.

It is not that research-intensive universities do not value community engagement: they do. It is a question of how they define 'engagement' and to what ends it is valued. The value of engagement for many universities is linked more closely to institutional development and philanthropy. Community partners potentially become economically beneficial partners that can help sustain the university and broaden its profile and outreach.

'Outreach' is also defined in different ways and may be conflated with the concept of engagement. In the language used by the Australian Universities Community Engagement Association, 'outreach' tends to be one-way dissemination of expertise or information; in contrast, 'engagement' is based on two-way exchange of knowledge for mutual benefit (Willis 2006, p.2). The approach to community engagement as articulated in our faculty's service-learning courses, is characterised by mutuality, exchange, and partnership and intentionally draws a clear distinction from faculty-established notions of 'outreach' (as in marketing, public relations, and/or communication with alumni) and 'service' (as in a one-off interaction with communities) activities (Quinlan et al. 2008).

From an educational perspective, the value of these learning experiences is readily appreciated. The focus

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of the research being discussed in this paper centres on establishing whether this appreciation translates to a relevant professional community, that is, practising landscape architects. How are courses centred on real world experiences and on developing practical and social wisdom valued in a wider professional community? Does the pedagogical paradigm of 'basic knowledge, basic methods, and problem solving' continue to be foundational to tertiary programs that prepare future practitioners? (Hoyt 2006, pp.17-18).

In professionally-oriented built environment faculties, and especially those with programs that are accredited by their professional institutes, credence is given to the views of practitioners and the professional institutes' education committees. For this reason, and in response to a perceived gap in our understanding, the current research project questions how service-learning is valued by the profession; specifically, how it is perceived to benefit students developing as potential contributors and leaders in landscape architectural practice.

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Animating criticality and trans-disciplinarity through landscape architecture education

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Keywords: Urban landscape, societal challenges, criticality, design thinking

An introductory note on transdisciplinarity

The authors view transdisciplinarity as an 'intellectual orientation' characterized by particular values, beliefs, attitudes, and behaviors (Stokols, 2014) and a 'mutual learning' format where 'knowledge is not simply exchanged but constructed and activated as individuals with differing views and stakes work together' (Klein, 2008). Conceiving of this working together of knowledges in a double sense—as collaborating (as colleagues might work jointly on one project) and combining (as a baker might work two ingredients together), we believe transdisciplinarity in landscape architecture involves heterogeneous knowledge practices 'practicing together' from a mix of knowledge-generating sectors (the academy, society, governance, business, etc.) or disciplines (sciences, humanities, arts, social sciences).

Education and research in landscape architecture – making the most of a composite field

Landscape architecture, as a 'composite' discipline (Roe, 2011), provides a base for developing innovative working methods that invite cross-fertilizing spatial, scientific, cultural, historical and regulatory perspectives. Considering natural spatial conditions and nature processes on equal footing with man-made elements and human practices, landscape architecture has become the vector of an action-oriented scrutiny of space at smaller and larger scales, including urban and regional planning (Hauxner 2011, Seggern et al 2008). This mindset assumes things do not exist in isolation, but as moving parts in a complex network of simultaneous, multidirectional exchanges (Kutzinski et al, 2012). As such, the landscape field offers knowledge frameworks, research models, and design methods to address qualitative issues central to, but often sidelined by, more siloed research practices and agendas.

Historically, landscape researchers and educators have adopted either natural science, social science, humanities or design-based research methods, depending on the project or educational programme at hand. Devising new research models places heavy demands on landscape education. It requires new partnerships between academia and society; new modes of pedagogical cooperation between different landscape knowledge areas; and new teaching methods from undergraduate through post-graduate level. Critical thinking, reflective practices and transdisciplinary collaborative skills are increasingly recognized as foundational for addressing complexity. This paper explores how landscape architecture pedagogy, at the PhD level in particular, can be reimagined to foster those crucial habits of mind.

Animating new habits of mind – two cases from PhD education in landscape architecture

New ways of researching in landscape architecture begin with new ways of teaching landscape architecture. This paper presents two cases - two PhD level courses - developed at the Swedish Agricultural Sciences University (SLU), Alnarp campus, to specifically foster critically integrative habits of mind in landscape architecture research and practice. To activate the potential of landscape's wide knowledge base, and its range of available working methods, these courses were conceived to test ways of integrating previously isolated landscape knowledge resources.

Case 1: Ecotone thinking in the landscape field: a model for collaboration in theory and practice (offered fall 2016, SLU Alnarp campus)

With demands ever increasing for inter-and transdisciplinary research, developing effective processes for working between and across historically distinct landscape knowledge areas has become ever more urgent. Landscape researchers interested in sustainability and urban issues in particular need to tap into their field's inbuilt trans-disciplinarity and learn to navigate across traditionally separate, but practically intertwined, areas of concern such as landscape planning, landscape design, and landscape science.

The Ecotone Thinking PhD course actively sought out participants committed to different research fields within or close to landscape architecture, to explore how PhD students co-operate and communicate with colleagues whose interests overlap their own, but whose working methods, disciplinary frameworks, theories and value sets differ. Three landscape professors were enrolled – one from Urban Forestry, one from Landscape Planning and one from Urban Design. Students, whose landscape PhD topics framed research questions from natural science, social science, creative process and design perspectives, engaged in a week-long, hands-on experiment that combined theoretical and practical modes of investigation.

Lectures and seminar sessions explored knowledge creation in interface zones -- 'epistemological ecotones' between disciplines (Müller D., Tjallingii S. & Canters K.J., 2005) as well as between practice-theory (Davoudi 2015, Hillier & Metzger 2015, Pløger 2010, Nowotny 2000). A concurrent living-lab experiment in collaborative field studies, 'Reading urban landscapes' required participants to visit, analyze, document, and present a landscape field-study of a treed urban landscape selected precisely because it was open to multiple understandings, evaluation methods

and reference frameworks. The field-study asked participants to negotiate different working methods, assumptions, and value sets and to reflect explicitly and critically on their own working processes.

Case 2. Criticality in, on and for design: towards an understanding of critique in landscape architecture and urban design (offered fall 2018 by SLU, at UPC Polytechnic University of Catalonia, Barcelona)
Critical discourse 'channels change' by propelling theory and practice forward. In-depth critique nevertheless remains a relatively rare phenomenon in design fields directly concerned with the conception and realization of our constructed environment. By taking a position on the place, agency and contributions of specific works of landscape architecture, while at the same time contributing generalizable illuminations relevant to the entire discipline, critique offers a means of reflecting on the dynamic interplay of societal forces, creative processes and practice-based interventions that informs contemporary landscape architecture production.

The 'Criticality in, on and for design' PhD course explored the phenomenon of critique and its importance for developing sustainable urban landscapes with a group of 10 students, studying in 6 European countries, bringing backgrounds in engineering, literary studies, environmental science, public process facilitation, urban planning, architecture, landscape architecture and design. Some participants had just began their PhD, others were near completion.

In a 2-day core seminar, participants closely engaged with theoretical texts using rhetorical précis to guide discussion on the practice and place of critique in academic and professional contexts. They presented and analyzed sample critiques, and applied insights from those analyses to their own critique writing practice. Two lectures on the place of critique and critical thinking in research, generally, and critique more specifically within landscape architecture as an academic discipline and professional practice, provided a backdrop for student-led discussions exploring the impact of disciplinary formation (habits of mind) on critical positioning.

Mutual provocations
The imperfect mirroring between professional concerns and the mapping of issues in academia engenders productive tensions necessary for the evolution of urban design as a field. In any profession, pedagogy and practice set up a charged and mutually inflecting dynamic. A fertile relationship exists between speculative research pursued in an academic context and the needs for current professional practices confronting urban development challenges, but has to be continuously contested and re-instated. Conceptual frameworks and representational strategies developed in academia illustrate and critique the needs of practice, while the demands of practice serve as provocations to reassess pedagogical techniques and content presumed central in schools.

Landscape architecture education must proffer the tools necessary to admit its recipients' entry to their chosen field. This education also ought to incite those individuals to pursue the kind of questioning that guarantees evolution of a profession or knowledge area beyond its currently imaginable bounds. The paper will provide an in-depth description of each case, to show how course structure and content was conceived to realize their pedagogical goals; collaborative and critically thinking skills in order to strengthen transdisciplinary landscape knowledge production.

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Complexity, otherness and change in Arctic landscapes—didactic methods and experimental approaches to planning

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Keywords: Complexity, landscape analysis, mapping, openness, experimental approaches

Our concerns are the environmental challenges and damaging global forces that are changing landscapes and living conditions in the Arctic, and the way architecture and landscape architecture students are prepared for approaching these challenges.

Arctic landscapes, cities and societies are heavily affected by global incidents and forces beyond local influence or control. Well-known and severe environmental challenges due to overpopulation, escalating urbanisation, economic crises and overexploitation of nature, has resulted in increased vulnerability, and evoked new awareness of the state of nature and landscapes. Not only are ecosystems put at risk, but the environmental changes have increasingly reached a point of no return.

In our practice as architects in Arctic landscapes we experience the complexity and unpredictability of the changing forces, but also the lack of adequate tools within the present planning-system. As teachers of architecture and landscape architecture we have similarly seen a need to develop experimental, subversive and open approaches that are flexible and adaptable. Our wish is to present methods that are more 'hands-on' the reality of the landscape – to help the students encompass and analyse the context, and to develop a better understanding to act as architects in changing landscapes and societies.

Theory and didactics
The theoretical foundation for a renewed planning approach comes from a notion of the landscape not being restrained by nor reduced to its physical place, but rather, as elaborated by Doreen Massey, to see the landscape as a derivation of time and space – 'to give space (literally) for a multiplicity of trajectories' (Massey 2005:5). This unrestrained and extensive way of thinking about landscape as an unlimited source of information, is fused with post-structural concepts such as complexity and a non-hierarchical understanding of society. This implies a genuine interest for 'real life', which contrasts Lefebvre's (1996) statement that architects and planners traditionally are behaving with internalised arrogance. Lefebvre warns against a pretentious expert regime that is not in contact with 'the real', as he distinguishes between to 'inhabit' as 'significations perceived and lived by those who inhabit' and the experts' 'interpretation of 'inhabiting'' (Lefebvre 1996:158). To gain a new and non-biased understanding in planning, our approach and investigation methods must be open and adaptive – and allow for the investigation to repeatedly change form and direction along new trajectories. The concept of an open research method is based on the Deleuze Guattarian idea of the rhizome, which means that an investigation can confront (and use) any information of interest, including the singular and the subjective (Deleuze & Guattari 2004). The approach challenges strict empirical-quantitative methods and is mainly a qualitative approach including artistic methods and mapping. These methods liberate the architect to use and develop personal skills, and to understand and accept the role as a participant in the process – in the sense Michel de Certeau (1984) talks about the researcher as a participant and a fellow 'walker'.

Applied methods
We have tested and developed the investigation methods in several projects, competitions and master studios, and have also further elaborated them in several papers, articles and publications. The investigations are always highly contextual, and the methods have to be reinvented and adapted to the landscapes and issues at stake. As examples of applied methods, we will use three master studios at Bergen School of Architecture (BAS) and Tromsø Academy of Landscape and Territorial Studies (TACL). They all discuss landscapes exposed to different global forces of economic, cultural or environmental character with potentially devastating impacts. The studios prepare the students with basic ideas about investigation methods and theory on spatial and non-biased approaches to the landscape. The students receive general information about the context and vibrant issues at stake, but the didactic idea is to guide the students to develop their own skills and knowledge supported by lectures, reading and fieldwork, and to become an integrated part of the investigation. The curriculum is additionally developed through literature studies and contributions from transdisciplinary scholars, experts and professionals e.g. social anthropologists, sociologists, philosophers, planners, artists, urbanists, and fellow architects. The studios follow a progress plan of thematic research, where the subsequent assignments and not the least the concluding work task have open formats. We encourage a high level of diversity in the submitted material.

Emerging Arctic Landscapes (BAS, 2011) – study area Finnmark and at the Kola peninsula
The objective of the studio was to create a platform for critical conversations on the severe and accelerating changes currently taking place in the Arctic region. The studio developed during a road trip from Hammerfest to Murmansk, a slow journey through a cross section of (seemingly) remote Arctic landscape and intrusive industrial developments. The investigations encompassed a broad span of examples of landscape occupations, practices and arctic urbanizations – studying the forces of growth and decline that are in play in the Arctic. (See Figure 1)

Focal Point Biedjovággi (TACL, 2014) – study area Kautokeino and Biedjovággi
The studio related to the critical debate on the development of Northern landscapes – in particular the vibrant conflict between reindeer husbandry and the industrial extraction of minerals and other
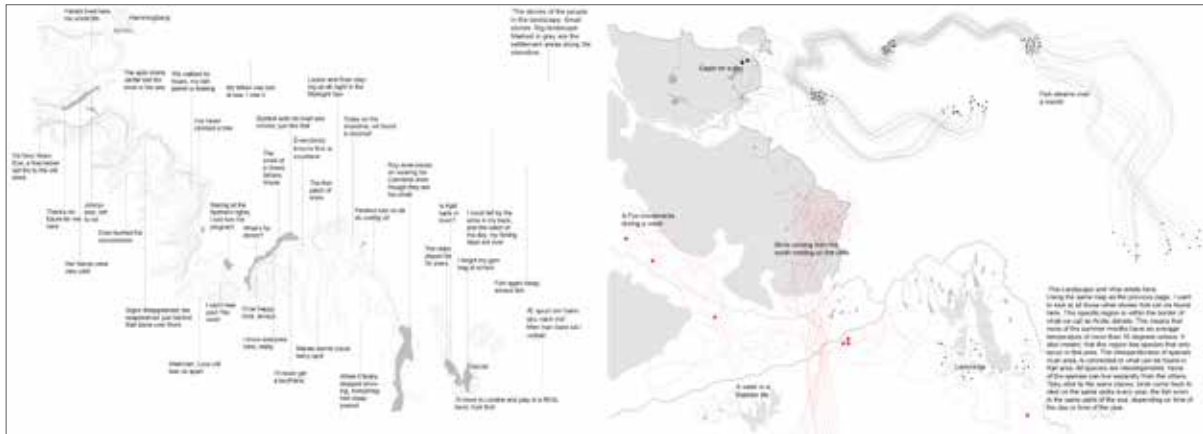
Figure 1.

natural resources. In the latent conflict of mining in Biedjovággi the interests of different landscape actors were in fierce confrontation, and the studio discussed to what extent this opposition can be negotiated. Through theoretically and visually informed thematic investigations and processed findings, the students defined their own project assignments, generated both by individual and collective experiences. (See Figure 2)

Layered Landscapes Lofoten (BAS, 2017) – study area Lofoten and Vesterålen

Ideas were developed under the themes of complexity, imbrication, vulnerability, fieldwork, flexibility and reorientation – all based in and informed from contemporary and historic layers of the dramatic and contested landscapes of the Lofoten Islands. The archipelago has for decades been under pressure from escalating tourism, oil prospecting and new industries changing the landscape. Additionally, traditional and modern fishing communities are in constant transformation and alteration due to structural changes and political and climatic influences. These ongoing processes demand awareness and knowledge to build resilience – to maintain flexibility for changes – but at the same time to be in control of the changes' impacts on the complex ecology of landscapes and societies. The book; 'Layered Landscapes Lofoten – understanding of complexity, otherness and change' (Haggärde & Løkken 2018) is based on this studio. (See Figure 3)

The master studios and their didactic intention aim mainly to create an open testing ground for the students to experiment with progressive mapping. We consider mapping as various complex and artistic methods that liberate knowledge and creativity. 'Mapping' operates by 'variation, expansion, conquest, capture, offshoots' (Deleuze & Guattari 2004: 23), and is clearly distinguished from 'tracing', which is described as something that 'always reproduce already alleged knowledge' (Ibid). Using a 'rhizomatic' approach and following 'lines of flight', that according to Doina Petrescu 'are an abstract and complex enough metaphor to map the entire social field, to trace its shapes, its borders, its becomings' (Petrescu 2005: 44), the students will gain experiences that appear potentially existential to their professional and personal behaviour.

These investigation methods are in their nature unfinished and adaptable, and they will not provide any definitive answers, but require curiosity and an open mind-set from the students, that will make a variety of knowledge relevant and useful. In combination with a high level of theory and reflection, basically all of the students' work led to unexpected architectural answers – which at its best can challenge the meaning of architecture, the way we see and evaluate planning, and finally our performance as architects.

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Figure 2. Eight seasons

Figure 3. Layered landscapes

Relationships between the Bauhaus and landscape architecture. A historical review and thoughts about the role of design propaedeutics today

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Keywords: Bauhaus, garden history, design teaching, theory, propaedeutics

This paper will take the much-celebrated 100th anniversary of the foundation of the Bauhaus in 1919, i.e. the 'Bauhaus year', as an occasion to explore the little-known relationships of the profession of landscape architecture with the Bauhaus, on different levels and at different times, and evaluate its significance for today's academic education. In particular it will present some ways in which Bauhaus concepts have influenced German landscape architecture education during the 20th century. In a second part, Bauhaus didactics and the specific type of design propaedeutics in form of the Bauhaus preparatory ('Vorlehre') course, will be traced in today's landscape education in Germany and critically discussed. Finally, a connection will be drawn to contemporary efforts to describe the specific design related type of knowledge involved in landscape architecture teaching.

One hundred years ago, in 1919, the Bauhaus school was founded in Weimar, Germany. It introduced a new approach to studying design and art with a social relevance, from ceramic art via weaving and architecture to painting and graphic design, and it became the most important art school of Weimar era Germany with an international significance. During the years of the Bauhaus' existence from 1919 until its closure by the Nazi authorities in 1933, the designing of gardens was at no time an explicit part of the curriculum. However, the school had a fundamental impact on all design fields including landscape architecture, and some studies have indeed revealed different connections between garden design and Bauhaus thinking. Apart from that, Bauhaus masters like Walter Gropius and especially Ludwig Mies van der Rohe were directly involved in garden projects years earlier; this has been fully acknowledged relatively late (Müller 1999; Bergdoll 2001).

In 1924, a Bauhaus-trained garden architect and collaborator of Gropius named Heinz Wichmann submitted a petition to the Bauhaus teaching faculty, in which he proposed the introduction of a curriculum for garden design ('Gartenkunst' in German), and which was met with approval by the head teachers (Müller 1999: 109). As far as it is known, when the political situation forced the Bauhaus to be transferred to Dessau in 1925, the plans were dropped and never taken up again. This happened during a period in which the 'Ausbildungsfrage', the question of education, was discussed with fervour among the professional sphere of garden designers (the term 'landscape architect' became common usage in Germany only after 1945). At that time, the design of gardens was still taught exclusively at horticultural colleges (e.g. in Prussia at Berlin-Dahlem, Geisenheim and Proskau) with dedicated classes, conferring officially recognised certificates as Gartentechniker ('garden technician'). Regarding plans for an educational upgrading,

different factions within the profession held different opinions. One group believed that garden design should be taught at art academies, others argued for a practice-oriented education at schools of applied arts (Kunstgewerbeschulen), a third group wanted young garden architects to study together with architects at the renowned institutes of technology, another group wanted the classical horticultural colleges to be upgraded in status, while the idea pursued by a fifth group was finally crowned with success: the first German university-level chair for garden design was installed at the Berlin Agricultural College in 1929 (Milchert 1983; cf. Grützner 1998: 134–142, 187–191). The Bauhaus school seems to have briefly been considered as one option, as the reform-minded editor-in-chief of Die Gartenkunst, Carl Heicke (1862–1938), supported Wichmann's mentioned petition (Müller 1999: 109). The debate about the different concepts for an upgrading of the education of garden designers serves as a reflection on today's teaching concepts and illustrates the relevance of historical research for the identity of our discipline, as variations of the lines of argument from the early 20th century can still be heard today.

Apart from the documented proposal to incorporate landscape architecture into the Bauhaus curriculum at Weimar, there is a second intriguing historical anecdote that came to pass in the years 1945–47 at Dessau, when the former Bauhaus student Hubert Hoffmann (1904–1999), supported by the pre-1933 mayor of Dessau and other friends of the Bauhaus, tried to re-establish the institution and to orient it towards a new ecological agenda (Simon 1996; Hoffmann 1970). Part of Hoffmann's idea was to make a horticultural preparation course the central part of the new school, and the landscape architect Walter Funcke (1907–1987) was part of the preparatory cooperative. At some stage, a high-profile colleague of Funcke's, the landscape architect Hermann Mattern (1902–1971), was even foreseen as the future head of the re-established school; matters of the landscape were identified as societal core issues (Hoffmann 1985: 62). The project was far advanced when the political conditions changed once again and the new socialist city administration under Moscow's control dropped the support (Hoffmann 1970: 373–4). Thus at Dessau the project to revive the Bauhaus was cut short, but several people incorporated essential parts of the school's teaching concepts into art colleges in different German cities.

One of these efforts was driven at Kassel by Mattern, who was also very involved with the re-established Werkbund at that time (Hopstock 2012). In 1948, together with other designers and artists, he established a new type of public art academy programmatically named Werkakademie, where for the first time landscape architecture was to be taught

in close relation and on par with other arts; quite like Christian Cay Lorenz Hirschfeld had already demanded in the 18th century, as Mattern himself proudly pointed out (Mattern 1966: 121). In 1951 the Werkakademie published the 'ABC' booklet in which the connection to the Bauhaus was made explicit (Werkakademie 1951). When Mattern became professor at the Technische Universität Berlin in 1961, he transferred his design didactics to the new academic context.

If we trace the fundamental design education in landscape architecture since Mattern's times, this indirectly leads us to one of his successors, Hans Loidl (1944–2015). The lecture notes for Loidl's introductory course on designing landscapes became a kind of design bible amongst Berlin students of landscape architecture during the 1990s, and it lives on as revised version in the book *Open(ing) Spaces. Design as Landscape Architecture* (Loidl & Bernard 2014, 1st edn 2003). The exposure of references to Bauhaus concepts in Loidl's teachings will be complemented by a brief reflection on the meaning of that type of design didactics for a progressive landscape architecture curriculum today – including new opportunities in form of design-based post-graduate research programmes – that addresses new challenges our profession is faced with.

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Evolution of landscape architecture education—celebrating its 50th anniversary in Turkey

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The complexity of landscape as the subject area of landscape architecture is reflected by the diversity of approaches that can be found throughout Europe. While there is much to be done to move towards the convergence that is one of the main goals of the Bologna Process, there is also much richness and variety within European landscape architecture education. This vernacular diversity is rooted in the nature and culture of societies and of landscape itself (Bruns et al., 2010).

The roots of the landscape architecture education in Turkey date back to 1933 when the Ornamental Plants Division was established under the Higher Agricultural Institute in Ankara. Meanwhile in İstanbul, Russian professor Alexis Chencine started to teach a course on Park and Garden Design in İstanbul University, Faculty of Forestry, in the 1939/40 academic year. (Ortacesme et al., 2017). Formal education of landscape architecture in universities in Turkey started at Ankara University, Faculty of Agriculture, in 1968 (Arslan, 2015). All of the schools established in the early years were under either the agriculture or forest faculties since the teachers of early programs were a mix of horticulturalist, agronomist and foresters.

The 1990s were the years of change and transformation in landscape architecture education in Turkey. In 1991, a landscape architecture program was started for the first time in a foundation university (Bilkent University in Ankara), which had a different orientation from the previous ones. Named as Urban Design and Landscape Architecture, this program was the first in the context of strengthening the architecture and design aspect of the discipline and did not include many courses of agriculture and forestry faculties in its curriculum. The 2000s have been the years of diversification in the schools of landscape architecture in the country. In 2002, a landscape architecture program was established for the first time under a faculty of architecture of a public university (İstanbul Technical University in İstanbul). These years also witnessed the opening of new programs under very different faculties such as the fine arts and fine arts/design. Today, the number of schools offering bachelor's degree in Turkey has reached 38. However, there are 34 more schools which were officially established, but not offering any degree, yet (Karacor et al., 2018).

Regarding the curriculum, students of the earlier landscape architecture programs in agriculture faculties had been taking one year joint training with the students of the other faculty programs. There was a gradual increase in the number of subject-specific courses starting from the second year. This situation was a result of the regulations of agriculture faculties as the students had to take the same compulsory courses regardless of the programs they enrolled in. For example; among the compulsory courses of agriculture faculties were agricultural economics, statics and strength, phytopathology, entomology, statistics, horticulture, field crops, animal husbandry and, the students of landscape architecture programs were no exception to these. Another reason for the compulsory courses was the professional title given to graduates. Between 1968 and 1990, graduates of the agriculture faculties were given the title of 'agricultural engineer' while the graduates of forestry faculties were given the title of 'forest engineer'. One of the students of the landscape architecture program of Istanbul University, Faculty of Forestry took the question of 'professional title' to court in 1990 and got a result in favour of the title of 'Landscape Architect'. Since then, the graduates of the landscape architecture programs in Turkey are given the title of 'Landscape Architect'.

Today, the schools of landscape architecture in Turkey can be grouped into three according to their curricula: 1) Agriculture-dominated 2). Forestry-dominated 3) Architecture/design-dominated. However, the domination is not as strong as in between 1968 and 1990. Developments in the professional field in the world and Turkey, the establishment of professional organizations, the new areas of action of the discipline are reflected in the school curricula, and the major part of the schools determine their own curriculum according to IFLA and ECLAS documentations, accreditation criteria, countries' needs, independently of the faculty in which they are established.

The growing number of schools and the variation of faculties have led to the need for an effective cooperation in education and other academic matters. For that purpose, two complementary platforms, named the Landscape Architecture Academic Community (PEMAT) and the Council of Landscape

Architecture School Heads (PEMKON), were set up. Both platforms meet regularly, discuss issues and problems in education and research, and take decisions. For instance, a commission set by PEMKON prepared a report on the basic knowledge areas to be included in school curricula by examining the curricula of some European and American schools and by taking into consideration the ECLAS document on Tuning Landscape Architecture Education in Europe, the accreditation criteria of American Landscape Architecture Accreditation Board (LAAB), the IFLA documents on LA education as well as the needs of Turkey. The report advised that 50 % of the courses should be formed from those which support the notion of planning and design, and that the 25 % of the courses should be electives according to the European Union Bologna Process, to which Turkey is party. In accordance with this report, some existing schools revised their curriculum and the newly established schools used it as a guide while formulating their own curriculum. In January 2018, the Turkish Association for Landscape Architecture Education and Science (PEMDER) was established under the auspices of PEMKON as the institutional body of Turkish landscape architecture academic community in order to overcome some practical difficulties while implementing PEMAT and PEMKON decisions. The new association is supposed to undertake some other missions such as the accreditation of landscape architecture programs in Turkey.

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'To broaden the outlook of training'—the first landscape course in Manchester, UK

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In June 1924 the prominent landscape architect and civic designer T. H. Mawson wrote a letter to the editor of the Manchester Guardian, C. P. Scott, offering an article about the urge to create a university course to train Landscape Architects. Although the editor found the idea interesting, he asked Mawson to submit his article as a letter to the editor. On 11 July 1924 a letter, titled 'Landscape Architecture. The Need for a Training Centre' was published in the Correspondence. Mawson, who signed the article as 'Past President of the Town Planning Institute, had long been a keen advocate of the formation of specialist training centres for landscape architects. Being a self-trained designer, who started his career as a nursery man, Mawson was early to identify the importance of specialist education for landscape architecture and the contribution this would make towards its recognition as a true design profession. Most importantly, as Mawson argued, there was an immense need for well-trained designers to shape public spaces, rather than only focusing on private gardens. This focus, on private spaces, derived from the existing education system: up until the twentieth century the practice of landscape architecture was taught primarily through apprenticeships. In the 1880s the School of the Art of Landscape Gardening and Improvement of Estates at Crystal Palace was established, and there were garden design courses at Colleges such as Swanley or Glynde for ladies. Mawson tirelessly argued, that public parks and other open spaces in cities were overlooked from a professional point of view, and that these should be designed by landscape architects, and not be 'almost entirely the work of amateurs.' Specialist education was therefore a key to the betterment of cities.

In 1934, ten years after Mawson's letter and only a few years after the first degree course in landscape architecture in the United Kingdom at the University of Reading, the Manchester Municipal School of Architecture at the Municipal College of Art launched a new course in landscape architecture, established by the Manchester Education Committee. According to the prospectuses of the School the reason for this was, to 'meet the call for an Art training' in landscape architecture because the 'architectural aspect of landscape work is becoming more important, and there has been a desire to broaden the outlook and training of those likely to be in charge of public parks and open spaces in the future'. The statement and the emphasis on the importance of well-designed public spaces clearly refers to Mawson's aims to educate a generation of professionals for the improvement of the public sphere. The curriculum was developed in consultation with prominent professionals, such as the President of the Institute of Landscape Architects, Edward Prentice Mawson, who himself was trained as an architect in the Ecole des Beaux Arts in Paris, the Manchester Parks Superintendent J. Richardson and the Manchester City Architect G. N. Hill.

The course was an interesting and unique collaboration between the Municipal School of Architecture and the University of Manchester. Students were expected to study horticulture as ancillary to the course through the University's Botany Department, and the artistic and architectural elements of the course were taught through lectures and studio units under the direction of the staff of the School of Architecture. Furthermore, being part of the Municipal College of Art gave them more opportunities to discover links between the fine arts, architecture, landscape and town planning. A diagram, featured for several years on the cover of the prospectuses of the College showed the intricate links and overlaps between the disciplines of Art, Architecture and Design (Figure 1). The inclusion of landscape in the diagram shows a very holistic understanding of the built environment professions, and the course's dual institutional background must have given an extraordinary experience for the students. They were part of the University's scientific life as well as the artistic life of the College of Art.

This paper, besides being the first comprehensive study on this important chapter of landscape architecture education, explores how Mawson's aim to train landscape architects who are specialised in designing the public domain was realised in Manchester at one of the earliest landscape architecture courses in Britain. It will also analyse the curriculum and the history of the course in a national context, highlighting its distinctive and innovative approach in using the resources of an art college and a long-established traditional University, as opposed to other courses, such as at the one at the University of Reading. The research will also contextualise the Manchester course internationally, drawing parallels and highlighting its unique features compared to courses in Europe and the United States of America. Furthermore, it will examine how the tradition of educating landscape architects as part of a well-known and established art and architecture school laid the foundations of landscape education in the city, continuing up until today.

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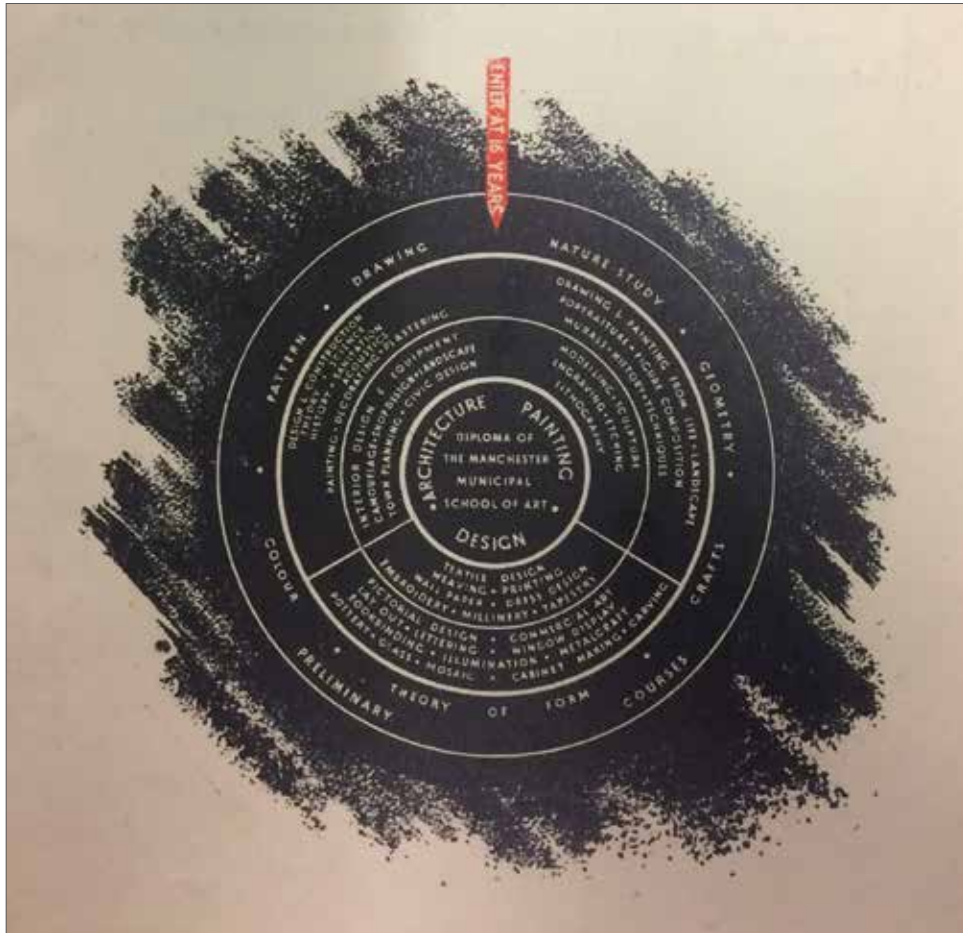
Figure 1. Diagram depicting the disciplines taught at the front cover of the Manchester Municipal College of Art Prospectus 1946-47 (Image Courtesy: Manchester Metropolitan University Special Collections)

The NMBU university park as a didactic place

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In this paper, I will present reflections on the didactic use of NMBU University Park in landscape architecture education during the last hundred years. The aim is to identify the different roles of the University Park has had, and still have.

Methods used is an archive study for the historic part, and for the later years my own experience as researcher/lecturer and currently as park director.

Current goals for developments in the park are closely linked to the university's education and research goals on sustainability and climate change, and could be exemplified by gravel beddings, handling storm water and environmental-friendly maintenance. Protection and restoring of the historic campus park is also an important goal, securing the site for future generations and offering study objects in restoration and heritage issues.

Arboretum

The park as study ground for displaying plants to the students has been an important aspect from the founding of the school in 1859. An arboretum was planted in relation to establishing of education in horticulture in 1887, and the collections have thereafter repeatedly been extended. This gives students an opportunity to learn and to identify plants and trees 'in natura', using their senses learning about their appearance, age, scent and other characteristics.

Moen and his park models

With the foundation of Europe's first education programme in garden architecture on a university level in 1919, the need for renewing the park was urgent. Olav Leif Moen was the first and for decades the only teacher in garden architecture. Moen wanted to show modern park design, as a pedagogic tool and to demonstrate that the new education in garden art was an important part of the institution. His master plan from 1924 made the ground for the transformation, showing his appreciation for the vogue of Arts and Crafts of the time, as well as historic formal gardens. Moen designed the park as a collection of models, as different types of stairs, ponds, flower beds, and varied garden designs from formal to more naturalistic approaches. This gave him an on-site toolbox in his didactic program. In addition, he used in his tutoring 'before and after' drawings and construction drawings.

Student involvement

In recent years, master theses and other student projects such as 'design-build' have become a driving force in both restoration and innovation projects in the University Park.

The practical side is also of importance, as lack of practical skills is more than ever a challenge in landscape education. The hands-on involvement in the park is widely appreciated by the students. Many landscape architecture students have had trainee or
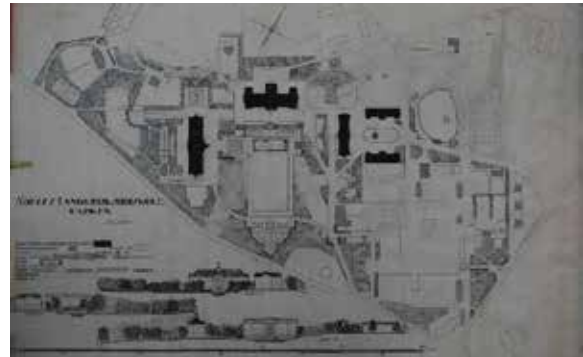
Figure 1. Moen's Master plan in 1924

Figure 2. A view of the NMBU University Park today

Figure 3. Historic Hirsch stairs were reconstructed after a master thesis initiative.

summer jobs in the park, developing their sensibility and awareness of the basics of landscape architecture. This tradition dates at least back to Moen's time. Back in the postwar 1940's students volunteered in constructing sports fields and the surrounding park, contributing 17,108 working hours.

Student gardens

Creation of temporary gardens that last for just a few days and even hours, has been a yearly activity in the education from the 1980's to the present. The goal has been to make the students more aware of the proportion and 3D impression of their designs. The outcome has no doubt been worth the efforts, but the handcraft of garden making has suffered, as the gardens often have more a coulisse nature than a garden. In the last four years we have managed to build real projects in the park, on a professional level regarding construction methods and materials used. First year students have had this as their introduction to landscape architecture, helping them to reflect on practical issues. Important outcomes have been raising a sense of belonging to the group, to the campus and in a broader sense, belonging to the field of landscape architecture. The students are usually fond of creating a piece of the park, revisiting 'their garden' later during the education. Concepts and ideas for the workshop project have varied, but with scope adding a contemporary and environment friendly addition to the campus. In 2014 the planning part was organized as a student competition, offering the students to present ideas for projects and sites on campus. In years following the student project was not drawn by students but more leaned on the construction on site-part, and the projects included in larger scale ongoing campus projects run by the teachers and the Park Department. Scopes are also new planting practices; as chalky gravel plantings with low maintenance effect, as tried out in the two last years' student workshops.

In 2018 the students' making of a geological garden, resulted in a study garden for their following lessons in geology as well as skills and awareness of outdoor construction works. Practical hands-on lessons on site evoke the students' awareness of thinking landscape construction. In the introduction to landscape architecture course evaluation, the students highlighted the workshops as an important and inspiring part.

Reconstructions in the park

Garden history and heritage issues are a substantial part of the education in landscape architecture at NMBU, and in the last years the historic park has increasingly been used in this respect as a study object. The Institute of Landscape Architecture has run an archive project collecting and digitalizing historic maps of the campus. Conservation and management guidelines for the park have been drawn up in 2014 and many suggestions have been executed on site.

Student initiatives and projects have been important for the historic park. A master thesis was the ground for reconstructing the Hirsch terrace, a project drawn by Moen in 1929, but demolished in the late 60's. The students' construction drawings were a starting point for the actual reconstruction that took place during 2015-2016. Students have also been involved as trainees in actual restoration work, such as planting of the herbaceous plantings in the reconstruction of a 1940s Stream Garden, nicknamed 'Niagara'.

A social space and a meeting point between different professions restoring and upgrading of the park, gives students a place to be, live and learn. Workshops and interventions are popping up from time to time, through various initiatives. In 2018 two master students in scenography from The Norwegian Theatre Academy laid out interventions in the park trying to broaden our understanding of nature through art, displaying rotten tree trunks and art installations which included mushroom growing. These are examples of the park as meeting point, connecting different academic approaches.

Concluding remarks

The park is connected to a multitude of historic and new layers of didactic use. I will argue that the education efforts involving the park have been of substantial importance in the raising of landscape architecture as a profession in Norway.

The park as didactic arena seems to be more important than ever and it is well worth emphasizing its value even more in the future.

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Special session

Challenges and opportunities of landscape architecture education in the Arab world: The experience of the American University of Beirut

Organisers:
Yaser Abunnasr, Nayla Al-Akl, Monika Fabian, Jala Makhzoumi, Salma Talhouk, Rami Zurayk, Beata Dreksler, Maria Gabriella Trovato
American University of Beirut, Lebanon

The Arab World presents a challenging context professionally, politically, environmentally and educationally for the profession of landscape architecture. Professionally, it remains an unrecognized profession by ministries of education, professional bodies and the professional market. Politically, turmoil engulfs many countries leading to a changing physical landscape, refugee crises, resource stress, and a changing demography, society and culture. Environmentally, The Arab World is and will be one of the most hardly hit areas by climate change. Water scarcity will be heightened, ecological stress will be increased, and vulnerable communities will be impacted. With such a challenging environment, the education of landscape architecture is both an opportunity and a challenge.

This panel of educators from the Department of Landscape Design and Ecosystem Management (LDEM) at the American University of Beirut (AUB) will share the experience of eighteen years of challenges and opportunities in the development of a curriculum, teaching pedagogy, outreach, and research agenda. Several presentations will discuss these issues through the focus lenses of the ECLAS call, namely: context, curriculum, pedagogy, research, and the profession. The presentations are sequenced to address the large-scale context of the region as well as the specificities of the program at AUB; Challenges and Opportunities of Landscape Architecture Education in the Arab World and Lebanon; A context specific curriculum in Landscape Architecture: Responding to local ecological, equitable, and economic specificity; Holistic and Immersive Pedagogy of teaching: Addressing Global issues through local Initiatives; Threats and challenges as opportunities for integrated, applied and meaningful research; and Advancing the profession through academic advocacy: Making professional impact across disciplines.

Workshop
Learning to read the landscape: a methodological framework (90 minutes)

Organisers:
Benedetta Castiglioni, Margherita Cisani
University of Padova, Italy

The ability to read the landscape – and to act accordingly – comprises a real involvement of the individuals and contributes to the achievement of a mature citizenship. It is a process involving not just the knowledge of landscape characters, but it focuses more broadly on the acquisition of 'a way to look' at the landscape in its dynamic and complex nature and to act responsibly on it.

This workshop aims at presenting, testing and discussing a methodological framework for landscape education, which is based on the concepts of landscape reading and landscape literacy. It is organised in four different paths which question the landscape in its multifaceted nature, from four different perspectives and dimensions: the material and objective dimension; the immaterial and subjective dimension; the causal relationships; the transformations. Learning to identify these dimensions in any given landscape seems a very relevant objective for educational processes, as it can lead to a complex and insightful reading of the landscape.

After an introduction of the methodological framework, the participants will directly experiment this approach during a short walk in the areas surrounding the conference venue, as an attempt to read a local landscape. Then, the workshop will proceed with a debriefing phase, with a world-café method which will animate the discussion on the strengths and weaknesses of this framework, as well as on its adaptability in different contexts, such as higher education, school education or citizens' awareness projects.

We expect the participation of scholars engaged with/ interested in pedagogical and didactic issues but also practitioners as well as teachers and educators at all levels. We kindly invite anyone who is interested in discovering and experimenting some tools for landscape education, discussing the methodological framework and sharing their own experiences in relation to it.

PARALLEL SESSION #4

Teaching the unpredictable, critically engaging with urban landscapes

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Swedish University of Agricultural Sciences

Keywords: Urban landscape, societal challenges, criticality, design thinking

Urbanisation is a global trend, and since industrialisation intervening in the urban realm has increasingly become a task for landscape architects. In times of rapid change of ecological, economic and demographic patterns, which means in times of extremely unpredictable urban futures, the skills, work modes, methods and knowledge of today are often outdated tomorrow. As a basic tenet we propose to reject the dichotomy of 'urban versus rural landscapes' which does not make sense in an era of 'planetary urbanisation' (Brenner 2017) and concentrate on understanding change of space (dynamic) instead of state of space (static) along with relationships between the built-up and the not built-up as one complex urbanisation-induced landscape system. Education of 'future-proof' landscape architects, therefore, has to acknowledge that teachers need to prepare their students to tackle situations of a future that cannot be fully anticipated today. Consequently, we aim to teach the unpredictable – i.e. the ever-evolving complexity of urban landscapes – through engagement in an open-ended learning process that focuses on re-formulating questions and re-defining methodology, instead of posing standard questions and training through traditional methods. The authors require this engagement to be critical, in the three meanings of the term: to create awareness of sites and situations at risk; to search for the crucial conditions to intervene in those situations; and to formulate well-argued positions that invite for change.

Working as colleagues at the Swedish University of Agricultural Sciences in Alnarp (SLU) since 2013, we strive to combine two approaches typically separated in landscape architecture education: the scientifically inspired approach, with its rigorous methods of observation, interpretation and academic writing, and the artistically oriented approach, with its case-specific and future-oriented speculations through drawing, modelling, and exhibiting. These approaches, linked to both research and practice in landscape architecture, come with their normative value imperatives: while science is associated with data, analysis, evidence, truth and 'objectivity', design is seen as artistic activity, form finding, craftsmanship, and 'subjectivity'. The first trend is mostly prominent at science and technology universities (termed STEM disciplines in the Anglosaxon context – science, technology, engineering, mathematics) the latter normally rules studio-based curricula (typically taught at art, design and architecture schools). We think clinging exclusively to the one or the other approach is senseless as we need both the scientific and artistic methods.

According to several contemporary scholars of the design disciplines, 'design thinking' (Brown 2009, Lawson and Dorst 2009, Simon 1996, Rittel 1977) is particularly apt to transfer to young people the skills and competences they need to tackle the uncertainties of the 21st century. Design thinking as a method forwards a different kind of knowledge management, namely one that invokes processes of information selection, acquisition, integration, analysis, synthesis and sharing in the networked environments of the contemporary knowledge society (Noweski et al 2012, Moore 2010, Ascher 2009, Nowotny 2008 and 2001). It is astonishing that design thinking as a method remains unfamiliar on the ground from which it arose, namely architecture, urban design, and also landscape architecture. In our paper we will present the set-up and the learning outcomes of two courses, the Thinking Eyes and the Öresundsect, we have devised in 2013 and 2015 at SLU Alnarp, based on design thinking and the entanglement of practice-based and theory-oriented components, and the introduction of a critical perspective to both designing projects and thinking about project design. These courses have been taught as extra-curricular experiments. They delivered insights we strive to implement into curricula and course syllabuses right now, convinced that SLU's landscape architecture education, as any other, needs to evolve in support of a more sustainable way of living.

Design thinking as a conceptual basis for education relies on mode 2 and transformative science. It offers structure to the process of design in clearly defined steps, without putting a straightjacket on the way in which each step is performed and on the nature of the outcomes the whole endeavour intends to produce. As a method-driven teaching model, design thinking transcends both scientific and artistic traditions. Scientific approaches, prevalent in scientific universities such as SLU, tend to shape educational content according to a 'masterplan': data-driven analysis produces clearly defined but sectorial outcomes and little critical reflection about the interrelations of these outcomes with the complex whole of urban landscapes and their future. Artistic approaches, familiar in art and architecture schools, tend to repeat the Beaux Arts 'master model': a master's (the teacher's) intuitive approaches to a problem are adopted by the students and steer the process of making scenarios for imagined futures, and this intuition-driven training hinders the tacit knowledge of the 'making' being raised onto a level of 'thinking' from where insights can be offered as research outcomes. All sorts of knowledge are needed, and even more urgently needed are methods for how to combine forms of knowledge in transdisciplinary ways.

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The studio as the core of design education: Some aspects of studio teaching from three different schools

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The studio (atelier) forms the core of design education in landscape architecture in both the Bachelors' and the Masters' degrees, where theory and practice come together.

Studio-based teaching has been known for a long time; Lucan (2012) traces the history of the studio back to the Beaux Arts system starting off in the 18th century in Paris. In the Beaux Arts, instead of learning the profession at a professional's office, students were working together in a large workspace under the guidance of a studio master. Since that time the studio has gradually taken its place both in architecture and in landscape architecture programs.

In the second part of the last century Schön (1985) established an empirical basis for the studio as a teaching and learning approach, originally only for design disciplines but later on studio-based teaching was also introduced for medical professions, engineering and law studies.

In this paper we will present our personal experiences and reflections on three aspects of studio teaching from different schools in Europe. The cases are from Versailles (École Nationale Supérieure de Paysage, ENSP) (basics of design studio), Wageningen University, WUR (landscape architecture, regional design studio) and Delft University of Technology, Faculty of Architecture (town planning studio). Versailles and Wageningen are landscape architecture schools with full BSc, MSc and PhD programs, Delft is an architecture school where teaching in landscape is fully integrated but also has a separate department.

The main goal of the paper is to elaborate some specific facets of studio teaching as it is practiced in different programs with special reference to basic design, regional design, town planning.

The research method is based on the principles of the case study approach, the material is chosen from notes, projects and presentations from our own teaching.

In the introduction, goals, scope and outline will be elaborated as well as a brief description of methods and materials.

In the first part we will briefly describe the context of the three cases of studio teaching in the different schools. We will present a short description in three sections for each of the schools. These include the background of the school and program, the content of the studio and learning goals and teaching approach. As conclusions for this part the formal differences and similarities will be elaborated on.

In the second part we will deal with some of the pedagogical and didactic backgrounds. The core of the studio-based approach in design teaching is in all three cases learning by doing, group work and individual work, (intermediate) presentations, discussion and grading.

Pedagogy is the science of education. The relation between theory and practice forms the core of the pedagogy in a design studio, especially in the Master's where research is an integral part of the program. Learning in real life situations and problems is characteristic for all design education. For landscape architecture the role of fieldwork is essential.
Didactics is the science of teaching. The core of didactics in studio teaching is learning by doing in which hand drawing in the conceptual phase of the design process plays a key role.

Differences between the three are partly based on the difference in students and how they are selected. The conditions of the local landscape in the vicinity of the school buildings also play a role, while the difference in teachers, their backgrounds and experience determins essential differences. In this part we see that personal and subjective differences dominate the scene. Note that the studio also mimics the work in a design practice; in assignment, presentations, working atmosphere and content. These backgrounds and specific experiences will be compared to publications on the subject by others.

In the conclusion the similarities will focus on learning by doing in which different learning styles come together in a study in real life and in real time. In the Master's program the relation between research and design demands for special attention in the form of advanced site analysis, focus on methodology in the design process, precedent analysis and design experimentation. By far the most important and most challenging in design education is the development of creativity, the gaining of personal insight which form the basis for solutions for problems without precedent. This is usually referred to with the term 'design thinking' where the role of the teacher as a studio master is still crucial, and in landscape architecture the temporal significance i.e. influence of time over space.

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Public space design studio – exploring and learning to do a multipurpose design proposal

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Keywords: Spatial design learning, participation, sharing, debating, negotiating

Learning public space design intervention requires attention to a variety of social, environmental, ethical and aesthetical issues which rely on a diversity of situations, feelings, opportunities and constraints given by the public outdoor space.

The involvement and participation of the teachers, students, stake holders, decision makers and the users in the learning process is the base of this exercise which culminates in a design output contributing to the enrichment of everyone's knowledge or simply awareness of landscape architecture themes, values and motivations regarding the public space.

The learning process here described occurs during a course unit of the first semester of the master in landscape architecture of the University of Porto, Portugal (September to December). It complies 6 contact hours per week, for 14 weeks, a class of 20 students, one coordinating teacher, two other participant teachers, guest lecturers, and decision makers at municipality level.

To face the intensiveness of the course and to guarantee some complexity in the outputs, students are guided to work in groups of four; these groups are proposed by the students and tuned up by the teachers. Student´s assessment by the teachers is continuous regarding the work and outputs performed along the course unit.

1. The practice starts with a walking tour throughout Porto public spaces, from a central metro station situated up town, down to the historic quarter of the old town, at the river bank. The starting point and the end point are suggested by the teachers, but the students are the ones who organize the route which is indicated and followed in satellite images.

It takes approximately two and a half hours along a wide variety of situations; occasional stops take place in key sites where teachers talk to the students facilitating information, reflections and critique of the public spaces that are being perceived and experienced. Students are constantly stimulated to ask questions, and guided to record information through photos, short videos (including sound recording) and sketches.

2. Back in the classroom, the studio sessions begin. The groups select one of the visited spaces to study in detail and set up a methodology aiming at achieving a spatial proposal for the improvement of public space quality. Such quality improvement is mainly focused on universal public access and movement, ground perviousness, biodiversity, aesthetic interest and visual congruence and sustainable opportunities for trees. Later in the session each group presents and states the reason for choosing their case study.

3. Each group returns to the selected space for a detailed site survey. All relevant data (including historic information, easily available) is recorded and discussed among the group members on site, particularly the most evident problems and opportunities present in the existing situation. More images, sketches and written notes are taken. Students are made aware of the importance of spending time on site, using direct observation, making contact with people passing by and paying attention to aspects such as light, colour, sound, functionality, ambiance, beauty, diversity, coherence, and harmony. The first four are assumed as more objective and the following five accepted as subjective. All can be ranked as either 'high, medium or low'.

4. Again in class the groups work intensively on the production of an intervention programme for their site. The programme must define the main aims and the scope for the intervention, meaning what needs to be done in order to increase the quality of the space. It should therefore highlight: 1) the conservation of existing values and activities which guarantee the character of place; 2) the change of uninteresting aspects and activities of the existing situation; 3) the addition of new features or actions in order to fulfil the aims. The programme narrated in a poster assembled with all sorts of graphic information produced by the students, communicating clear orientation for the following stage of the intervention, which is the previous study.

5. After stabilizing and presenting the intervention programme the groups return to the site and randomly ask users their opinion and expectations about the quality of the place through a simplified open-ended questionnaire (five questions per person; maximum 15 people). The questionnaire concentrates on issues related to access, circulation, seating opportunities, other potential activities, vistas, landform, vegetation, water features, biodiversity and human comfort outside. During this outdoor session people activities and behaviour during day time were also recorded through photographs and behaviour maps.

6. The following studio sessions explore and stabilize the first phase of the design proposal, the schematic design. Here the students synthesize leading goals and ideas in spatial form and materials. The design proposal is formalized in a poster containing a master plan, sections and visualizations. Communication and aesthetic quality of the design elements are assessed, and teachers advise on most effective narratives.

7. An 'open to the community' presentation of the previous study is delivered involving local stakeholders (specific for each site) and municipality decision makers. After presenting the proposals the students

take note of the remarks made by the visiting group, their judgements and suggestions, and debate pros and cons. 'Why questions' are organized and presented by the teachers to the students and to the community members participating in the session. Main conclusions for each group are then recorded.

8. Student groups return to the study space with the master plan and visualizations to ask passing people their opinion about the proposals they produced for the site (minimum 15 individuals, with a well balanced representation of gender and age; five min per person). People's responses are registered to inform the adjustment of the design proposal and meet the expectations.

9. Discussion outcomes and users' opinions are synthesized so that each proposal may progress to a consensus and give way to the second phase of the design proposal, the design development. This project defines the final form and shape of the design proposals and progresses to the detailing of landform, outdoor built structure, vegetation structure and water elements. Implementation costs are estimated, and a final project book is produced highlighting the final design proposal, integrating all the elements that contributed to the design process.

10. Both teachers and students organize and conduct the last assessment session. Such a session is planned to guarantee a ten-minute presentation for each group, followed by questions and answers from the teachers. An initial marking procedure is performed by the students; teachers debate with the students and a consensus is reached for the final mark. Assessment in this course unit is also integrated as a participated learning process.

The facilitation of this course unit creates opportunities for several pedagogical experiments and reflections: 1) spatial design learning with complex multipurpose goals can be satisfactorily achieved with group work, varied studio session exercises, frequent debate, critique and discussion; 2) field work is central for getting to better know the place and allowing more efficient design solutions and decisions; 3) public opinion and the involvement of the stake-holders in the design learning process is fundamental to calibrate the proposal and guarantee realistic outputs; 4) raising students' awareness of the importance of the community involvement in public space design is decisive as a learning process and as design strategy.

The proposed pedagogic framework moves beyond the focus of a specific pre-selected site and predefined programme. By exploring an adaptive spatial design process, students are encouraged to develop a cross-cutting, systems view of the landscape, looking at it from an exploratory point of view, but objectively centred on the integration of environmental, socio-economic and aesthetic perspectives.

We can conclude that the combination and involvement of students, users and stakeholders in the design process enriched the outputs, improved the learning methods, and the deliverance of community participation in the public space design proposals.

Figure 1.

Figure 2.

Figure 3.

This is not a breakthrough but an ongoing exercise that requires fine tuning and progress assessment of participatory design in public space contexts.

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Evaluating the case for the 'Spread Studio Model', using Self-Determination Theories (SDT) in education

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Keywords: Spread studio, Self-Determination Theory, motivation, learning experience, design pedagogy

Studios are the main teaching mode in design disciplines, including in the Landscape Architecture program at the Melbourne School of Design (MSD), University of Melbourne. In the Master program at MSD the studios previously followed a conventional model where the master teacher or studio leader leads the subject (i.e. delivers the lectures, defines the design brief, designs the assessment tasks and moderates the assessment), and oversees a number of tutorials (between 20-25 students in each) run by tutors, who are often casual teaching staff. The tutors follow the instructions given by the main coordinator and have limited autonomy in running the studios independently. All students must focus on the same design project and are given the same tasks, which leaves little room for flexibility and choice.

An alternative to the conventional studio model is the 'spread studio', which offers a more constructivist teaching and learning option in design education (Kurt, 2009). In a spread studio a number of parallel studios (or tutorials) with a smaller group of students (i.e. 8-15) are delivered independently (see Figure 1). Each tutorial is led by a studio leader (often a design practitioner) and focuses on a real-world project. The students are given a choice to enroll in one of the tutorials based on their project preference. The role of the coordinator is overseeing the alignment of the parallel studios with the subject's learning outcomes, and each studio leader is responsible for designing and running the studio and has more autonomy in deploying different teaching approaches.

While this model is not novel, it has only been recently introduced in the Master of Landscape Architecture program at the Melbourne School of Design. The main drivers for this shift include the increasing number of students, low levels of student engagement, class participation and motivation and limited room for accommodating diverse learning and teaching approaches in the conventional model.

Design studios are generally complex, and existing research presents evidence on the ambiguous nature of this pedagogical model. Schön (1984, p. 57) argues that the student 'is expected to plunge into the studio, trying from the very outset to do what he does not yet know how to do, in order to get the sort of experience that will help him learn what designing means.' Similarly, Austerlitz, Aravot, & Ben-Ze'ev (2002) note that the complexity is mainly due to the uniqueness and uncertainty inherent in design problems and the creative process of designing. Learning becomes a form of identity formation, and the students go through a process of becoming a particular kind of creative and critically minded design practitioner. Wenger (1999) calls this 'transformative practice', where learning becomes a source of meaningfulness and motivation. Students have to surmount a barrier, or a threshold concept, also known as a liminal space

(Meyer and Land, 2003), which Osmond and Tovey (2015) identify as 'the toleration of design uncertainty'. Factors such as self-efficacy, confidence, flexibility, and connectedness to the subject matter and the student-instructor and student-peer relationships are key in leading the student through liminal spaces by enhancing their motivation for learning.

This research evaluates whether and how the spread studio model enhances the students' learning experience and attitudes by influencing their level of motivation, engagement and volition. This hypothesis will be tested in the newly adopted spread studio model that will be implemented in 'Studio 3: Speculations' and 'Studio 5: Sustainable Urbanism' (Semester 2, 2019) in the Master of Landscape Architecture program at the Melbourne School of Design.

To assess the students' learning experience in the spread studio model this research adopts an analytical lens based on motivation theory in education, also known as Self-Determination Theory (SDT). Intrinsic motivation, as argued by Deci and Ryan (1985), is supported when the innate psychological needs for 'competence, autonomy, and relatedness' are met. Deci and Ryan (1985, 2000) developed the Self-Determination Theory (SDT), which posits that an internal feeling or perception of volition motivates individuals over their actions to pursuit a goal. Niemiec and Ryan (2009) argue that in education when the needs for 'competence, autonomy, and relatedness' are supported it can be associated with improved academic engagement and learning outcomes.

This research addresses three main questions: How the spread studio model influences
1. the students' feelings of competence, confidence and efficacy;
2. the students' feelings of autonomy and freedom;
3. the students' sense of belonging and relatedness to the class.

To address the research questions a mixed methodology is used (see Figure 2). Quantitative and qualitative data about the students' level of motivation, confidence, autonomy and relatedness, are collected pre-studio and post-studio. A self-reporting survey is designed, which is argued to provide the most direct approach to user experience annotation and effect detection (Yannakakis and Hallam, 2011). The survey includes a mix of Likert-scale questions (Spooren, Mortelmans, & Denekens, 2007), preference ranking questions and open-ended questions. The reason for including a pre-studio survey is to be able to have a benchmark against which the results are compared, and to check whether the improvements were related to the new studio model.

In addition to the surveys, focus group interviews are
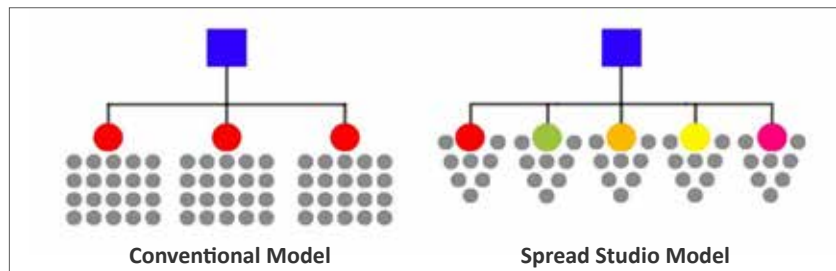
Figure 1. Comparison between conventional studio (left image) and a spread studio model (right image). In the conventional model the topic of the parallel studios is the same, and the student-instructor relationship is often linear. In the spread studio model, each studio is delivered independently and autonomously.
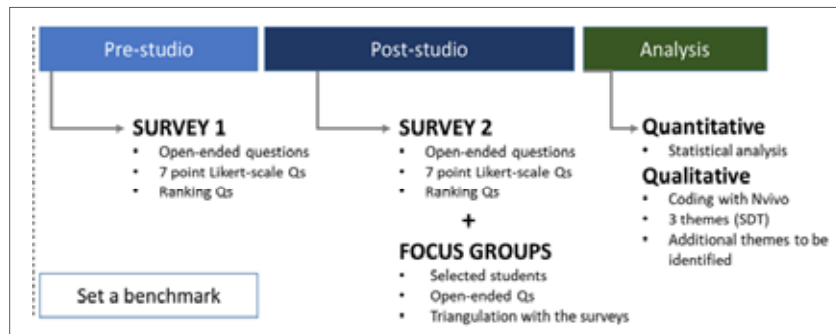
Figure 2. The diagram depicts the methods used at each stage for data collection and analysis.

undertaken at the end of the semester with a number of selected students (n=8-10) from the same studios. The focus group allows respondents the opportunity to respond to opposing views or engage in meaningful debate (Kitzinger, 1994), and the questions are mainly based on the open-ended questions included in the surveys. The collected data are analysed quantitatively and qualitatively using thematic analysis and coding in NVivo, following well-established protocols. Additional themes are identified for a second round of coding, to identify other factors that might have influenced the students' attitudes and perceptions in the new studio model.

The results provide empirical evidence around the effectiveness of the spread studio model in the Melbourne School of Design, and more broadly in design education in a global context. This research helps to develop effective pedagogical methods for improving the students' learning experience in the studio model and contributes to the limited empirical literature on studio teaching in landscape architectural education.

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Teaching the history of landscape architecture: Some thoughts and a case study

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Keywords: Value of history, teaching designed landscape history, Japanese gardens

Why study history?

It has been said that those who do not know history are condemned to repeat it; the original reference was political, in particular the story of international belligerence. Regarding the practice of landscape architecture, however, the statement may be interpreted as either true and untrue. Negatively taken, the rote retrieval and repetition of manners and historical forms for a changed world can be easily condemned. Times have changed; people have changed; the environment has changed: in all probability, historical attitudes and modes will not successfully address today's social, economic, and cultural conditions. On the other hand, a knowledge of history does provide a reservoir of approaches, attempts, successes, and failures represented by prior landscape designs—in all, lessons from which we can learn and even adapt for contemporary practice. Despite the shifts in living patterns and environments noted above, we remain human beings with essentially the same personal and societal requirements for our well-being. Nothing comes from nothing. From the history of landscape architecture we may draw parallels, if not precise solutions, to emulate, if not replicate.

Next, we might say that history is required for the education of any cultivated practitioner. While we certainly must maintain a current knowledge of sciences such as hydrology and botany, the informed landscape architect benefits as well from studies in the humanities, both in terms of integrating scientific knowledge with social and cultural needs and for acquiring a perspective broader than that of the laboratory scientist. We might say that this cultural perspective and broader historical view is what, in fact, distinguishes the landscape architect—and at times the landscape planner—from being only a landscape scientist or environmental plumber.

Lastly, history provides a source of formal, spatial, and botanical inquiries with applications that remain valid today. These precedents are not to be copied blindly, of course. They must be studied, distilled to their basic ideas, and thereafter reshaped and reinvented to meet today's needs. These lessons may concern form; the modeling of spaces for social needs; the interpretation of past uses of plants and planting environmentally and aesthetically. History is not the story of one's own culture alone, however; especially in today's global situation we will benefit from a knowledge and understanding of foreign as well as domestic history.

Intentions and Method

There are two primary types of courses addressing the history of designed landscapes. The first, more in the art-historical tradition, traces the evolution of form shaped by social, political, and economic forces. A second course type is geared more squarely to students in the landscape architecture studio, a course that asks more of the student than the accumulation of facts. A representative of the latter approach—although informed by the greater constellation of factors—is a course on Japanese gardens, planning, and architecture, formerly taught at the University of California, Berkeley, a course that served both graduate and undergraduate students in the College of Environmental Design and the university beyond.

The teaching of landscape history by investigating the 'other' of Japan provides numerous lessons from which the landscape architecture student can learn—and ultimately use in practice. While it admittedly represents what the anthropologists refer to as an etic approach—that is a view taken from outside the culture under study—it positions Japanese designed landscapes in a broader context and provides ideas that might enrich, in our case, the American designed landscape. Twenty-six lectures, each one-and-a-half hours, were accompanied by readings, two examinations, and a term project. Each illustrated lecture examined the specifics of selected landscapes while positioning them within their social, political, and environmental matrix. The course was first taught by two Caucasian American males whose perspectives admittedly possessed both benefits and shortcomings. One could rightly argue that anyone outside a culture can never truly understand that people and its design heritage. However, viewing from beyond the culture permits investigating the subject from a new perspective. It is said that a fish does not know it swims in water; water is its only habitat. Only when removed from the sea does it become aware of the medium in which it exists.

The importation of Western art-historical methods that accompanied the arrival of foreigners in the later nineteenth century was instrumental in creating a new, chronological order for classifying Japanese art; however, we chose a different structure for the course based on our belief that landscape and architecture students can learn from a design and dwelling tradition different from their own. The idea was not to just 'mine' Japanese design history for its materials, colors, and forms, but to understand the forces behind the landscapes and buildings and to determine what might apply to an alien, American situation—not literally, but more abstractly.

Lectures included discussions of the geography, political systems, economic history, and arts of the country. Although the course was presented chronologically, certain lectures 'stopped' the diachronic flow to focus in greater detail on selected topics to discuss the ideas behind them in greater detail. These included building and landscape types such as the folk house and village, the dry garden, and the castle, as well as more abstract aesthetic concepts such as shin-gyo-so, (the mixtures of formalities),

hide-and-reveal (sequential movement), and shakkei or 'borrowed scenery' (appropriating the greater landscape beyond its limits as a part of the garden). The intention was to stimulate within the student an interest in ideas gleaned from times past that might be useful in today's world—transformed, of course, to meet contemporary needs.

Testing for Learning and Its Application

Examinations took a rather different turn. While they did include the standard requests for slide identifications, the majority of the test questions were instead given as 'design problems.' The idea was to focus student learning on understanding and application rather than rote repetition. For example: 'Design a Buddhist temple compound from fourteenth century.' Students were given a topographic plan with contours and vegetation, and were required to design in plan and section, perhaps adding one or two details as well. Most of the time the lectures presented no direct precedent for the problem: perhaps a temple from the twelfth or fifteenth century was studied, but not from the fourteenth. Perhaps they had studied urban sites but were now asked to design a temple on a sloping piece of land in a forest. There were no single 'correct' answers—but students had to explain why they did what they proposed. Thus the examinations were intended to test comprehension and application. The midterm and final examinations each contained three design problems from which the students had to answer two.

Needless to say a test examination given after three weeks of lectures and readings was a disaster. While the students did take notes, they used only words, and did little to record and digest the visual information from readings or those projected on the screen. They translated visual information into words but could not reverse the process to retrieve the information in the image. After this trial exam students came to understand that traditional note-taking was ineffective in meeting the class goals; in response, they began to draw rather than just write; and they looked at the reference books and texts in a different way. Now they sought visual as well as factual information. By the end of the course most of the students did quite well, and even enjoyed the challenge of such a 'history' course—certainly different from any history course they had experienced to that point in their lives.

The format for this course in the environmental design history of Japan represents but one way to make history vital to the landscape architecture student. I do not believe all history courses should be taught in this way, of course. The instructor should be free to invent new formats depending on the content, the intentions, the audience, and the strengths of the instructor—who should teach to his or her strengths and not to a format. Ours was but one way to approach history for environmental design students; certainly, there are other new models. Some, in fact, might already exist.

Recollecting landscapes: Teaching and making landscape biographies

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Keywords: Student research, everyday landscapes, landscape biography, rephotography

One of the challenges of teaching landscape is how to address the everyday landscape: the ever-changing landscape that is shaped through an accumulation of day-to-day alterations by people who live and work in them. It is much easier to focus on what J.B. Jackson has called – in contrast to vernacular landscapes – 'political landscapes': landscape archetypes, coherent designs determined by power, ideology or religion (Jackson 1984). The formation of these landscapes can be explained as the result of a succession of interventions by one or more identifiable authors (the Jeffersonian grid, the picturesque park, the highway system, the urban square, the ecological corridor etcetera). But how do we teach students how to read landscapes in a context in which authorship is not so easily identifiable, in which a myriad of actors is at play, 'designing' the landscape from below as well as from above?

This paper deals with Recollecting Landscapes, an on-going rephotographic survey documenting a century of landscape transformation in Flanders that can be considered as such a biographic project. It aims at redirecting our attention to the gradual transformation of landscapes, authored by its inhabitants as much as by designers, planners, engineers or policy makers (Notteboom & Uyttenhove 2018). Focusing on sixty landscapes photographed in the early twentieth century, 1980, 2004 and 2014 the project gives an insight into the mechanisms of landscape transformation between large-scale interventions and everyday changes: the continuous re-allotment of agricultural land; sprawling habitation and economic activities; the construction of infrastructure large and small; nature destruction, preservation and expansion; informal and temporary occupation of residual spaces etcetera. Documenting one of the most densely urbanized regions in Europe, Recollecting Landscapes records the evolution of a rural-urban continuum shaped by a shared but often conflicting authorship.

Recollecting Landscapes is not only a tool to teach students (and the audience at large) about landscape by explaining its evolution, it is also co-produced with students. Although for docents the project provides a useful aid in ex-cathedra landscape (history) classes, the exchange of knowledge works in two directions: students have also been involved in their making beforehand. Over a period of more than a decade, research seminars and master theses helped to actively produce the knowledge-base created around the expanding series of images of Recollecting Landscapes. In the research seminars, groups of students each focused on one specific landscape, which they were asked to address from two angles. A first angle was the perspective of the specialist: among others, biologists, agricultural scientists, policy experts, urban planners and designers were interviewed, explaining the transformation visualized in the image series. The second angle was that of the users: students went on the spot to talk to inhabitants, farmers and passers-by, revealing the micro-histories

and narratives attached to specific places. The interviews were complemented by other sources that further developed the landscape biographies, ranging from publications and archives of local history associations, over geographical atlases, to a broad array of literature on the social, cultural, economic and agricultural development of the landscape under study. The resulting biographies were summarized in a book (Notteboom & Uyttenhove, 2018) and on the website www.recollectinglandscapes.be in the form of captions accompanying each photo-set. In addition, in a series of master theses, the landscape biographies of a selection of landscapes was further substantiated. These played a prominent role as more elaborate case study chapters in the book.

An advantage of this method of teaching is its capacity to activate the student in the sense that (s)he also produces, and not only consumes knowledge. However, this is also the case when writing a paper in a 'classical' landscape history class. More important, perhaps, is that working with photographic images as a first 'entry' into the landscape and working with interviews of both experts and inhabitants make students aware of the complexity of landscape transformation and its authorship. During the process of making the biography, students step literally in and out of the landscape and alternate an embedded social, cultural and emotional experience of the inhabitants with the more distant experience of the expert. Another reason why this method can contribute to landscape teaching is that it works cross-scale, from the detail to the extent of the landscape as a whole, and beyond to the global scale. Being asked to interpret each element within the frame of the photographic image, students become aware of the effects of the entanglement of micro and macro stories. Also, sending students out of the classroom into the landscape transforms them from passive consumers into active producers of knowledge (and eventually, designers). However, even with the integration of contemporary technologies such as a website, a challenge remains for a project as Recollecting Landscapes (but also for landscape teaching and research in general, we think) to open it up for other voices than teachers, researchers, students and specialists. Indeed, for the rephotographic project to reach its full potential it should stay open for those voices outside of academia who actually shape the landscape and induce both vernacular and 'political' landscape transformations.

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A simple task to increase students' motivation

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Keywords: Students' engagement, teaching landscape architecture, IFLA Student Competition

Introduction

This paper will look into how a change to the concept of a practical student project could impact a students' attitude towards the role of public space design and landscape architecture. Of specific interest was whether this change would alter the level of student engagement during their studies in the architecture program. It must be noted that Landscape architecture has for the most part been underestimated and misunderstood by young architects and mostly treated as an add-on rather than holistically within the design process. To create good public space needs more than simply using landscape architecture as merely a background/backdrop to the built environment. It requires a relationship that is intertwined with the buildings as well as the environment beyond. It is with this in mind that it is essential that architecture students understand and embrace the necessity to build upon a broader interdisciplinary approach towards design. We stepped back to evaluate the status quo and to determine how we could implement projects that would embody this interdisciplinary approach. As you would expect it is never too early to introduce the right approach and it should be deemed that the right place and the right time to explain this issue is during the education process and not waiting until entry into the workplace. Young generations demand new approaches to keep their motivation high. Building spirit among them is about creating challenges, giving something more practical (Thompson 2014), than just a standard school task. With this in mind we set out to take part in a real competition. We set up mixed teams with people from different education backgrounds in order to help engage architecture students and teach them to stay open to other disciplines while designing. Having decided on a new project, this presentation will focus on the impact this project had on the engagement level experienced by architecture students while enrolled in landscape architecture courses. We were interested to see whether students would embrace the process of design by accepting landscape architecture within the interdisciplinary approach and not just treating it as a part separate to the design process.

Landscape architecture course description

Having provided landscape architecture courses at Kielce University of Technology in Poland for the past four years has afforded me an adequate window to examine course and teaching options in the Master program of study in architecture and urbanism within the Department of Civil Engineering of Architecture.
In the context of available time and credit allocation for landscape architecture courses in the curricula of the second cycle (Master), I examined and evaluated the content, expected outcomes, methods and forms of teaching, with the aim of finding innovative ways to implement important topics and ideas of landscape architecture into the education of architects and urban planners, within the limits set by the curricula.
In the curriculum of the two-year Master study program in architecture and urbanism, there is only one compulsory course – Landscape Architecture (in the second year of study) focused on delivering knowledge related to the natural environment and landscape architecture. This is the only practical based class offered in landscape architecture for architecture students during their Bachelor's and Master's Program.
Landscape Architecture is aimed at acquiring the theoretical and methodological knowledge of landscape architectural design of urban and rural landscapes that is used as a starting point for creative landscape architectural design work. The course consists of lectures (two hours every two weeks) and practical based classes (four hours weekly), with three ECTS credits allocated. The eight lectures of the course introduce landscape architecture as a profession, the basic principles of planning and design of rural and urban landscapes, in various dimensions of landscape design.

Methods

In order to fully engage students they were provided with the opportunity to be involved in a class that would offer a near real-life experience with the interdisciplinary design process in mind. The method of teaching is in itself based around the project/task in order to facilitate the desired outcomes, thereby initiating the challenge of finding a suitable task for students to complete each academic year. Meaning that, the 'didactic challenge' is to find an up-to-date design problem that will be able to build and sustain student engagement during their attempt to solve the task. Having an open theoretical problem to interpret in the form of a design solution is formulated annually by the 'IFLA Student Competition', in what seems to be an opportunity for students to put learned theory into practice. Participating in such a competition is aimed at increasing student motivation, since the task mimics real world situations it provides students with a life-like test, as well as providing additional incentives by offering prizes and recognition (prestige) to the winners.

Teamwork for the competition entry

A noted positive impact in student engagement was attributed to the implementation of this new project, which resulted in a very positive experience for the 34 students of architecture that participated during the academic year 2017/2018. They took part in the 'IFLA 2018 Student Competition (Singapore)', along with other students of landscape architecture, whom attended different universities. Each team was headed by a student of landscape architecture as per competition regulations, also requiring the cooperation of team members that attended different universities that were separated by up to 200km. The outcome was that the students were divided into small groups of four or five members, creating 11 teams in total. After the teams were formed, they were asked to practice both interdisciplinary design thinking as well as distance collaboration (usually by internet)

between team members. The teams of architecture students were created by team members that were chosen at random, and without input of the teams or consideration of any deciding factors.

In Poland, students rarely have the opportunity to work in collaborative groups during their studies; projects are almost always based on individual effort. Some students had the view that group or collaborative projects were fraught with pitfalls and claimed that this type of project was prone to be unfairly graded. They believed that due to the fact some people may engage more or less than others within the same group and the simple fact that grading does not reflect one´s engagement made it a negative option for them. This made our interest in this project all the more intriguing as 'new collaborative experiences' especially one that already has it doubters, would have unpredictable results. The task as described in this paper, demanded cooperation, and even more with unfamiliar team members and without face to face (in person) communication. They were obliged to prepare the work in English, and this was readily accepted, with no student objecting based on language issues. Worth mentioning, it has previously been common for students to claim their English was not good enough to translate the projects' description and captions and that they would prefer to keep it with their mother tongue. Again, no such option was available for this task and all students met this requirement without exception.

Results
All students managed to successfully upload their entries, 11 in total. All teams completed their tasks within the prescribed time frame. Students were motivated by the format of this competition and readily engaged in the task. They had the chance to understand how broad a subject this really is and how many links it has, not only to architecture, but also to planning, engineering, horticulture and other science disciplines (Van den Brink 2017; Girot 2016). What is even more important, they had the opportunity to compete on the global stage, with and against students from other places and through this process they gained the belief that they belong amongst their peers. This experience helped them to see that there was much to learn from the competition, that they can compete globally and that there is knowledge sharing that takes place during competitions. Discussions that took place with the students after their work was submitted revealed that they were very satisfied with the experience they gained during these classes and during the process. Consequently, as the academic teacher of this course I was responsible for its outcome, and the student feedback was extremely positive; the course was recommended to continue.

Conclusions
I found this a valuable didactic experience – worth repeating. The theory and research received as part of preparation for the IFLA competition has proven to help enable students to become more independent thinkers, rather than just craftsmen within their field. Landscape architecture is an interdisciplinary profession by nature; it is not possible to separate it from its environment and should be recognized as such. Teaching should encourage cooperation between students, not only in collaborative groups but also in a more holistic manner between its interdisciplinary branches.

Landscape architecture is no longer the domain of a single demiurge architect but demands interdisciplinary collaboration or more simply put 'team work'. Landscape architecture is a practical profession and competition entries are practical projects and as such should lead the way when determining the teaching curriculum.

Landscape architecture is as much of an international discipline as a local or national one. It is essential that the field of landscape architecture is studied in an international context so that knowledge can be shared and advanced for all to benefit. Participation in global discourse in landscape architecture is essential and one such stage for this is in International competitions that give students the opportunity to experience and learn and as importantly- it gives them the motivation to work in an interdisciplinary collaboration process.

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Teaching through design competitions

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Keywords: Design competition, education, landscape architecture, landscape design, didactics in higher education

Design competitions in landscape architecture put contemporary design tasks into a wider frame of discussion. In general, they are seen as a tool to find the best solution for the site. For landscape architects, competitions provide the chance to develop innovative designs dealing with current issues in open space. Competitions provide a driving force for innovation not only in landscape architecture. Entries are often elaborated by teams of complementary disciplines. In practice, competitions are important to acquire design commissions. For commissioners, competitions offer the chance to discuss the crucial questions of the task on a variety of designs showing different approaches. There are a lot of reasons why students have to be prepared for the challenges coming along with design competitions in landscape architecture.

Within the Charter for Landscape Architectural Education the International Federation of Landscape Architects sets the educational objectives on the importance of regional, national and international students' design competitions which are to be supported by schools and the profession. 'Landscape architectural students shall be made critically aware of the political and financial motivations behind clients' needs within the context of public policy and the environment …' (IFLA, 2012, p. 2) As working in interdisciplinary teams is a core competence of landscape architects, students in higher education are also trained in collaboration. Students' competitions seem to contradict the goal of promoting collaboration.

What qualities can students' design competitions add to higher education in landscape architecture? Different settings of competitions are sorted in a typology which is the base for the evaluation of didactical concepts. A thorough analysis gives an insight into the qualities of competitions in higher education. It comes up with a set of aspects to be considered when implementing design competitions within master courses. Among other aspects the choice of an adequate setting and the deliberated position within the curriculum puts the contradiction between collaboration and competition into perspective.

The Institute of Landscape Architecture at the University of Natural Resources and Life Sciences, Vienna has experiences in two different principles of design competitions which are open for students of the master program: competitions within the curriculum and competitions beyond the university. For competitions within the curriculum the Institute of Landscape Architecture has developed different settings. They differ by the time when the jury's decision is made. On the one hand the decision of the jury is made during the course, on the other hand the students submit their projects after the course is finished. The content and learning outcomes of both settings align with the requirements of the competitions. Competitions beyond the university are based on a request by local authorities or institutions

who have a distinct design task to address. The Institute of Landscape Architecture connects the commissioners with the students. It is involved in specifying the competition brief and in organising the process. Teachers provide learning and working conditions to lead students developing their projects for submission. While input lectures can address the whole group, feedback on the projects has to be given individually with respect to the competitive situation. Teachers also coach the students to enter their contributions complete and on time. For the independent jury a team of experts in relation to the design task has to be selected and complemented by representatives of the client. For an objective decision it is important that the teachers are not part of the jury.

Motivated high-quality students are attracted by both principles. Similar observations were made also in other disciplines (cf. Wankat, 2005, p. 346). The students' motivation is not just based on the chance of winning a prize, but they also see it as an opportunity to learn skills that typical courses at the University cannot provide. In a competitive atmosphere and under deadline pressure they develop strategies to come up with creative ideas. Within their competition team they gain skills in teamwork, leadership and time management. 'The design competition atmosphere may provide an added incentive for students to create good designs. The 'reality' of such projects may be a factor to consider.' (Dutson, Todd, Magleby, & Sorensen, 1997, p. 21). The real-life experience with a contemporary design task and real counterparts provide the base to learn different things than in their normative classes.

Competitions provide the possibility to integrate new, and specific design aspects in higher education. They give the opportunity for interchange between university and practice. There is a wide range of appropriate design tasks for student competitions. Although it is important to adjust the requirements according to the students' skills the expected outcome will not be ready for construction. Of course, student competitions cannot replace the professional work of landscape architects. When integrating a competition into higher education the position within the curriculum is a crucial point. To gain from learning through competitions, advanced students should already have attended other design studios. Beside the benefits there are also critical aspects occurring when student competitions are incorporated into education (cf. Verhoeff, 1997, p. 5). The contradiction between competition and collaboration has to be dealt with care.

The aim of this paper is to discuss the lessons learned of different settings of competitions within the context of literature. What are the benefits in the different settings? What are the important components of the settings and what is their effect? What are the crucial

points for implementing design competitions into the master curricula of landscape architecture? What are the additional learning outcomes? How can we deal with the supposed contradiction between competition and collaboration from a didactical point of view?

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Identifying right uses within words for the right to landscape.
The tianguis in Mexico City

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Keywords: Landscape, tianguis, right to landscape, México City

This paper describes the process of exploring the meanings associated with tianguis -the street market- in Mexico City, as part of the last year seminar of the Landscape Architecture Bachelor at the National Autonomous University of Mexico (UNAM). The central theme was the impact that the Tianguis de las Torres has on the urban landscape in terms of its location, being one of the biggest street markets in the city and the source of serious urban conflicts between groups regarding concerns of security, pollution, and street obstruction.

We first reviewed the legal documentation for definitions and found out that the word 'tianguis' has been removed from the current legal instruments that regulate this form of open-air commerce (2007). The word was replaced by mercado sobre ruedas. Since 'tianguis' is a commercial practice going back to Mesoamerican times, this raised new research questions, namely, what are the spatial and meaning implications of the disappearance of the word? And, what are the differences between the tianguis and the mercado sobre ruedas?

Urban spaces are used simultaneously in different ways and assigned particular meanings by different social groups who sometimes face conflicts. Authorities responsible for public space tend to produce quick and superficial solutions that exclude the other, which in this case is the tianguis, under forms of urban cleaning-order.

The theoretical background of the subject of the case study is based on two notions related to the right to landscape. The first is the one presented by Kenneth Olwig (2011) who considers that 'because custom is rooted in daily practice, it is connected to the way we use the landscape. Customary rights to the landscape also tend to be use rights. Use rights govern differentiated forms of use'. (2011: 47). In an ideal scenario, this would be creative and proactive in solving urban space problems. The second one is that of Gareth Doherty who suggests that 'landscape is made of many landscapes [...] that are determined and shaped by multiple voices. Being in a world shaped by the words of others presents the challenge of either accepting the words of others and/or of making one's own words heard in relation to others' words' (2011: 186).

Process
To identify the impact that the Tianguis de las Torres has in the Vicente Guerrero neighborhood of Iztapalapa, we surveyed the spatial composition, the elements that constitute it and the products that are merchandised in the tianguis. Semi-structured interviews were conducted with traders and some customers to identify how it works, who are the actors, where they come from, who administers it, how the law is applied and what problems they have

with neighbours. The circulation of people, vehicles, and goods belonging to and outside the tianguis were observed and recorded to identify the nodes and the circumstances of the problems that affect the neighbours.

It was necessary to broaden the research scope in order to identify variants in the notions of tianguis and mercado sobre ruedas, as well as the impact this can bring upon the urban space, as in the structure and composition of the market. Tianguis in two urban areas were selected: in a historical one dating back to Mesoamerican and/or colonial times —Coyoacán—; and Delegación Benito Juárez, a recent town from the twentieth century.

Seeing that this commercial activity is of 'long duration' (González, 2016: 131), a historical analysis of tianguis' right to use the urban space in Mexico City was conducted. Historical data of the recent past were compared with information provided by the tianguistas themselves to corroborate, update or specify it. Thus, several semi-structured interviews were held with traders and market-traders on wheels.

We then created maps to gain a cartography of the two types of open-air commerce: a representation of the landscape of the tianguis and that of the mercado sobre ruedas. Although both share a similar spatial logic they differ by the history of permanence and practices in the place, their dimensions, the colour of the awnings, the routes they use, the diversity of merchandise, the language, and the social inner relations.

The construction and meaning of the word through its use and practices give rise to specialized language that integrates a particular object-system that attributes symbolism to the place where it is established (Licona, 2013: 155). It is evident from the different study cases that there is a certain pride in being tianguistas that constitutes a landscape of their own where they have a role and their participation is significant.

Every merchant, whether it's a tianguis or a mercado sobre ruedas, belongs to a civil association that administers the open markets. The leaders are intermediaries between the government and the merchants. They are familiar with the operation and the organization because they have been or still are merchants. Their income from administration fees is the highest in the line. By these acquired powers expressed in different ways, they contribute to the meaning of the words that constitute their landscape.

The first meaning of the right to the use of space is related to fees. Payment for rent or purchasing a space, entitles to sell in a tianguis or mercado sobre ruedas. The earned or bargained for positions are inherited in the family in most cases, so historically there is a

social construction that goes beyond commercial relationships. Through the years of sharing the same spaces, families enter into 'compadrazgo' (co-parent) relationships that reinforce the union of a particular market.

The second sense of the notion of the right to use space is the one related to the conflicts that arise between neighbours, in particular, and society and politics, in general, who tend to stigmatize tianguistas using discriminatory terms such as references to the illegality or informality (González, 2016: 130), despite the significant percentage of the population that consumes outdoor trade.

The spatial conditions and infrastructure that open-air trade places have vary and this has direct impact on the neighbours' perception of security, cleanliness, and order. This is the main cause of tensions, yet not the only one as gathered from the interviews.

Although there are no visible differences between tianguis and mercado sobre ruedas, we identified that the historic tianguis are smaller and sell products that are less industrial. They also have a greater festive character 'in the sense that everyone participates in a scenario set one day a week [...] it is a day that breaks the monotony of the week, a special day '(González, 2016: 132). It is a walk (paseo) of recognition, social and commercial exchange and bodily experiences of the particular cultural phenomenon.

Pedagogic outcomes
The students' learning related to the theme of an ephemeral landscape. They learned methods to characterise and evaluate a landscape based on the parameters of its context. Given the historical-geographical (Capel, 2016) and cultural-natural (Wylie, 2007, Besse, 2006, Minca, 2013) nature of landscape, the context is multifactorial and therefore the information is varied and obtained from different sources. All information was visually presented. Such representation of data enabled to highlight its significance in the constitution of the landscape.

Acknowledging that aesthetic experiences are rooted in everyday life (Meyer, 2015), we used the observation method (Rapoport, 1982) and the record of sensory perception to decipher what the aesthetic experience is like in the marketplace. The multisensory experience of the student was compared with the opinion of the users or visitors of the tianguis. The result of this exercise was significant because it exceeded any preconceived ideas of students regarding their own feelings and that of the other actors. The results of both the experiences and the comparison were represented in images to help visualize the spatial quality of the market. The images revealed aspects that the naked eye does not perceive.

The significant and symbolic character of the landscape is updated daily through the practices and uses of language, which is why observation was used as a method for analysing space and behaviour of people. The aim was to observe and analyse the symbolic forms - words, images, institutions, behaviour- in the terms of the place. 'Observe experiences within the framework of their own idea of self-awareness' (Geertz, 1994).

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Trans-Alpine: Landscape inquiries from Norway to China

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Keywords: Landscape architecture education, alpine landscape, field trip, tool

'Such locations share various climatic, geomorphic and biotic characteristics, including low mean and absolute temperatures, regular snow fall and ice formation and high winds, with consequent glacial and aeolian processes shaping their landforms, and a limited range of flora and fauna whose adaptation to climatic conditions renders them unfamiliar and even invisible to eyes accustomed to more "temperate" environment. These shared physical conditions account in large measure for the grouping of high mountains and polar regions in conventional geographical study. It was the commonplace of modern physical geography in the nineteenth and twentieth centuries that the altitudinal belts of tropical mountains such as Chimborazo or Kilimanjaro allowed the climatic belts of the globe to be observed and studies over the limited space of a few miles...' (Cosgrove & Della Dora, 2009)

Elevated from surrounding plains, a peak is like an altitudinal pole. Contemplating the horizontality of polar regions, high mountain ranges and peaks situate rock, snow, ice, temperature, inhabitation, flora and fauna vertically. Tree lines, snow lines, human lines of a peak present more on elevations than they are on plans of a polar region.

The Trans-Alpine design research studio explored how the polar and the peak translate each other in geography. To understand this translation, one might think of the harsh conditions that push back vegetation from the pole, creating sparse ecozones ringing the pole horizontally. This horizontality enables the northern territories to experience a large number of alpine features at low elevations, cultivating many low altitude peaks for alpine research. Such a northern peak, like Finse, with its limited altitudinal belts, is a sample for science practice that requires certain boundaries and isolations. On the opposite end of this spectrum, one can imagine an alpine peak in low latitudes that is extremely high in elevation, a dense laboratory with many eco belts, blurry boundaries and geographical correlations. Such a peak, like the 7556 meters Mount Gongga in western China, allowing topics and topographies from the northern territories to be observed and objectified over a limited space of 30 kilometres.

The studio started with considering the large northern territory as a laboratory with many peaks of various topics (such as science, wanderlust, mobility, food, energy, habitation, etc.). Each student selected one of these topics and represented it cartographically in a variety of peaks. The studio examined territorial relations of each topic and peaks in a planar drawing, featuring contours, boundaries, networks of rural and urban.

Each student then isolated one peak and represented it from the perspective of the topic. An anatomy was operated to the isolated peak, to inquire in section, elevation, model, image and film, how the topic

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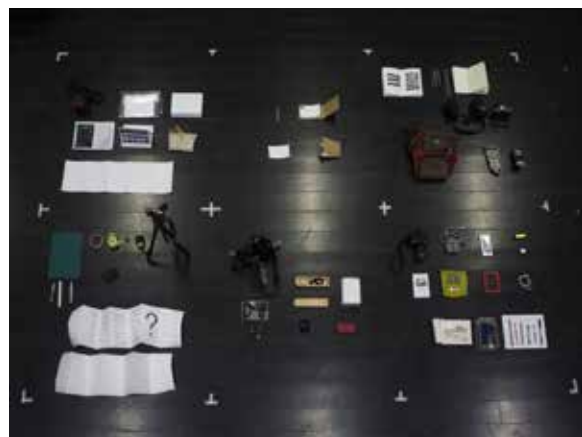
relates to the peak in space and time. For example, a wanderlust trail, represented as a line on plans, is shown as it actually is topographical and transient. We explored alternative representation strategies for peaks by transforming dimensions. Inspirations merged along this hands-on operation.

'The moment in an excursion when the roaming gaze guided by a general interest focuses on observing a specific subject is not arbitrary...Only a personal and specific background first makes these aspects evident and allows us to recognize their interconnection and relevance within a particular framework.' (Vogt, 2010)

As a cartographic trope of 'the white spot', an alpine peak requires tools to measure. Tools to bring on an alpine excursion transcend the idea of survival, and decide, instead, what empirical materials to be collected. Design and use of tools guide how to observe and objectify an alpine topographic place. Tool preparation for the excursion becomes an experiment of its own, for instance, a designed framework of field book, a designed workflow of GPS tracking device, a designed spatial sequence of photo camera, etc. Tools and topics were discussed for a press fit. The studio first tested out the tools in the Troms region.

The studio was ready to move to China's Mount Gongga, the peak for studio excursion and design. Carrying research and survival toolkits, we travelled to China and experience Mount Gongga region for two weeks. As the highest peak of Hengduan mountains, Mount Gongga is situated inside correlating alpine mountain ranges, where the alpine territories of western China are experiencing rapid rural-urban transition. A personal and transcultural engagement in Gongga oriented the students to the landscape, with the specific topic they have chosen as their lens. While we were traveling, design concepts of the topic began to merge in specific alpine topography. Students located these places of ideas on their tools. The excursion generated raw material for design representation and design ideas in place. The topic, the northern territory cartography and the peak's topographical anatomy, and the tool preparation helped students to trust their intuition on site.

Design concepts were further objectified into design representations after returning to Tromsø. Students transplanted the methods of the peak anatomy, information and inspiration to this place-design process. Resonating with the northern territory, each student zoomed out from the alpine place-design to territorial scale again, composing a speculation of the alpine western China of the same topic or reflecting on the meaning of the design concepts at a larger scale.

Translate, transcend, transient, transform, transcultural, transplant, transition...The Trans-Alpine studio disperses these words. The studio is as much about translating the polar and the peak of alpine ecologies, as it is about transforming scales and dimensions of representation. It is as much about transcending the tools of use in alpine excursions, as it is about transplanting the inspirations from the polar to the peak.

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Practicing theory: From fieldwork to theory-work

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Keywords: Theory, fieldwork

In instances of good practice, theory in landscape architecture education is embedded in design studio projects. The utility of theory for a studio project is wide ranging. For example, theory can be used to establish a framework at the beginning of a project, to guide the exploration and development of ideas and/or employed to evaluate the outcome of a project. The flow of theory into design projects is clear, but what about the utility of studio based practices within theory modules?[1] This paper will explore theory through a project based, and particularly, a fieldwork based approach to education.

The landscape programme I teach into, and I imagine the majority of landscape courses have some similarity, is divided into four types of modules; design studios, technology, praxis[2], and cultural context. Where I teach, one of the cultural context modules is dedicated to history and the other is focused on theory. The technology and praxis modules prepare students with knowledge and skills that can later be developed and applied in the design modules, but are themselves also delivered as project-based courses[3]. However, when we teach the cultural context courses such as theory and history, they are often taught as a lecture series with an essay-based outcome, which, of course, is very different to the way students work with theory in their design projects.

There are strong arguments for the theory module taking this traditional format. For example, as James Corner (1990) singled in the 1990s, and which still has relevance today, landscape architecture lacks a theoretical framework. Beyond this, anecdotal evidence suggests there is an assumption among teachers and students that the history and theory modules within a landscape architecture undergraduate degree are the 'academic' modules and one of a few chances for students to be exposed to the more scholarly aspects of their discipline.

This paper will argue that thinking about theory, as the academic module, reveals a naivety within us which attempts to separate theory from design. Design, as Mark Wigley (1998) says 'is always a matter of theory...It's a theoretical reading of the world' (p. 6). More generally, a full or partial isolation of history and theory within design education is antithetical to the cultural context in which we live; the interconnected, interdisciplinary contemporary world.

In a similar way that technology and praxis courses tend to be delivered as project based modules, this paper will investigate if history, and particularly theory courses should go the same way.

The project based approach that I am proposing is about students adopting a fieldwork form of investigation within a theory module, in which they can attempt to physically observe and articulate the influence of theory on and through a landscape.

Instead of looking to seminal landscape architecture projects, which appears to be common in the teaching of theory, the idea here is to embody any kind of landscape and attempt to reveal, question or propose theoretical material.

Influencing this project is my teaching location in Wuhan, China. The city's slogan is 'Wuhan: different everyday', which has several layers of meaning, the most obvious interpretation is that, like a lot of Chinese cities, it is experiencing a rapid rate of development. This rate of change and transformation could be explored through a theoretical lens of capitalism, migration, or globalisation. These processes relate to the cultural and political context of Wuhan and could be used to lead an investigation into other theoretical themes within landscape architecture, for example, urban ecology, social inclusion or gentrification. In adopting a fieldwork approach the traces and influences of theory, physically observed in the landscape, could be used to nuance our understanding of a particular aspect of theory and of a particular place, for example the issues and opportunities that relate to city expansion in Wuhan.

Taking landscape urbanism as an example, Douglas Spencer (2011) claims that it inadvertently shares the same paradigm as neoliberal urban entrepreneurialism, such as the indeterminacy of the free market, and this highjacks the potential of landscape urbanism as a force for social, ecological and political equity. And Charles Waldheim (2006/2007) points out that landscape urbanism's interest in indeterminacy is pretexted by ecological emergence, but also laissez faire urbanisation. These critiques could be investigated further through bringing them to bear on physical landscape conditions. The findings of the fieldwork could then be used to frame a response or suggest a development in our thinking and more generally to participate in the theoretical framing of landscape architecture.

Instead of starting with the literature and then exploring connections or discrepancies in relation to exemplar projects, the idea here is to use fieldwork experiences and findings to guide the theoretical inquiry. Through this project-based approach students will learn about theory, research, critical thinking and the other requirements of a theory module but in a way that is potentially more novel and projective due to the theories being grounded in physical conditions and human experiences.

Through elevating the importance of fieldwork and the associated personal knowing that comes with it, is hoped that this approach to the teaching and learning of theory in landscape architectural education will allow students to become more articulate and self-confident in their theorisation of landscape and the associated disciplines that act upon it.

Referring back for Corner (1990), he says 'a project cannot exist outside the a priori of the human body and its engagement with the world' (p. 77). This paper will explore this position through the lens of fieldwork with the aim of further nuancing and detailing some of Corner's criticisms and concerns in relation to theory in landscape architecture.

Notes

1. Module is the word used in the UK for an individual university course within a semester or a year.

2. Praxis modules involve students developing practical and professional skills, for example, computer software and learning about the roles and responsibilities of a landscape architect in practice.

3. For example, in the praxis module, that is dedicated to learning new software, students will use a project from a previous studio as a basis for the module. In a technology module, students will not simply learn the names of hard materials but select a real landscape and use it to experience and learn about a wide range of aspects related to materials.

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Teaching fieldwork: Fieldwork Methods in Landscape Architectural Education and the Case of Brexit, Borders and the Irish Northwest

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Introduction

In recent years, landscape architecture has been rediscovering its long roots in fieldwork—extending back to the origins of the profession with Frederick Law Olmsted, and Sir Geoffrey Jellicoe, and many others. The teaching of fieldwork was particularly strong at the University of Pennsylvania under Ian McHarg's leadership in the 1970s and 1980s, but this period is not well-documented in the literature because scholars have generally preferred to foreground McHarg's environmental credentials over his interests in field research. This paper will explore this historical ground with the intention of centering fieldwork within a larger disciplinary context that spans landscape architecture and design education.

Fieldwork means different things to different disciplines. Anthropologists, for example, will typically spend at least a year in the field, living among a community, building trust, learning language and codes and patterns of behavior, and carefully and methodically noting details not only of peoples' daily lives but also aspects of their objects and environment. Usually the goal is to understand various phenomena through their study in situ. Through fieldwork anthropologists begin to understand patterns and unearth relationships that might have gone unnoticed before. Such in-depth analysis is what has come to be understood as 'thick description,' a term coined by Gilbert Ryle and popularized by Clifford Geertz in his seminal book, The Interpretation of Cultures (1973).

For landscape architecture, a profession fundamentally concerned with the interactions between people and the land they inhabit, a faster form of fieldwork is required. The world moves much more rapidly than anthropological fieldwork can follow. In contrast with anthropological fieldwork, landscape architects are also concerned with the design and the changing of the land, considering the needs of the inhabitants. Landscape fieldwork implies a projective nature that moves beyond description to action and prescription.

Structure

The paper will have two parts. Part one will survey the field in terms of the teaching of landscape architectural fieldwork. The field notes of a range of designers and planners including Olmsted, Jellicoe, Burle Marx, and others, will be referenced. The introduction will include a critique of the literature on urban and landscape ethnography. It will trace associations among various understandings of fieldwork which are part of an ongoing cross-disciplinary conversation of what fieldwork is, and what it might become. This section will reference fieldwork eduction at the University of Pennsylvania under Ian McHarg, as well Anne Whiston Spirn's West Philadelphia Landscape Project, a model project grounded in fieldwork and education.

The second part of the paper will describe an experiment in collaborative field research that will be conducted through the Harvard Graduate School of Design in spring 2019. Spending ten days in the Irish Northwest, students and faculty will engage in a collaborative field experience which will focus on cross-border interactions, the impacts of Brexit, and the future for the region. Based on the premise that the best way to learn fieldwork is to 'do it,' the course on 'Design Anthropology: Objects, Landscapes, Cities' is punctuated with a series of field assignments that introduce students to fieldwork as a way of describing relationships between people, people and objects, or objects and objects. When we unravel the web of these relationships, we can design in ways that are ultimately more responsive and therefore more effective. The course will emphasize the values of chance and serendipity; the use of visual information to represent ethnographic data; collaboration; and the application of anthropological skills to the study of landscape, materiality, and design processes. The course will, in its own way, describe 'thick' ethnographic observation and description; applying theoretical concepts in making connections between ethnographic data; and move toward ethnography as an understanding of how context informs design.

Objectives

The aim of this paper is to address a surprisingly large gap in the literature by demonstrating how fieldwork can inspire and inform landscape architecture and planning education. Few courses on fieldwork exist specifically adapted for landscape architects. The discipline demands a particular skill set, and the forms of fieldwork that will be outlined in this paper, take into account landscape architecture's spatial and temporal considerations. Since landscape architecture is so site specific, no one recipe exists for the fieldwork encounter. Instead, each case demands a special approach and this paper will help in providing a range of methods to adapt for particular places.

Summary

Using case studies to describe forms of fieldwork especially pertinent for landscape architecture and planning, and borrowing from anthropology and other disciplines to complement existing disciplinary methods, the paper will demonstrate that fieldwork is more than a research method: it has the potential to generate knowledge and theories of site, unearth novel design challenges, and illuminate robust design solutions, and as a result, should be at the core of landscape architectural curricula.

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Symbolic conversations in public landscapes of the American South: Re-evaluating monuments to the confederacy

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Keywords: Symbolic speech, public landscapes, narratives and counter-narratives, racism and counter-racism, landscape monuments and meaning, symbols of American Confederacy

Given an increasingly diverse citizenry in Europe and the United States, this presentation addresses the value of teaching subaltern histories as well as addressing social and professional ethics in landscape architecture programs. It responds to two curricular questions posed by conference organizers: How should approaches to teaching landscape history and design process respond to growing cultural diversity among national populations? Also, how does teaching attend to professional and environmental ethics, and relevant human and social values? This presentation explores the roles and responsibilities of landscape architects, architects, artists, and urban designers in the construction and reconstruction of symbolic narratives in public places.

In the American South, the legacy of the Confederacy in the American Civil War (1861-65) remains entrenched in social conflict. This paper examines the history and changing reception for three prominent public Confederate monuments in the state of North Carolina—located in Raleigh, Durham, and Chapel Hill. The fate of all three monuments is currently in flux: two have already been forcibly removed by anti-racist protesters over just the past year. Legislative and legal actions have also been taken to preserve and, potentially, to restore them. In reception of 'historical' narratives contested by changing contemporary values, the power of grievance and affective feeling for symbolic design may become extreme. This paper examines constructs that may equitably engage constituents holding complex, even opposed, social values.

The period between 1865 and 1877 saw the meteoric rise of Black Americans from enslaved people to business-owners and institution-builders, as they gained in wealth, political representation, and other rights of citizenship. However, many Black Americans found their hard-won rights virulently revoked a generation later under so-called 'Jim Crow' laws enacted in the post-Reconstruction South. Following the 1896 court case Plessy v Ferguson, the doctrine of 'separate but equal,' segregated Americans by race. The repressive Jim Crow movement lasted from the late 19th century to the start of the Civil Rights movement in the 1950s and the passage of the 1964 Civil Rights Act.

There is little doubt that, for some white racists, passage of the Civil Rights Act seemed as if their world view was being destroyed for the second time in a century. Episodically, post-Reconstruction to the present, many Southern whites have sought affirmation for what some view as a heroic period of Southern cultural and political power. The construction of monuments to the Confederacy correlates historically with the retrenchment into racist laws and social bias. During the Jim Crow era, hundreds of such monuments were erected, some from identical castings manufactured in the North. Today the American South is dotted with hundreds of monuments ostensibly honoring Confederate soldiers and military leaders. Yet, as these public symbols continue to distill historical process into stubborn contemporary conflicts, several have come under attack by civil rights and political activists. A few have been removed and relocated to less visible locations, yet the fate of many more are currently under consideration.

The white supremacist-motivated assassination of nine people (June 17, 2015) at Emanuel AME Church in Charleston, SC, sparked a growing number of anti-racist demonstrations focusing on perceived threats posed by Confederate symbolism (e.g. flags and monuments) in public landscapes. As a counter-measure, the violence in Charlottesville, Virginia (August 2017), resulting in more fatalities, was instigated by white supremacists 'protecting' Confederate symbols. Bitter conflicts over the fate of Confederate monuments in public landscapes have since erupted, pitting coalitions of neo-Nazis and white supremacists against leftist and anti-racist counter-protesters.

The endurance of Confederate memorials, as well as the conflicts they engender, offer a critical lens through which one may observe the impacts of demographic and social change in the United States. Some argue that Confederate monuments are simply neutral historical markers, 'objects of remembrance' that honor those who died for their beliefs; others insist that they encode and empower intolerable racist ideology. Should such divisive 'objects of remembrance' be allowed to remain in public places? If so, why, and (thus) how? How might alternative approaches to public symbolism reflect increasingly diverse social values among constituents? Finally, in mediating change and difference, what should be the role of public bodies and designers working in the public realm? This paper examines related questions faced by designers who purport to represent a broad and increasingly diverse constituency.

Briefs on three case studies describe some of the cultural controversies surrounding Confederate monuments in North Carolina. Specifically, we discuss the function of public memorials in constructing narratives and counter-narratives that may serve either to alienate or to heal a divided society. Humanistic theories (master narratives; narrative and counter narrative; symbolic accretion) are explained. We build upon the work of geographer Owen Dwyer who focuses on cultural monuments, landscapes, and symbols. Dwyer examines 'the utility of the concept of symbolic accretion for understanding the complexities of commemorating antagonistic histories in the same place. Symbolic accretion describes the appending of commemorative elements onto already existing memorials' (2004). Accretion differs in important ways

from palimpsest: rather than erasing and overwriting one symbol over another, multiple symbols may be juxtaposed and read together in a kind of parataxical dialog.

By applying Dwyer's construct to the three case studies, we analyze and evaluate specific design interventions in public spaces. We reason that the dominant narrative of the Confederate monument in Raleigh (the state capital), while purporting to historical 'neutrality,' exemplifies allied accretions of symbols—in iconography and curation; position in the city; and proximity to the statehouse itself. Alternatively, the monuments at the University of North Carolina at Chapel Hill function antithetically by juxtaposing competing ideas without overt antagonism. By examining symbolic conflicts, developing awareness, and then critiquing shared and conflicting understandings of symbols, we may come to fuller understanding of the roles played by monuments and memorials in much larger historical processes.

Conflict over public symbols in the American South is far from unique. Similar conflicts exist in the Balkan states, Israel, Germany, and elsewhere. In live responses to the paper, we hope to discuss potential linkages in landscape architecture education between such construct in American and European contexts. While vital symbolic conflicts may present extraordinarily difficult dilemmas, there is also extraordinary value in engaging students and community members alike in such questions. The challenge (as one reader has offered), is to identify appropriate formats and processes for communication, in order to implement a constructive discussion on divisive symbols.

This paper therefore concludes with ways for designers and instructors to make best use of those opportunities. Building, opposing, overwriting, forgetting, and reconstructing social narratives in and through the design of public space are all vital forms of critical cultural practice. The very fact of having such conversations, while painful, may also possibly (hopefully) be therapeutic, in order to build new narratives and, thus, capacity for a more critically constructive citizenry.

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Walking on broken glass? Women, education, and the glass ceiling in landscape architecture

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Keywords: : Feminism, landscape architecture education, gender inequality, women's rights

A growing interest in feminist research in landscape design has been detected in the work of landscape architecture students at Edinburgh College of Art (ECA), University of Edinburgh. Female students at both undergraduate and postgraduate level are critically questioning both the role of women in the landscape architecture profession and the prevalence of male dominated apparatus and discourses in the field. In response to the sensed upwelling of student interest by the authors and given current global awareness in feminist concerns, it appears timely and necessary to question prevalent teaching practices in terms of the content, the delivery and the potential for student empowerment. The proposed paper will focus on exploring how both curricula and pedagogic methods might embed feminist values. In particular the authors will investigate and present findings with regards the following research question 'How would a landscape architecture design studio embody feminist ideals?'

At ECA women currently represent 65% of the undergraduate studentship and 83% of the postgraduate cohort in landscape architecture. Compare this to Landscape Institute (LI) statistics for gender pay gaps and an all too common picture is unveiled. Despite the near equal representation of men and women in the landscape architecture profession in the UK, the LI acknowledges in their 2016 employment and income report that 'pay for men continues to outstrip pay for women landscape professionals at higher levels' (Landscape Institute, 2016 p. 3). According to the LI's 2016 employment and income statistics, 23% of males earn above £50,000, while only 10% of women do so, and in the highest earning pay bracket recorded (over £100K) only 1 woman earns this sum compared to 19 men (Landscape Institute, 2016 p. 11). This is a typical pattern identified across the UK and can be traced to broader social and economic inequalities (Office of National Statistics, 2018). It is worth noting that wider diversity issues also persist in the landscape architecture profession in the UK. The 2018 LI Future State of Landscapes briefing reports that 95% of the LI members surveyed were recorded as white, in contrast to the 82% average statistic for the UK population (Landscape Institute, 2018 p.7). Following their comprehensive 2017 survey the Landscape Institute has affirmed that one of their key aims is to 'create a more inclusive profession' stating that 'improving diversity will underpin everything we do' (Landscape Institute, 2018 p.8).

The lack of diversity in the academic voice has not gone unnoticed by the students at ECA. In the autumn semester 2016 a female undergraduate student in her second year highlighted that of 22 texts provided for an introductory theory course, not a single text was written by a female author. She went on to make this the focus of her essay submission for that course. The following year another student taking the same theory course chose to structure her essay around the question, 'what would our cities look like if they were designed by women?'. In the spring semester of 2018 a note declaring 'mediocre man-hater amongst some serious students' was left on a postgraduate student's graduate exhibition. The exhibited design work that attracted this unsolicited commentary explored the potential of landscape architecture to embrace a post-masculinist future. These are just a selection of murmurings that attest to an underlying and persistent questioning by the female students at every stage of their education at Edinburgh College of Art. Acknowledging global trends highlighted by campaigns such as Reclaim the Night and #metoo which specifically assert the female right to space and concerns about women's rights, the future generation of landscape architects and designers demonstrate an emerging need to question the status quo.

If we are to acknowledge that 'real change can only happen very slowly and as a result of education' (Said, 1993) then we must find ways to both attract a more diverse studentship, while empowering the student voice to raise concerns and envision new futures from within our academic institutions. This paper sets out to investigate the perceived upsurge in feminist thinking expressed by students at Edinburgh College of Art within the current UK wide and global context of recent feminist movements. Furthermore the study will examine how landscape architecture education could take an active role in equipping students to engage with inequality and diversity in the landscape architecture profession. The exploration proposes to survey three specific lenses:

1. Citation practices: By diversifying our reading lists, we welcome in new voices. As Sara Ahmed states: 'feminist killjoys 'will point out when men cite men about men as a learned social habit that is diminishing (i.e. most or usual citational practice).'' (Ahmed, 2016)

2. The tools: how do the tools we use in landscape architecture stultify our designs? Strategies, masterplans, boundaries, zoning, and quantified hierarchical approaches, could the militaristic apparatus we have inherited stifle innovation? As Audre Lorde states: 'The master's tools will never dismantle the master's house' (1979/2007) What new design tools, techniques and methods can we introduce which embody feminist values?

3. Empowering students: How can we support students seeking to address inequality and diversity in landscape architecture? How can we provide students with the confidence to go out into practice and transform the profession from the inside out?

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Are we educating traditional heroes or team players for the future? Reflections on landscape architecture education in Finland

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Keywords: Collaboration and negotiation skills, education, teamwork

Introduction

Education in landscape architecture strives for individual excellence even though successful landscape architectural practice relies on collaboration and teamwork. According to surveys of Finnish landscape architects, collaboration and negotiation skills are assessed as the most relevant competence areas. However, the surveys revealed that education corresponds poorly to these demands. This finding is the starting point of our paper where we reflect on the role of teamwork in our education. The paper is based on two work-life skills surveys for landscape architectural professionals (2010, 2012), five interviews with landscape and architectural professionals (2014), focusing on the competition processes in their practice and finally, the analysis (2018) of the current learning outcomes and their implementation in the curriculum.

Aalto University is the only landscape architecture school in Finland. The degree program, established in 1989, is situated in the department of architecture which is part of Finland´s largest multidisciplinary university, combining engineering, arts and business. A close link with architecture is one of the cornerstones in the education of landscape architecture, which is also reflected in its pedagogical principles. The teaching of architecture substantially leans on studio teaching with an emphasis on individualised expression (e.g. Schön 1985; Attoe & Mugerauer 1991). In this paper, we explore this tradition from the point of view of work-related challenges and reflect on the implementation of teamwork in our education.

Collaboration skills in landscape architecture

Jan Kattein (2015) defines the three roles of the architect: inventor, activist and arbitrator. The inventor emphasises individual expression and challenges conventions while the activist concentrates on the process and the realisation. Finally, the arbitrator emphasises collaboration and engages the multiple stakeholders relevant for the project. The roles of the inventor and activist are based on the traditional architectural education and their skills are covered well in the curriculum. However, the collaboration and negotiation skills of the arbitrator are marginalised in the curriculum. In the recent analysis of the bachelor curriculum (Mannerla-Magnusson 2018), the skills outcomes for collaboration and teamwork scored lowest. Instead, the capacity for individual expression scored highest. This leads to severe self-reflection, are we educating traditional heroes or team players for the future? Is our education too much tied to its traditions and is its understanding of the professional field too narrow?

According to a questionnaire for architects, the work embodies continuous negotiation on the contents, costs, zoning, and the interpretation of the law and various regulations as well as political decisions. Additionally, conflict management is often required due to stakeholders with contradictory interests (Kangasoja 2014). Alongside negotiations, professional practice also involves building knowledge through interaction. From the point of view of investigative learning, expertise is understood as a social role or as a skill on the part of a community, operational system, or network of players. According to Lave and Wenger (1991), it is through the process of sharing information and experiences with the group that members learn from each other and have an opportunity to develop personally and professionally. The interviews with professionals confirm this argument. In the collaboration process of architectural competitions, the professionals emphasized the role of a constructive atmosphere and the equity and contribution of all the members. However, even if the collaboration was regarded as the key element in the process, also the individual expression and quiet time for working was valued as the first step of the design process, prior to the collaboration phase. (Weckman 2015).

Implications for education

A creative process primarily involves working in a group and adopting the skills to take part in this collective process is essential. ECLAS Tuning Project recognizes teamwork as one of the key competences. In addition, ability to work in an interdisciplinary team and ability to communicate with experts in other fields are listed as relevant interpersonal competences (Bruns et al. 2010, 15). According to the Tuning project, 40-60% of the education should be studio learning, focusing on spatial design, planning and management skills. Studio is defined as a mixed-method learning environment where students work either individually or in small groups on planning and design proposals. (Bruns et al. 2010, 31, 37) However, even if teamwork is listed as a core competence, it is addressed mainly as a method, not a substance itself.

Teamwork is usually regarded as a resource-efficient method that is often a result from diminishing individual tutoring time. Tucker and Rollo (2005) argue that changes in funding mean that we cannot continue to teach as we have historically been taught. In addition to the financial advantages, teamwork has also other benefits. It emphasises student-centred learning, instead of teacher-centred master/apprentice model that has been criticised of the differentiated roles of the teacher and the student - the former telling and demonstrating and the latter listening and imitating (Yanar 1999, 173). According to Tucker and Reynolds (2006, 53), students perform better in group design projects than individuals tasks: 'The introduction of a more participatory student-centred design forum where learning takes place collaboratively with peers, rather than in an individualistic or competitive manner, appears to empower students to develop in

tandem with their creative skills, the interpersonal, professional, and cognitive skills'. Moreover, teamwork supports the capacity to listen as professionals to their real clients and users.

A successful and resource-efficient strategy, a key competence according to ECLAS and the questionnaires for professionals - how could we foster neglected teamwork as part of our education? To begin with, we have identified three key aspects: pedagogy, phasing and methods. The traditional studio pedagogy, inspired by Donald Schön lies deep in the education, and it is necessary to critically examine the master/apprentice model and its pedagogical aims. Moreover, teaching teamwork calls for special training specifically for design classes. Second, we need to consider the phasing - when and how to integrate collaboration skills in the curriculum and how to balance teamwork and individual performance in each stage. The integration of teamwork in education requires an implementation plan for the whole curriculum. According to our experiences, operating in a group requires strong personal skills as well as confidence in one's own abilities. Therefore, individual design and planning skills need to be the core of the first years' curriculum. The third aspect pertains to methods. Although multiple courses include group work assignments, the methods supporting them are not always elaborated, nor are their learning outcomes specified. However, there are interesting office simulation and role-play methods worth testing in design studios. In addition, the challenges of the teamwork need to be addressed, such as fair assessment and equal workload contribution (Tucker & Abbassi 2016, 9).

Finally, both collaboration and individual excellence are required in landscape architectural practice and education. The optimal equilibrium of these skills and the successful pedagogical strategy remain a key question in teaching landscape architects.

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From action research to action education: How we can meaningfully engage with the world

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Keywords: Participation, transdisciplinary, living lab, placemaking, boundary crossing

Students in landscape architecture and planning study interventions on different scales in order to create sustainable spatial solutions for important societal challenges. The context in which the majority of graduates in higher education will operate after their studies is complex and they need the ability to use knowledge from a range of disciplines and sources while taking into account the diverse perspectives of multiple actors; think of the work of Martí Franch on Girona's Shores, Making Space in Dalston London by MUF Architecture/Art and J&L Gibbons, the Luchtsingel in Rotterdam by ZUS, or the developments around Tempelhofer Field in Berlin. In order to tackle 'wicked' problems in multi-stakeholder collaborative practices, it is crucial that students develop 'boundary crossing competences' (Oonk, Gylikers, & Mulder, 2017). Therefore, landscape architecture and planning education should include learning environments that stimulate boundary crossing between disciplines, between research and practice, and between theoretical accounts and 'real' experiences. The way to teach that is via engaging with practices, practitioners and in teams that combine disciplinary backgrounds. A transdisciplinary approach is required, not only combining knowledges from different disciplines but combining these to inform a single project, and to include (non-scientific) forms of knowledge from practice as well, navigating and building different types of knowledge claims in the process (Boyd et al. 2015; Tress, Tress, & Fry, 2005). Thus, learning activities are positioned in the domain of action research, moving between intervention, experimentation, and involvement with stakeholder groups (Huang, 2010; Pinel & Urie, 2017). Action research may even lead to 'activist' forms of knowledge.

In this paper we discuss how participatory action research can create a unique learning experience, developing the boundary crossing competences that are crucial in contemporary complex and real contexts. We take our transdisciplinary master 'Atelier' for landscape architecture and planning students as an example to identify some key didactic principles of a cross-boundary learning environment.

In the Atelier landscape architecture and planning, students from different disciplinary backgrounds team up in small project groups to address real-world planning and design issues for a real commissioner during a period of eight weeks. Students are challenged to negotiate with their commissioners and to work with the diverse sources of expertise and creative power available in the area and within the team. They spend significant time in the field, interacting with their commissioner and other people involved. The teachers select and prepare the initial assignment, but not allowing the commissioner to be the sole evaluator. The student team is stimulated to gain an independent critical position regarding the assignment, negotiating possible outputs and

Figure 1. Experiment flexible public space Amsterdam

Figure 2. K-neighbourhood Amsterdam
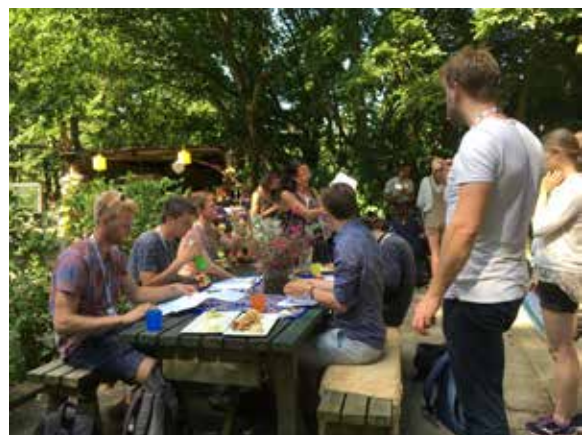
Figure 3. Regenerative development: Dragen's land Amsterdam

types of intervention. The output can be a design, a participatory method or tool, or actual spatial interventions.

With its thematic focus on 'placemaking in action' the Atelier has a formal (designed, planned) and informal (spontaneous interventions, learning in practice) side to it and refers to the ways in which planning and design are involved in not just the functional infrastructures and physical characteristics, but also the shared meanings and experiences of places (Pierce, Martin, & Murphy, 2011; Massey, 1993). The work in the Atelier is positioned in an area of tension or opportunity- between more informal action research, and more formal modes of knowledge production and application, where students can experiment with possible roles of landscape architecture and spatial planning, and critically reflect on it. Reflecting on outputs, transdisciplinary processes, personal and group performance and their mutual relation is an inextricable part of the course.

In their projects, students combine research and design, in general with a shifting emphasis from research to design, integrating these in different ways - research for/on/by design - depending on the character of the assignment. The process of research and design itself is actively defined as an intervention into real world (social) environments. This type of approach brings certain concerns, that we seek to actively have the students reflect on in the process of the project. First, the tension between eight-week projects and long-term commitment of local people: the need to think about the afterlife of interventions and proposals, as well as managing expectations of commissioners. Second, concerns regarding neutrality and partiality, siding with commissioners or other stakeholders: who stands to lose/gain?

Based on the results of three years of Atelier products, including project outputs, self-reflection reports and course evaluations, we discuss how the transdisciplinary layout of the course with a parallel coaching trajectory focused on personal and professional skills contributes to developing boundary crossing competences: identification, coordination, reflection and transformation. With that, the Atelier is an indispensable follow-up to the other studios in the Master program.

The Atelier shows how we can work towards societal impact, not only by educating students the necessary competences to face complex challenges in their future career, but by taking the classroom out into the field as well. For the last three years this course has allowed students to reflect critically on their methodologies of doing research and doing/proposing interventions together with their commissioners. In this way action research increases the relevance of research to wider society and showcases the relevance of research and co-creation to inform landscape design and spatial planning. Thus, by changing our educational routines we – students and teachers- can make a difference for and with practitioners and users.

Note
In 2018 the course presented in this paper received the university's Excellent Education Prize.

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Improving our global infrastructure: the international geodesign collaboration

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Geodesign (design at geographic scale) is an emerging research area that integrates multiple disciplines and uses geographical information systems (GIS)-based analytic and design tools to help explore alternative future scenarios (Goodchild 2010, Steinitz 2012). The idea for an international geodesign cooperation (IGC) was driven by a specific and exceptionally complex problem: How do we identify and share lessons and practices learned globally so that the resulting knowledge can be leveraged to solve our most pressing societal needs? We know that the solutions will call for deep integration across traditional expertise in the physical, natural and social sciences, but they will be articulated through the land- and city-shaping plans of designers and engineers. The IGC aim is to understand better how geodesign can be applied to addressing design challenges in settings that are widely dispersed, differ widely in scale and in the extent of resources available to find geodesign solutions.

The IGC approach was tested in an academic environment from January 2018 – January 2019. 56 IGC participants have completed projects in 29 countries worldwide (figure 1). They addressed a wide variety of challenges that affect communities in the 21st Century. All the teams were interdisciplinary, some of them also international; and about half were led by landscape architects. Developing a common framework was required in order to make such a big collaboration project feasible and to be able to make meaningful comparisons. These frame conditions included: nine shared systems (land uses) plus a unique one, nested study area sizes and scales of common dimensions, common timeframe for important due dates, common global future scenarios plus local ones, common presentation formats. Parallel research activities were conducted to capture what we learned.

The project was divided into preparatory (January – June 2018) and implementation (July 2018 – January 2019) phases. The first one was implemented by IGC core group, and involved designing and sharing templates, preparing tutorials and background material on global driving forces and scenarios. Teams at participating universities started in spring 2018 with establishing teams, preparing their teaching strategies and workflows, organizing technology and collecting data. Depending on the study organization (summer school, regular study program, etc.) the work with students began between the summer and the beginning of fall semester. The teams applied a variety of project-based teaching/learning approaches, including service learning, action research, contracted research and studio teaching. The teaching approach and methods followed the Framework for Geodesign (Steinitz, 2012).

The University of Ljubljana participated with the students in the Landscape Planning studio, 1st year Master. The team included 9 students from Slovenia,

6 from Norway, 2 from Croatia and 1 from Hungary, and four mentors. The size of the pilot region is 6.400 km2 and is situated in the western part of Slovenia bordering Italy. The northern part is a valuable natural landscape of the Alp mountains and Soča river and monuments from the First World War. The south-eastern part is an intensive agricultural and settled landscape. The main global processes challenging the region are: population ageing and depopulation of remote areas, managing tourism within the carrying capacity, transition to renewable energy, maintenance of public services and employment. The scenarios were developed for periods until 2035 and 2050, and for three different assumptions: the strategies of early or late adaptation to global challenges and innovations, and the one of no-adaptation. The workflow followed the Framework for geodesign (Steinitz, 2012), and involved development of a sequence of 'models' (representation, process, evaluation, change, impact and decision models) and related questions regarding the project. These are asked in three iterations: in the first (scoping) iteration we treat these as WHY questions for the project. In the second iteration (in reverse order) they help define the methods of study, therefore they are HOW questions. In the third iteration as we implement the study method, they are asked again in the original order and address the WHAT, WHERE, and WHEN questions. The presentation and process models involved historical analysis of processes in the fields of technology, nature, socio-economic and political context, identification of driving forces and definition and mapping of the 8 selected systems. Evaluation models (suitability analysis including territorial potentials and vulnerabilities) were developed in the next step and used as input for change models (proposals for development for each system) and identification of inter systemic relation (impact and evaluation models). Proposals for comprehensive future scenarios for the area (decision models) were finalized after the negotiations. As expected, the late adaptation scenario for 2050 resulted in a loss of natural resources and cultural landscape identity due to overcrowding of tourists and settlements on the one side and depopulation on the other. In contrast, the early adaptation scenario came up with some innovative solutions for tourism management, renewable energy use and maintenance of services in remote areas.

The experience in the studio was overall positive: the students had to work hard to follow the timeframe and requirements from the IGC; but the relatively strict structure of the work was helpful to enable handling a complex task of developing and interrelating several systems in a rather big and heterogeneous area, in two periods and under different assumptions. Explicit feedback loops and dynamic consideration of impacts between the systems and negotiations were the main differences compared to a more traditional work in

Figure 1. Participating schools (red dots) in the IGC

studio. The most important learning experience was that the proposed plan (change model), is embedded in a sequence of other tasks and can only be done well if all others are being handled properly.

Participating teams presented their results at the Geodesign summit in Redlands, CA, February 23-25th 2019. Several themes of comparative research emerged, which were discussed and will be further studied. These refer to a scoping (project definition) phase as well as outcomes:

-How were systems chosen and defined, what constraints and opportunities are created by those choices?
-How were evaluation and impacts assessments defined across many partners?
-How were global and local design scenarios identified?
-What are the patterns of similarity and difference between how participants create and use models?
-How do those patterns affect decision-making?

-What are the patterns of similarity and difference between how participants respond to scenarios?
-How are those patterns affected by local governance, global economics?
-What have we learned about design? Procedural aspects, what can we learn about how geodesigners think? Regional normative differences, what do geodesigners believe?

The discussion leaders and reporters will summarize the findings on these topics and they will be available in spring 2019. The IGC will be further developed and the planning schools are invited to join the cooperation.

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Notes on a global experience of landscape architecture education from Sweden, Russia, USA, New Zealand, and Australia

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Keywords: Global experience, landscape architecture education

During the last three decades of my academic career, I have been privileged to have had the opportunity to teach landscape architecture at five different universities. Two of them represent the European model of landscape architecture education (Swedish University of Agricultural Sciences and St Petersburg State Forest Technical University), one in the USA (SUNY ESF, the State University of New York College of Environmental Science and Forestry), one in New Zealand (Lincoln University) and one in Australia (University of Western Australia).

The main goal of this paper is to demonstrate that landscape architecture programs might have different origins, developmental histories, curricula content, and emphasis, but lately they all try to adjust their programs to global professional standards and use unified models (length of education, core subjects, professional ethics) which allow international and national exchange students to join different programs and ensure quality of education and worldwide employment opportunities. This tendency is also reflected in the new reality of the modern world and the demands of the global market economy.

Original structures of landscape architecture programs

Original programs in Sweden and Russia followed the classical 5-year combined European model, which consisted of prescribed mandatory subjects that all students had to complete during their education such as soil sciences, plant material, geology. It also included additional summer practical fieldwork and internship professional experience. Sweden and Russia had a free-of-charge educational system, which resulted in a very interesting phenomenon in landscape architecture education — students were free to concentrate entirely on their education. The entry to landscape architecture (a discipline that was always very popular and thus competitive) was based on high school grades or, in the case of Russia, also on the passing of four entry exams. The majority of students came directly after high school. Because of the popularity of the landscape architecture profession among females and their generally better overall performance at school, Swedish and Russian landscape architecture education has been quite female-dominated. In some years 90–95% of students were female.

Original programs in the United States, New Zealand, and Australia were based on a 4-year Bachelor of Landscape Architecture (in some US universities even five years because of extra requirements such as an off-campus component). In addition, there were one, two, or three-year master's programs in landscape architecture. The most significant difference in the Anglo-American model is the tuition fee (or scholarships). Due to the growing cost of education, many students have to engage in part-time employment in order to afford to complete their education. Another major difference of this model is the flexibility of the curricula — students may choose elective subjects from different disciplines. One of the crucial entry requirements is the presentation of a portfolio of artistic works that indicates the likelihood of future success in the design component of landscape architecture education.

New model of landscape architecture programs

In the 2000s, most European countries accepted the Bologna education system (3-year bachelor's program and 2-year master's program). In Sweden and Russia all landscape architecture programs went through a painful process of restructuring and rigorous critical review. However, the essence of the system — compulsory subjects — was retained. The Swedish model has developed an extra unique feature: here students have a prescribed sequence of subjects each semester. For example, the spring semester may consist of only two subjects (one following another), which allows students to focus completely on particular assignments and produce high-quality design or theoretical assignments.

Landscape architecture programs in the US, New Zealand, and the majority in Australia follow the 'original' pathway of a 4-year undergraduate program and an additional one to two years of a master's degree. However, some universities in Australia, influenced by the European model, have introduced the '3 plus 2' model. The reasoning for such a move is connected to the changing world and the rapid internationalization of landscape architecture education. The Bologna system aims to harmonise academic degree standards and quality education, increase the mobility of students and teachers across countries, and thus reinforce the quality of education and the chances of success in the job market. Over the past decade Australia has become very attractive for international landscape architecture students and the 3 plus 2 model is becoming more and more popular.

A common core of LA programs around the globe

Today all programs acknowledge the studio-teaching format and its culture as a core method in landscape architecture education (ECLAS Guideline on Landscape Architecture, 2017; AILA webpage). Design history and theory, urban planning, plant material, natural sciences and engineering courses are equally significant in landscape architecture education. Professional practice is another globally recognised mandatory component.

There is one more rising common tendency in all five programs into which I have taught. There is a growing number of professional conversion programs that offer a 1- or 2-year Master of Landscape Architecture (MLA) to people with a bachelor's degree from another discipline. At the time of the global financial

crisis, with dramatic changes in demographics and technological progress, such a model became very attractive. This kind of flexibility and availability of alternative pathways had its roots in the Anglo-American system, which is closely connected to the market economy. For countries that entered into the capitalist system in recent times (for example, Russia), the MLA option has given hope to mid-career people who have decided to change their careers.

One of the latest common features of landscape architecture education today is the increasingly competitive educational and professional market. This calls for more flexible models — for example, offering additional elective courses in horticulture, landscape engineering, ecology, planning, or architecture, which will give students additional skills and knowledge.

Last but not least, a common trend in all educational systems directly related to globalization is the growing number of international students. Especially in Australia and New Zealand, landscape architecture programs at the moment have a very high percentage of international students. This has influenced changes to curriculum and entry regulations.

The number of international students is growing in Sweden and Russia as well. However, bachelor education is performed in the native languages and only master's level courses offer subjects in English. The proportion of international students is still very low in Russia and Sweden compared with Australia and New Zealand.

Diversity of approaches to landscape architecture programs
Despite the standardisation of landscape architecture education (3 plus 2 or 4 plus 2 models), each program has its own features, content, and emphasis. These correlate with a country's historical traditions in landscape architecture, as well as economic, political, cultural, and climatic peculiarities. The direction of each program also depends on the umbrella institution. Programs within forestry or agricultural universities (for example, SUNY ESF, Swedish University of Agricultural Sciences, Lincoln University, and St Petersburg Forest Technical University) include quite a variety of life science and engineering courses from the first year. In contrast, programs rooted in planning, design, or architectural schools, such as the School of Design at UWA, prioritise design direction and offer few natural science courses.

SUNY ESF has its own unique experience of introducing their students to the international world of landscape architecture. Their off-campus field trip (14 weeks of design by research project) outside of the United States has been very successful for over 30 years (Ignatieva, 2003).

Integrating research into education
The current environmental crisis challenges landscape architecture programs and pushes for new research-based subjects that can help students and thus future landscape practitioners to read, understand, and design sustainable urban landscapes. There is an urgent need to learn the principles of urban ecosystems and their differences from native landscapes, and to explore urban biotopes and

the principles of working with novel ecosystems. Students should know how to design using essential ecological principles, which in the end can help us to create a resilient urban environment. In all programs I developed several new subjects, such as Urban Ecology (SUNY ESF), Landscape Ecology and Ecological Design Studio (Lincoln University), Urban Ecology for Landscape Architects Studio (SLU, Sweden), and Landscape and Urban Ecology and Ecological Design Studio (UWA, Australia). All mentioned urban ecology courses were inspired, correlated, and included results from innovative research projects such as Low Impact Design and Development in New Zealand and Russia, Green-blue Infrastructure in USA, and Urban Biodiversity and Design in Sweden (Ignatieva et al., 2008; Muller et al., 2013).

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CultureScape Project – Landscape design in international and intercultural learning environment: Dresden, Elbe-Roeder-Triangle Case

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Keywords: Landscape design, cultural landscape, inter-cultural learning, in Elbe-Roeder-Triangle, Dresden, Germany

In loving memory of our colleague Pol Ghekiere.

Landscape architecture education is a demanding activity and a foundation stone for all concerned (IFLA, 2008). Critical thinking and landscape analysis as well as conceptual processes in landscape architecture education require exchange of information, comparison of values, experience on site and other related learning instruments in a communicative environment. Benefiting from special learning and teaching conditions not available in a single institution, testing teaching methods in an international classroom environment and exchanging views are some important issues (European Commission Education and Training 2012) in landscape architecture pedagogy. Hence an intercultural communicative process would empower learning experience in landscape architecture involving natural, social, physical and cultural aspects. Fantini (2000) confirmed that educational institutions have long understood the importance of cross-cultural preparation to ensure intercultural effectiveness and multinational cooperation is increasingly recognized.

Recent studies revealed that intercultural teaching and learning have multiple benefits both for students and teachers; that even short-term experiences are valuable and group work enhances the academic as well as generic learning outcomes (Atik et al., 2012). Teekens (2000) informed that international student mobility and international classrooms strongly support the learning experience which is regarded as of intercultural dimension of the teaching and learning so to bring an appreciation for different cultures and to improve ability to communicate and interact with people from different backgrounds. Leask (2004) argued that transnational education programs are an integral part of the internationalization activity of higher education institutions and an opportunity for staff and students. Portillo (2005) explained that intercultural learning is a process and students need to work at developing their intercultural sensitivity before, during and after a study abroad. Williams (2005) discussed intercultural adaptability and intercultural sensitivity and affirmed that students who participated in study abroad programs exhibited a greater change in a positive way in intercultural communication skills as opposed to those who remained at their home campus.

The aim of this study is to share the outcomes of an international landscape architecture planning and design project, carried out in 2013 in an intercultural learning environment involving students and teachers from Germany, Turkey and Belgium. Entitled as Identity-Diversity-Integrity: Cultural Landscapes in Landscape Design, and implemented in three successive years, the Culturescape project's third and final round, took place in Dresden, Germany.

The method of the study is based on preparatory seminars in an international classroom, introduction to the site, selection of groups, group meetings - creative thinking on cross cutting issues -critical thinking; site visit - meeting local people, institutions and stakeholders, addressing landscape complexity and aesthetic understandings; intercultural studio work, creative process and evaluation of final projects.

The study area, Elbe-Roeder Triangle, covering Zeithain/Gohrischheide, Tiefenau, Koselitz; Zabeltitz and Diesbar-Seusslitz quarters was mainly rural in character. The most challenging aspects in the region related to the decreasing population, abandonment of land and disappearance of traditional land use patterns, thus degradation of local landscapes. Accordingly, core issue of the project groups was the creation of livelihood for the region and regeneration of traditional landscapes. In this respect, participation and cooperation of local stakeholders and people very much supported the project.

Cultural integration between five project groups and exchange of ideas brought multiple project outcomes for the study area such as culture routes and flying zones for birds in Zeithain/Gohrischheide; a rope course, an artificial lake, a beach and ecoduct in Tiefenau; a nature based recreational network, design for apiculture and a bee village in Koselitz; design for a swamp area and a farmer's garden in Zabeltitz; ecological connections for Elbe river and a wine route in Diesbar-Seusslitz.

Five groups produced landscape design projects with multiple solutions for the regional development. Zeithain/Gohrischheide proved a good connection between past and present via networks of tourist routes passing throughout natural and historical sites; Tiefenau with historical gardens and artificial lake; Koselitz with fishing lakes and bird-watching and design for apiculture; Zabeltitz Beyond the Swap with nature tourism and Diesbar Seusslitz improving a very old vinery and place on the crossroad of Elbe.

It was a challenging opportunity and experience both for teachers and students to understand different features and interfaces of cultural landscapes and produce landscape design ideas with the intention of improving natural, cultural and social values. Student groups with different cultural backgrounds were quite creative and communicative in problem solving, which helped them with a quick and cogent common decision making process.

Regarding graphical designs in project work, Turkish students tended to use digital, computer aided design technologies while European students were more capable in freehand drawing and traditional paper graphics. This gave an opportunity for critical thinking about different facets of the design and a compelling design output.

Pedagogical aspects of the CultureScape Project were questioned with regard to number of hours taught, equipment used, capabilities and expertise of the professors, overall quality of teaching, the expected learning outcomes, activities besides general course. Students were most satisfied about the activities besides general courses and teaching quality. Students' motivation to participate in the project was based on European experience, academic learning and cultural exchange (Atik and Ortaçeşme 2013).

Regarding future career trajectories: Students who took part in the programme are more likely to take on either an academic career path or find job in their own field of landscape architecture profession.

Intercultural work of staff and students from 4 partner universities in 3 countries brought out enrichments and distinctions in design projects, improved social interaction and cooperation provided a framework for students and teachers to broaden their knowledge on subjects and instrumental academic experience.

The international and intercultural learning environment in the project increased students' awareness on natural cultural and social values in landscape design and improved their ability in using these values more effectively and creatively in project solutions.

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Special session

Bridging national and disciplinary boundaries: Concepts of sustainability in landscape and urban planning education

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Keywords: Planning education, planning history, sustainability concepts, landscape architecture, urban planning

To contribute to Sustainable Development landscape architects must acquire and integrate broad sustainability knowledge, as principles and concepts of sustainability apply globally, and bridge national and disciplinary boundaries. Reading the tracks that educators have left while passing on sustainability knowledge from one generation to the next, this thematic session employs methods of historic research and takes a closer look at two dimensions of professional and academic discourse: (1) history of sustainability narratives, and (2) history of sustainability connotations:

1. Societies around the world all possess specific histories of narratives about the meaning(s) of sustainability. Notable differences exist, for example, between 'Western' and 'Eastern' narratives, between 'Developed', 'Emerging' and 'Developing' societies.

2. Planning disciplines also have, within the context of societal narratives, each assumed specific ideas of how development may be sustainable. Remarkable differences can be identified between discrete segments of planning such as Regional Planning, Town Planning, Landscape Planning, Open Space Planning, etc.

Employing the integrated framework of Sustainable Development this session aims to demonstrate how joining several culturally specific approaches and collaborating across disciplines helps addressing 'emergent' societal challenges and a variety of different 'wicked' problems.

The session also aims to develop future research and to establish a scholarly forum in the field of planning history with particular focus on professional education pertaining to sustainable development. The session brings together experts from the fields of history and planning education from different countries.

Guiding research questions include the following:
-What are the different societal contexts and conditions for planners to create visions of and concepts for sustainable development?
-What objectives do planners identify in research and education, which of these do they propose to decision-makers, and which are they specifying as measures for implementation?
-What role does planning-education play in building the body of planning knowledge relevant to sustainability?

The session includes four peer-reviewed contributions:
Dr.-Ing. Agnieszka Cieśla, Politechnika Warszawska, Dep. of Space Planning and Environmental Sciences: 'Sustainability under economic pressure: Education in Urban and Landscape Planning in Poland'.

Behzad Mirzaei Yeganeh and Prof. Dr. Kianoush Suzanchi, Department of Art and Architecture, Tarbiat Modares University, Iran: 'Investigating the Education for Sustainability in Official Landscape Architecture Masters Programmes'.

Dan Li, Prof. Dr. Mintai Kim and Prof. Dr. Cermetrius Bohannon, College of Architecture and Urban Studies, Virginia Tech, United States: 'Pedagogic Methods for Sustainability Teaching in Landscape Architecture'.

Prof. Dr. Juanjo Galan, Department of Architecture, Aalto University, Finnland: 'NEW PARADIGMS AND CONCEPTS FOR URBAN NATURE: An integrative model practical applications in Landscape Planning education at Aalto University.'

Discussant who has read the papers in advance and will be convener of the session:
Prof. Dr. Ellen Fetzer

Sustainability under economic pressure: Education in urban and landscape planning in Poland

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The purpose of the paper is to present different approaches to education in spatial, urban and landscape planning in Poland throughout the periods: the in-between war period, socialism and after 1989. Unlike countries in Western Europe where first spatial regulations were introduced in the mid-19th century and the spatial planning system was gradually refined later on, in Poland such a continuity was missing. The three periods have very different characteristics and a spatial planning system varied in each of them. This instability caused that the spatial planning system in Poland could not develop over a longer period of time and it has been under constant reconstruction for the past 100 years. The changes in the spatial planning system were then reflected by changes in spatial, urban and landscape planning education.

In the in-between war period, Poland as well as other countries in the region regained its independence after over a century of being divided between different countries ruling Europe at that time (Russia, Prussia, Austria). One of the main goals of spatial planning was to consolidate the country also through consistent development policy and unified procedures and planning tools. This enabled a great shift form a largely agrarian country into a country with a growing role of industry. Large scale urban projects emerged as part of strategic infrastructural projects: The city of Gdynia near the most modern Baltic harbour in that time and numerous smaller towns in the so called Central Industrial District i.a. Stalowa Wola. Other existing towns near industrial centres like Katowice underwent huge changes with new impressive developments in both urban and architectural scale. Many of them gained even an international recognition like the concept of the 'functional Warsaw' among CIAM. All these achievements were impressive and successful yet insufficient. As Andrusz recalls, urbanization and industrialisation in countries of CEE were sluggish in the 1920s and even stagnating in the 1930s . All this, despite emergence of first academic courses and even whole faculties specialized in urban, landscape, and geography led by very often excellent staff well educated abroad under the influence of leading innovators in the field.

Under the socialist regime urbanization did not keep pace with industrial development and as a consequence, socialist countries became under-urbanised . It must be admitted though that spatial and particularly urban development were very intense during that period. Between 1948-1988 the urban population in Poland grew by 15.5 million people and 7.5 million flats were built, mostly in prefabricated systems. Spatial planning was completely reorganized and based on the soviet principles. Since then spatial planning has been called 'spatial management' (gospodarka przestrzenna). The planners educated at that time conceived a number of valuable planning studies on development of the country, evaluating potential strengths and weaknesses. Some of the elaborated techniques and concepts were regarded as very progressive in the West (e.g. threshold analysis by Bolesław Malisz). As a result of prioritizing the industry, concerns about environment and natural resources were almost ignored. This is why pollution was very high and negatively influenced the general health condition in the society. The efficiency of land use was not an issue for the decision-makers and urban development was very land consuming. One has to admit though that the centrally governed system with almost no limitations connected with private property rights enabled large scale multidisciplinary projects changing whole districts or even creating new urban entities. In some cases, planners took advantage of the high power and succeeded in creating urban spaces and districts of new quality. The pressure to use prefabricated construction systems hindered progress in architecture shifting the creative potential to urban compositions. Some regard the 1970s as the golden era of Polish urban planning after WWII.

With the change of the political system after 1989 the existing spatial planning system perceived by many as totalitarian was completely rejected, largely due to the fact that private property rights were to regain highest priority at the expense of common interest. Planning was divided into three levels: central, regional and local. Already in 1990 a planning authority was re-established by the communes (local level). In 2003 the local development plans and land use plans that were under the past political system were abolished regardless of their actual quality and relevance. New plans had to be produced quite often just to achieve a certain level of area coverage than to answer actual planning need. For these reasons the demand for planners grew considerably. Responding to this development new faculties specializing in spatial, urban and landscape planning emerged. The first ones were already founded in 1990 like the faculties of spatial planning (still called spatial economy) in Poznań and in Wrocław.

In the last three decades urban development was very growth oriented despite totally different demographic conditions which changed rapidly following the general trend in Europe: depopulation and ageing. According to a research study current land use plans envisage areas for residential purposes that could be inhabited by about 220 million people while the demographic projections for Poland estimated a population decrease to 36 million by 2050. Such extensive development further negatively influences the landscape and natural environment.

Participation still remains a weak point of the Polish planning system, where plans are hardly being consulted with a wider group of actors. This results in so called negative participation i.e. when inhabitants protest, sometimes very strongly, against almost ready plans. Unfortunately, in the studies of spatial, landscape or urban planning little is taught about citizen involvement. As a consequence, future planners are not well prepared to deal with

participation processes, which are indispensable in the modern design processes and form the basis of socially sustainable development.

Throughout the three periods Poland was a developing country whose spatial planning system was undergoing rapid and often chaotic changes. It was not an evolutionary process like for example in Germany. Sustainability issues like those referring to environmental protection or inhabitants' involvement in planning were given a second role. Although nowadays some changes may be observed, it can be stated that economic development has largely been given a priority over sustainable development.

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Investigating the education for sustainability in official landscape architecture masters programmes

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Keywords: Sustainable landscape architecture, landscape architecture curriculum

As landscape architects, we are concerned with the future of development, management and protection of our landscapes. We believe that sustainable development and human well-being are fundamental to our work as designers. In order to protect and further develop our landscapes, sustainability issues should be one of the major concerns. Education can provide a solid foundation for sustainability and can spread sustainability concerns and knowledge among landscape designers. According to 'IFLA/UNESCO charter for landscape architectural education', Educational programs should promote landscape architectural design which considers the cost of future maintenance, life-cycle costing and site sustainability (IFLA, 2012). As 'Sustainable Architectural Education White Paper' suggests: 'Sustainable environmental design should be seen as a priority in the education of building practitioners from the beginning of their studies and through to continuing professional development' (Altomonte, 2012).

One of the most simple and widely used definitions of sustainability comes from the Brundtland Commission as 'meeting the needs of today's population without diminishing the ability of future populations to meet their needs.' The concept of a sustainable landscape also has been a controversial Idea. The Council of Educators in Landscape Architecture (CELA) published a definition or sustainable landscapes in 1988: sustainable landscapes 'contribute to human well-being and at the same time are in harmony with the natural environment. They do not deplete or damage other ecosystems. While human activity will have altered native patterns, a sustainable landscape will work with native conditions in its structure and functions. Valuable resources—water, nutrients, soil, etcetera—and energy will be conserved, diversity of species will be maintained or increased' CELA (Thayer, 1989). The aim of landscape architecture declared by 'ECLAS Guidance on Landscape Architecture Education' is to create, enhance, maintain, and protect spaces so as to be functional, aesthetically pleasing, meaningful and 'sustainable' while appropriate to diverse human needs and goals. Landscape architects are concerned with the variety of facets of sustainable development, sustainable management of natural resources, sustainable use and management of cultural landscapes, and many other aspects of sustainability (Bruns et al., 2010).

Exploring and studying the indicators of landscape sustainability is necessary for sustainability-friendly education in universities. Traditionally, the three pillars of sustainability are: Economy, Society, and Environment. In landscape research and practice, scientists have reinterpreted the definition of sustainable development in order to include the holistic basis of landscapes. For example, designers emphasize that more attention needs to be paid to the aesthetic, experiential, and ethical issues. Given this, one can argue that aesthetics or beauty, experience, and ethics, are the fourth, fifth, and sixth pillars of the landscape sustainability (Musacchio, 2009).

Landscapes represent the most operational scale for understanding and shaping the relationship between the society and environment, or ecology and ecosystem services (Wu, 2013). One of the biggest challenges in landscape education will be the question of how to operationalize the environmental, economic, equity, aesthetic, experiential, and ethical aspects of landscape sustainability in landscape research and practice. The focus of landscape education programs must be on all aspects of sustainability. Educational qualifications to practice in the field of landscape architecture should be based on a vision that is sensitive to the diverse needs of sustainability. Therefore an approach to landscape planning and design interventions must be developed that enhances social sustainability, cultural and aesthetic needs, as well as the physical requirements of people (IFLA, 2012).

We believe that the emphasis of the curriculum in sustainability-oriented landscape architecture programs should be placed on all aspects of sustainability. Admitting the importance of sustainability goals in Master programs of landscape architecture, this study explores the following items in the curricula for selected universities:
-Is landscape sustainability considered as a separate course in the curricula?
-Is the subject of sustainability mentioned in some curriculum of courses?
-Does the curriculum focus on diverse aspects of sustainability?

Exploring the role of sustainability in post-graduate programs in landscape architecture, we have conducted a review of the curricula of 24 landscape architecture programs around the globe. The programs were selected from different geographical regions based on university rankings by QS World University Rankings (Collier, 2018), DesignIntelligence 2018 Landscape Architecture Program Rankings (DesignIntelligence, 2018), Keystone Academic Solutions ('Best Master's Degree in Landscape Architecture,' 2019) and accredited university programs by the Canadian Society of Landscape Architects (CSLA, 2018). This review includes the following institutions: Massachusetts Institute of Technology (MIT), University of California, Berkeley (UCB), Harvard University, The Bartlett School of Architecture: UCL (University College London), Delft University of Technology, ETH Zurich (Swiss Federal Institute of Technology), National University of Singapore (NUS), Tsinghua University, University of Hong Kong (HKU), The University of Melbourne, The University of New South Wales (UNSW), University of Cape Town, Cornell University, University of Pennsylvania, University of British Columbia, University of Guelph, University of

Manitoba, Pontificia Universidad Católica de Chile, Estonian University of Life Sciences, Latvia University of Life Sciences and Technologies, Cracow University of Technology, Czech University of Life Sciences (CULS), Universidade da Coruña and CEPT University.

The study demonstrates that landscape sustainability is not available as a separate course in the official curricula of any of the above-mentioned institutions. Meaning 'sustainability in landscape architecture' does not exist as a stand-alone topic in these master programs of landscape architecture. However, ecology and sustainability have been mentioned in the content of a few courses such as landscape ecology, landscape protection and sustainable environmental technologies as a part of Master of Landscape Architecture programs. Among all programs, only a few courses were designed with a focus on sustainability. The only aspect of sustainability considered in these courses was ecological impacts. It is worth noting that while this study evaluated the title and the content of courses in curricula, the concept of sustainability may have been introduced by the lecturers.

The authors suggest 'sustainability in landscape architecture' to be considered as a separate course or a chapter in similar courses in related master programs. The topic can raise awareness and make researchers more sensitive to sustainability-related issues. In addition to this, sustainability should be integral to the vision of the curriculum. This can help to establish goals related to sustainability in different courses such as landscape architecture design studios. Focus on sustainability should be extended to all aspects of sustainability and not limited to ecological headlines. Considering landscape sustainability and landscape design, the master programs should include sociocultural, economical, aesthetical, experimental, and ethical aspects of sustainability in curricula of landscape architecture. Finally, it is recommended that landscape sustainability be incorporated in teaching contents, thesis, and research activities as a significant concept in landscape architecture programs.

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Pedagogic methods for sustainability teaching in landscape architecture

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Keywords: Pedagogic methods, landscape architecture, sustainability, teaching

Introduction

The purpose of this study is to explore the pedagogic methods for sustainability teaching in the landscape architecture programs. Sustainability means 'the capacity to be kept in existence or maintained indefinitely, in particular, the capacity to maintain the ability of social systems, economic systems, and environmental systems to support human life and well-being' (Portney, 2015, p. 9). Sustainability in this research is related to global challenges such as climate change, food security, water resources. Landscape architecture is greatly associated with global challenges and has the potential to help achieve sustainability and resilience. The education for sustainability in landscape architecture becomes more and more important for future landscape architects to take the leadership role in achieving sustainability. However, the literature review suggested that current studies in education for sustainability in landscape architecture in the United States were fragmentary. Specifically, the current literature is limited to a few scholars who published their pedagogic methods for individual courses.

Research Questions

This phenomenon resulted in a gap in the general view of what kinds of pedagogic methods are used for sustainability teaching in the landscape architecture programs and how effective they are. To fill this gap, we raised the following research questions: 1) What kinds of pedagogic methods are used for sustainability teaching in landscape architecture? 2) How effective are the pedagogic methods used for sustainability teaching in landscape architecture? 3) Do faculties use rating systems for sustainability, like LEED, Living Building Challenge, SITES as part of their pedagogic methods, and how?

Research Methods

A quantitative research method was used to explore the research questions by sending a survey to 951 faculty members in all 69 landscape architecture programs accredited by the Landscape Architecture Accreditation Board (LAAB) in the United States. The software we used for the survey was Qualtrics.

Generally, in Education for Sustainability, pedagogies associated with teaching sustainability are learner-centered approaches, multidisciplinary, critical thinking, teaching 'in-place' by using the local or regional environments for education, and connecting to real-world applications with shared learning experiences and active learning (Ayer, Messner, & Anumba, 2016; Bosselmann, 2001; Breiting & Mogensen, 1999; Christie et al., 2013; Cotton & Winter, 2010; Dawe, Jucker, & Martin, 2005; Tilbury, 2007; Tilbury & Cooke, 2005; Thomas, 2009). We can connect these descriptions of pedagogies with four main pedagogies, including learner-centered pedagogy, networked learning, critical pedagogy, and problem-based learning. From further reviewing the literature, we can see the specific methods examined or suggested for teaching sustainability contain critical thinking, role plays and simulations, group discussions, stimulus activities, debates, critical incidents/problem-based learning, case studies, reflective accounts, critical reading and writing, fieldwork, the teacher and university modeling good practice, integrated student teams, visualizing collaborative experiences, and place-based or community-based education (Brncich, Shane, Strong, & Passe, 2011; Christie et al., 2013; McMahon & Bhamra, 2016; Nikezić & Marković, 2015). The above pedagogic methods were reported for the movement of Education for Sustainability instead of focusing on the landscape architecture field.

The research questions in the survey instrument are designed based on the literature review as following. The first part of our survey design focused on uncovering the pedagogic methods used specifically for teaching sustainability in the landscape architecture field. The second part of the survey design further revealed the effectiveness of the above methods when it came to teaching sustainability in the landscape architecture field. The third part of the survey design was based on the usage of rating systems for sustainability, like LEED, Living Building Challenge, SITES in teaching sustainability in the landscape architecture field. If faculties in landscape architecture programs used rating systems as part of their pedagogic methods, and how they used rating systems in their teaching were the exploration focus.

Research Results

The survey was open for participation from Nov. 12, 2018, to Dec. 12, 2018. We received 209 completed responses from the faculty members across the United States for the survey. The response rate was 22.0%.

Here are some of the survey results. First, problem-based learning, place-based or community-based learning, multidisciplinary learning, learner-centered pedagogy, were the most commonly used pedagogic methods for sustainability teaching in landscape architecture programs according to faculty's self-report. Networked learning was the least commonly used pedagogic methods, while critical pedagogy and inclusive pedagogy were in the middle. When asked how effective the pedagogic methods were for sustainability teaching in landscape architecture programs, the faculties participated in the survey indicated that problem-based learning, and place-based or community-based learning are the most effective ones.

Second, for the specific teaching methods, faculties in the United States reported that critical thinking, group discussions, problem-based learning, and case studies are the most commonly used in the courses teaching sustainability in landscape architecture, while critical

reading and writing, problem-based learning, fieldwork, community engagement are the less used ones compared to the above methods. Debates, role-plays and simulations, reflective accounts, and practice modeling are the least commonly used methods. When further asked about the effectiveness for the methods they used, the faculty members responded that problem-based learning, community engagement, fieldwork, critical thinking are the most effective methods for teaching sustainability in landscape architecture, while debates and role plays and simulations, are the least effective ones. Critical reading and writing, group discussions, case studies, reflective accounts, practice modeling are reported as moderately effective.

Third, most faculty members reported that they introduced rating systems to the students when they were teaching sustainability. Some of the faculty members indicated that rating systems were used in the course to help students with the sustainable design process or help students better understand the different aspects of sustainability.

Conclusions and Future Research
The primary research results according to the survey responses have been described above. The authors are currently conducting quantitative analysis for the survey data. Detailed research results with percentages and results crossing references with faculty members' demographic data are to be presented at the ECLAS UNISCAPE Conference in September 2019. The data analysis and scholarly writing will be finished by that time.

The results and conclusions from this quantitative research will help us better understand how sustainability is taught in landscape architecture and how to help improve the sustainable landscape education from the pedagogic method perspective in the future.

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New paradigms and concepts for urban nature: an integrative model practical applications in landscape planning education at Aalto university

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Introduction and research questions

Despite the numerous definitions of some of the new basic concepts supporting the use of urban nature in landscape and urban planning (e.g. urban green infrastructures (UGI), ecosystem services (ESS), nature-based solutions (NBS), Urban Sustainability and Resilience, etc.), the establishment of durable terms, grammars and frameworks remains elusive and escapes the limits of the many involved academic disciplines. This situation affects specially the application of those concepts in urban areas governed by a complex system of drivers and interests, as well as their use in the academic arena, in which systems thinking and multi, inter, trans-disciplinary approaches, challenge the canonical academic and professional boundaries. In fact, a systematic review of the use of those concepts reveals that quite often they are understood and operated differently by different groups.

Urban nature, with its multiple meanings and dimensions, has historically been linked to landscape architecture practice and education, which in fact has acted as an amalgamating platform bringing together the formal, functional, ecological, perceptual, social, cultural and economic facets of nature and giving them a common purpose through landscape planning and design. Thus, and in contrast to other disciplines, the contribution of landscape architecture is located precisely in the intersection and integration of different types of knowledge, in the generation of potential synergies and in the definition of spatial and functional schemes that are often embodied with a high level of multifunctionality.

This strategic situation imposes some obvious challenges in landscape architecture education which become more critical when the conceptual and methodological foundations of highly related disciplines undergo substantial changes or when new scientific, planning and design paradigms emerge. If knowledge is a highly interconnected web, landscape architecture, by its very nature, is located in a highly connected node and, therefore, is especially sensitive to peripheral changes.

Following these preliminary remarks: the emergence of new urban-nature related concepts, their unclear interconnections and their relevance in landscape architecture education, this paper elaborates on three Research Questions:

1. Can the new set of urban-nature concepts be integrated in a more coherent and synthetic model?
2. How can this synthetic model be adopted in landscape architecture education? Which kind of courses or activities could facilitate its practical use by landscape architecture students?
3. How does the synthetic model and its academic application respond to the expectations and needs of decision makers and experts from other disciplines?

Methods

The proposed Research Questions were answered using different methods. Thus, the development of a synthetic model including some of the most used urban-nature concepts was implemented through a comprehensive literature review and through a complementary categorization and interconnection of the above-mentioned concepts.

Secondly, the model was applied to redefine the contents, structure and objectives of one of the two compulsory courses (MAR_E1025 Green Area Planning) of the Aalto University master programme in Landscape Architecture. The implementation of the course during the last three years produced some tangible results that were systematically analysed to assess the level of understanding and use of the new urban-nature concepts by the students, both during the Green Area Planning course and in their future studios or master thesis.

Finally, the potential of the synthetic model and its application in landscape architecture education was discussed with a wide range of stakeholders including decision-makers from the Baltic and Finnish Cities where the students developed their works and with experts from other disciplines using actively the selected urban-nature concepts for analytical or planning/design purposes.

Results

A review of the novel concepts used in Urban Nature Planning shows that they often operate at different semantic levels. These levels are either complementary or hierarchical (Table 1). As displayed in Figure 1, Urban Sustainability and Resilience can be perceived as moving targets or processes driving the positive evolution of urban socio-ecological systems and promoting transversal and systemic ways of thinking. In the proposed model, Urban Green-Blue Infrastructures are mainly understood as physical and spatial networks where nature and natural processes occur in cities. From a human-centred perspective, these infrastructures have the capacity to deliver a wide range of benefits or Ecosystem Services that, if properly considered, can facilitate the assessment of Green-Blue infrastructures' performance and inform their qualitative improvement (especially regarding point or site related properties). On the other hand, the generation of Ecosystem Services greatly depends on the functioning, characteristics and composition of each Green-Blue Infrastructure, whose performance can be managed or modified by using tools, features or elements assisted by nature and natural processes (e.g. Nature-Based Solutions). According to the proposed model, the aggregation of the physical, functional and benefits delivered by urban nature,

Table 1. Comparative review of the main definitions for urban-nature concepts

CONCEPT	DEFINITIONS	MAIN AIM	POTENTIAL USE IN CITIES FOR URBAN NATURE PLANNING
GREEN-BLUE INFRASTRUCTURE (GI)	'Green infrastructure is a strategically planned network of natural and semi-natural areas with other environmental features designed and managed to deliver a wide range of ecosystem services such as water purification, air quality, space for recreation and climate mitigation and adaptation. This network of green (land) and blue (water) spaces can improve environmental conditions and therefore citizens' health and quality of life. It also supports a green economy, creates job opportunities and enhances biodiversity' (European Commission, 2016).	**SPATIAL:** Define a strategically planned network of areas	The use of GI as a spatial network affecting urban planning is well stablished. (Pauleit et all (2017). GI can provide a spatial network and support the systemic approach needed for the production of ESS and the application of NBS.
ECOSYSTEM SERVICES (ESS)	Benefits people obtain from ecosystems. They include provisioning, cultural, supporting and regulating services (Millennium Ecosystems Assessment, 2005). If natural capital is the stock of assets, ecosystem services are the flows of benefits derived from those assets (Daily et al., 2011).	**FUNCTIONAL:** Assessing different types of benefits and functions in order to inform other concepts	ESS can support devising and implementing GI and NBS by establishing the benefits obtained from nature, and thus providing further definition of its substance (Pauleit et al, 2017). ESS can facilitate the synergic interaction between different types of services but this can be undermined by the subdivision of the concept or the inconsistent aggregation of qualitatively different services.
NATURE BASED SOLUTIONS (NBS)	Solutions that are inspired and supported by nature, which are cost-effective, simultaneously provide environmental, social and economic benefits and help build resilience. Such solutions bring more, and more diverse, nature and natural features and processes into cities, landscapes and seascapes, through locally adapted, resource-efficient and systemic interventions (European Commission, 2015), Maes and Jacobs (2015) define NBS as 'any transition to a use of ecosystem services with decreased input of non-renewable natural capital and increased investment in renewable natural processes'.	**TOOLS AND SOLUTIONS** for a wide range of problems	EA offers a new lens to work with nature in urban or non-urban environments. EA principles can be used in the design of NBS to improve the range of stakeholders engaged and to balance different interests (Nesshöver et al, 2017).
SUSTAINABLE DRAINAGE SYSTEMS (SUDs)	'Approaches to manage surface water that take account of water quantity (flooding), water quality (pollution) biodiversity (wildlife and plants) and amenity' (SUSDRAIN, 2019). SUDs can be integrated inside Sustainable Storm Water Management and can be connected to other terms such as Low impact development (LID), Water sensitive urban design (WSUD) or Integrated urban water management (IUWM.)	**TOOLS AND SOLUTIONS** for Storm Water Management and for the production of other ESS	SUDS support Sustainable Storm Water management. SUDs can promote the generation of multiple ESS and the connectivity of GIs.
SOCIO-ECOLOGICAL SYSTEM (SES)	A socio-ecological system (SES) 'consists of 'a bio-geo-physical' unit and its associated social actors and institutions. Socio-ecological systems are complex, adaptive and delimited by spatial or functional boundaries surrounding particular ecosystems and their problem context' (Glaser et al, 2008). Socio-ecological thinking (SET) could be defined as the way of thinking based in the interaction between bio-geo physical systems and humans.	**SYSTEMIC FRAMEWORK**	SES offers a new lens to work with nature in urban or non-urban environments. Cities can be perceived as a particular family of socio-ecological systems, with their specific conditions for the use of GI, ESS and NBS.
URBAN METABOLISM (UM)	In the field of industrial ecology, UM is defined as 'the sum total of the technical and socioeconomic processes that occur in cities, resulting in growth, production of energy, and elimination of waste' (Kennedy et al. 2007, p.44). UM can be understood as a framework for analyzing, modeling and planning material and energy flows in complex urban system.	**SYSTEMIC FRAMEWORK**	The UM concept can support the analysis and planning of GI, ESS and NBS in order to increase the performative character of urban nature in sustainable urban development.
NATURAL CAPITAL (NC)	'Stock of living and non-living parts of the natural system that directly and indirectly yield benefits to humans … Definitions usually include both renewable and non-renewable resources (Daly and Farley, 2011). Costanza et al. (1998) also include the information stored in natural systems. Some scholars (e.g. Berkes and Folke, 1992) consider the services provided by the natural system as part of the stock as well, but this is normally separated'. (Nesshöver et al, 2017, pp. 1218).	**INTEGRATION** of spatial (GI), functional (ESS) and instrumental (NBS, SUDS) components of nature	The NC concept can help demonstrate the role of nature in meeting human needs, and hence the value of considering NBS versus other types of interventions. (Nesshöver et al, 2017). In an integrative way, Natural Capital can be defined as a stock of resources generated by the combination of GI. ESS and enhanced by NBS or other instruments.

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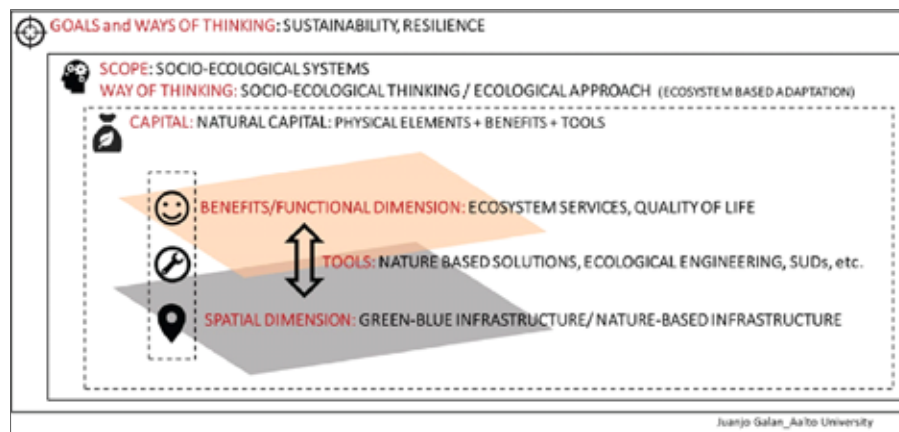
Figure 1. Integrative and complementary model for urban-nature concepts

together with the nature-based tools supporting its amplified performance, could be described as the overall urban nature capital.

The overall model provided the methodological and conceptual framework to work with urban nature in the course Green Area Planning (7 credits) and to support sustainable transitions in different Finnish and Baltic Cities on the base of the performance of nature and its capacity to influence on urban metabolisms, urban morphology and urban ways of living.

The development of the course included the progressive introduction of key concepts, the identification by the students of their mutual interactions, and the combination of different qualitative and quantitative methods to produce new green strategies for the studied cities and for its different functional areas, urban landscape types or typological urban fabrics. In general, the results of the course displayed a deep articulation and interconnection between all the studied concepts, a remarkable level of scalability and a high potential to facilitate the engagement of the students in wider urban discussions and urban planning challenges, both in future studies and in professional practice (Figures 2 and 3).

In particular, Figure 2 includes in its upper part a matrix with different urban green types (columns) and the ecosystem services (provisioning, regulating, cultural and overall) provided by each green type (rows), the map at the bottom of the figure shows the location of each green type in the city of Oulu (Finland).

The upper part of Figure 3 includes two sections in two districts of the city of Espoo (Finland). The pie-charts on the left illustrate the contribution of each green type to the overall green infrastructure of each district and the type of ownership. The improvements displayed in the sections produced a significant increase in the quality of the green types and of the overall green infrastructure without an increase in their respective areas. For the purpose of this exercise, it was assumed that the quality of a green area could be associated with the diversity and intensity of the ecosystem services provided by it. The same sort of approach was used in different neighborhoods of the city of Turku in Finland (see lower part of Figure 3).

Finally, the synthetic model for the integration of new Urban-Nature concepts and the proposals

generated in the successive editions of the Green Area Planning course were discussed with different urban stakeholders and experts.

Discussion and conclusions
The proposed model integrates different urban-nature and sustainable-planning concepts (e.g. green-blue infrastructure, ecosystem services, nature based solutions, natural capital, socio-ecological systems, etc.) and offers a potential path to facilitate the definition of smarter and more performative natures in more sustainable cities. In addition, the developed research suggests potential improvements in the proposed model and in the applied teaching methods as well as future lines for further research.

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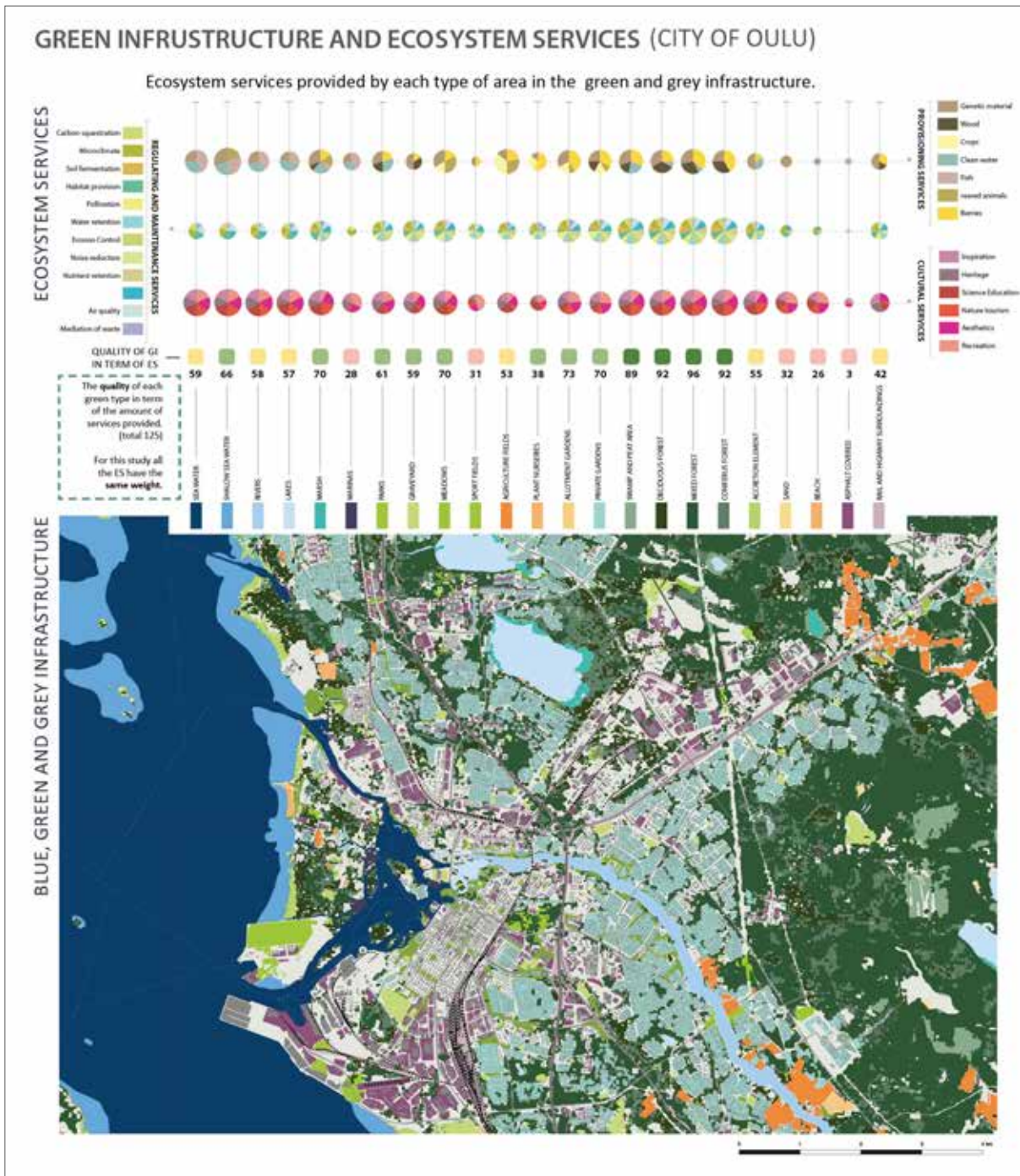
Figure 2. Green Infrastructure and Ecosystem Services in different Landscape Urban Types (Oulu, Finland). Students: H. Poutanen, H. Torkkeri, O. Mahlio and F. Bourgeau, Teacher: J. Galan (2017)
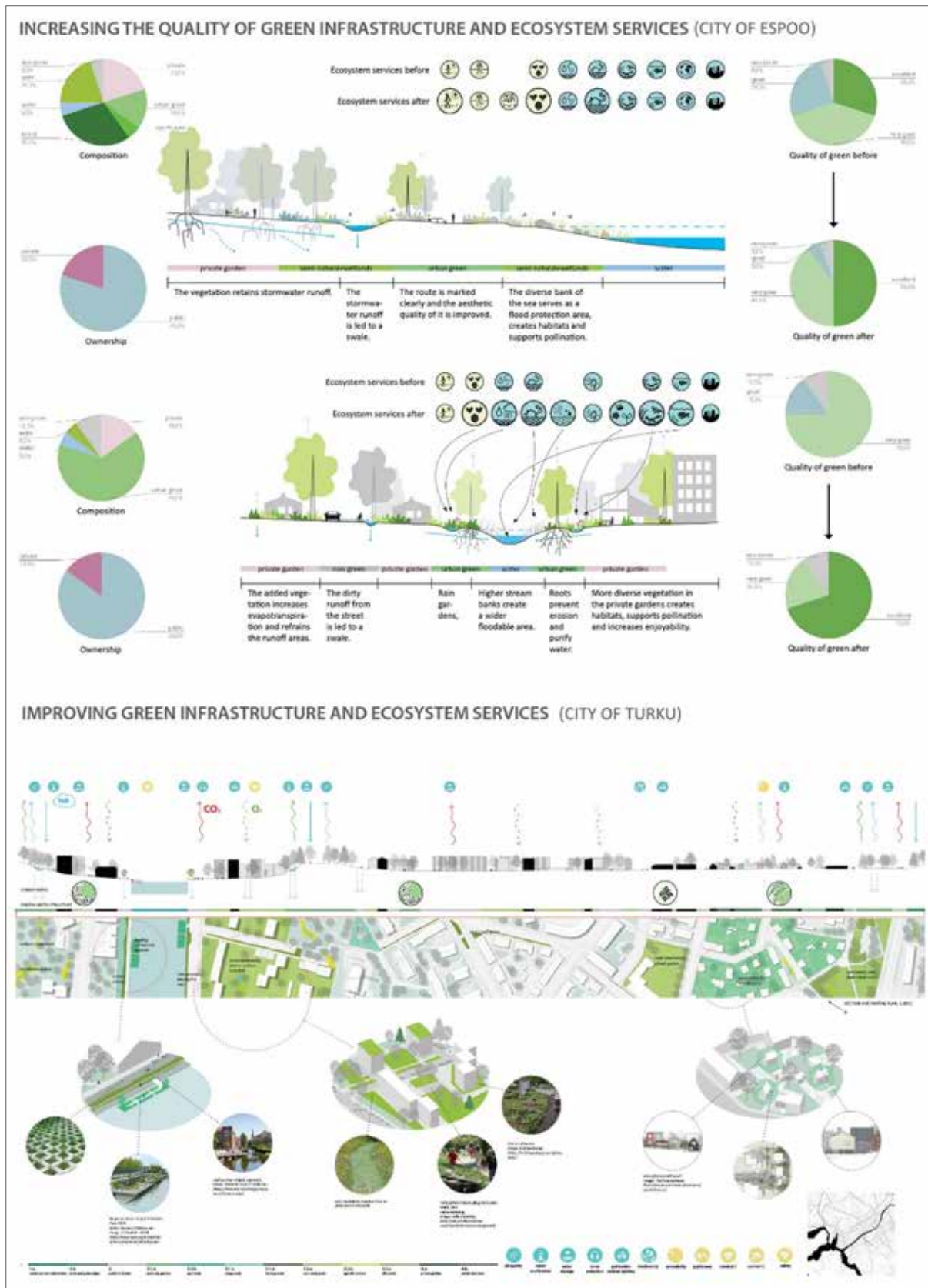
Figure 3. Expanding the performance of nature by improving the quality of the Green Infrastructure trough the generation of Ecosystem Services (Espoo, Finland), Improving Green Infrastructures, Urban Metabolisms and Ecosystem Services in different urban fabrics (Turku, Finland). Students: S. Aalto, J. Jaaskelainen, D. Mavliutova and S. Palmu. Teacher: J. Galan (2017); Students: M. Paija, E. Renkoven, S. Sawada and A. Puska; Teacher: J. Galan (2016)

Special session
Professional mythologies or academic consistency?
– Reframing the basic concepts in landscape architecture education

Organisers:
Marius Fiskevold, Anne Katrine Geelmuyden, Marius Grønning, Melissa Anna Murphy
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Other contributers:
Antonio E. Longo
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Keywords: Curriculum development, vocational vs. academic education, basic terminology in landscape architecture and planning: place, landscape, territory

In what situations are we referring to the notion of landscape? What role is assumed by using it? By these questions we address a basic dilemma in the context of professional education: while training of students must draw on state of the art knowledge from practice, their faculty of judgement relies on a critical view on the implicit meanings that are conveyed by professional and academic terms, discourses and practices.

The term *landscape* itself is complex, referring to an object which we engage with as individuals in different ways: we are situated within landscapes corporally, we engage with landscapes as makers and transformers, and we deal with them conceptually as historically situated members of society – expert or layman. In other words the term denotes an objective materiality as well as a subjective experience. As teachers, our task is to raise students' awareness of the interconnections between these aspects of landscapes, typically by training them to make judgements through studio work on real life situations. And beyond expert judgements, however, the term landscape always implies judgement on behalf of others.

In this session we propose to focus on the role one assumes by using the term landscape, as a point of departure. A number of other concepts may come along with it: substantial ones such as *place, environment, nature, community,* or *city* are given specific meanings when associated with landscape, as are methodological ones such as *design, project, vision, strategy* or *scenario.* They are all part of vernacular language, and as such they denote naturalised common sense meanings connected to political and personal values. Through discussions about conceptual operationalisations and delimitations in different countries, we hope to explore the benefits of critical and systematic terminological deployment, and to highlight the value it might have for education curriculum development.

Workshop
An asset to education: Introducing archives of landscape architecture in academic education (90 minutes)

Organisers:
Ulrike Krippner, Lilli Lička
Archiv österreichischer Landschaftsarchitektur (LArchiv), University of Natural resources and Life Sciences, Vienna, Austria
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Archives for landscape architecture do not only store the discipline's history, but also provide an exciting basis for the future. Historical material is an innovative tool for landscape architecture education, which reaches far beyond its relevance for historical studies. Documents lively tell us about styles and innovations in design, plant-use and drawing. They can also trigger creative design processes or serve as a source for learning analogue as well as digital drawing techniques. Exploring historical material fosters a sound reflection of scholarly and professional practice.

Within this workshop we will exchange experiences in introducing archival material in landscape architecture programs and generate new creative teaching methods to inspire undergraduates and master students. Through intensive exchange and discussion, we will develop new ideas of how to effectively link the profession's history with the education of future generations of landscape architects.

The workshop will be finalized by launching the first European Network of Landscape Architecture Archives. This productive network shall support our efforts to connect historical material to future design processes.

PARALLEL SESSION #5

Design-orientated PhD education in landscape architecture

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Design research 'is the most controversial category of research in landscape architecture' (Swaffield and Deming 2011: 40). Due to its contextual and projective character, and its both rational and intuitive methods, it is difficult to get designing in line with predominant research which aims to be general and factual. Thus, many PhD candidates in design are shy to integrate designing into their work. This reservation is absurd in two ways: First, designing has unique potentials in the process of knowledge production – so why not use this productive tool? Second, designing is the predominant method in the design disciplines – so why miss it out in a PhD project?

This paper addresses the issue of designing in PhD education and presents strategies for PhD candidates and supervisors how it could be integrated productively while at the same time meeting all criteria of common research.

In the first part, a theory is developed about the role and position of designing within the larger process of a PhD. Starting with Christopher Frayling's seminal article 'Research in Art and Design' (1993), in which a trinity of approaches – research about, for and through design – was proposed, the paper traces the theoretical debate on these three categories during the past decades and discusses their productivity for research. Instead of separating these three categories, their integration into a 'non-linear interplay of five moments of design research' – original, reflective, projective, empty and transfer moments – is proposed. Of particular importance is embedding the projective qualities of 'research through design' within the other moments of knowledge production. It is shown that projective moments can never be the only moments in a PhD – they have to be linked closely to reflective moments (research about design) and the original moments, which set the frame. Empty moments support this interplay, and, ultimately, transfer moments translate the knowledge from projective moments towards communicable knowledge, i.e. research for design. Thus, the three categories of Frayling and others should never be understood as alternative ways of doing design research, but as necessarily integrated (cf. Jonas 2015, 35). Performed in this way, research through design with its unique, projective potential can play a crucial role in the process of knowledge production. The interaction of the five moments can fulfil all criteria for common research mentioned: the original moments ensure originality, the reflective moments address scientific significance, transfer moments guarantee broader impact, and the interplay of all five moments determines the relevance of the design research.

Based on this theoretical foundation, eight PhD theses (five of them supervised by the author) which actively applied the projective moments of research through design are reflected on and recommendations

are given for PhD candidates and supervisors how designing could be integrated productively in future PhDs.

For reasons of length of this abstract, the two aspects addressed for PhD candidates – one relating to the possible formats of design work, the other pointing concerns when to integrate design work into the PhD or research process– can´t be presented here and the focus is on recommendations for PhD supervisors. For them, there are some promising ways to enhance the approach of integrating design work into doctoral theses, because the 'normal' PhD colloquia, with presentations and discussions, as well as one-on-one consultations may not be enough to explore the potential.

From the eight PhD examples, four fruitful strategies can be subsumed:

First, supervisors should consider opportunities for integrating the PhD candidates into teaching. As already shown above in the discussion of formats for PhD candidates, the design studio or workshops are great ways to test hypotheses. The PhD candidate and the supervisor can discuss which research question is suitable to be explored with students and could make this a part of the studio or even the basis of the whole studio. Ultimately, it should be a win-win situation for the students as well as for the PhD candidate and the supervisor.

Second, supervisors should discuss the possibilities of entering into an exchange with the real world or the 'agora', as Nowotny, Scott and Gibbons (2001, 201–2) formulated it and foster them with their PhD candidates, because this is one of the specifics of spatial design research. Contemporary science needs a new mode of knowledge production which evolves in a 'co-evolutionary' manner between science and society – science forms society in the same way as society forms science (ibid: vii). Thus, science should enter the public realm of the agora to create socially robust knowledge in a transparent and participative way.

Third, supervisors could conceive innovative design research events together with their PhD candidates. Examples from an experimental research workshop or an international design research conference, hosted by the author, express how PhD candidates could benefit by testing their hypotheses and methods by design experiments with the participants.

Fourth, the set-up of PhD-colloquia should, as a matter of course, include design research practices in order to enhance creativity and openness. These could be inventive explorations including sketching, experimenting and improvised conversations, a culture of questioning and understanding and creating

an atmosphere of openness.

In summary, the paper proposes a theory of a non-linear interplay of five 'moments' of design research, whereby the projective qualities of designing are entangled with other moments of knowledge production. Understood in this way, the common critique aimed at design work of its being unscientific owing to its context-specific and subjective character is void. Instead, it is demonstrated that the complex set-up of design research fulfils all criteria of standard research. As a result, PhD candidates no longer need to shy away from research through design – instead, they should embrace it actively, optimistically and in full awareness of its entanglement with other research moments. A discussion of eight design research PhDs expresses how this is possible and leads to recommendations for candidates and supervisors how designing could be integrated productively in future PhD education.

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A topological composition method in landscape design pedagogy

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Keywords: Design pedagogy, landscape architecture education, landscape architecture design, topological thinking

Generally, courses for design related disciplines can be segregated into two phases: basic design and advanced design. The basic design leads the students from the unknowable state into the provision of professional design, and upskills them to gradually adapt to the basic design skills of the major. Elementary training courses, as the initial step toward the long and strenuous process of learning design, is of great significance to the refinement of a student's basic design attitude and working methods.

The challenge of design basics pedagogies lies in the transformation from design concept to Landscape form. In the past few decades, in the education of Landscape Architecture, teachers have explored some systematic teaching pedagogies, for example the 'elements combination method (Xue, 2015). Proposed by Joseph S. R. Volpe, professor of landscape architecture of University of Massachusetts Amherst and the 'landscape experience method' (Lin & Yuan, 2015) proposed by professor Anuradha Mathur and Dilip da Cunha of the University of Pennsylvania. These design training approaches vary with the respective design perspective and prerogative.

In comparison, Professor Joseph S. R. Volpe orients students to make models of small sites, such as gardens, by using landscape elements such as topography, water, plants and structures to develop their spatial abilities. Whereas Professor Anuradha Mathur et al. enable students to experience the space and form of landscape through photography, analyze various space-time and socio-cultural relations attached to the site by graphic analysis, and then make models to nurture and develop the space and form of the design.

Similarly, the author has been obligated to design theory research and design teaching practice over the past few decades, and gradually developed the 'Topological Layout' method, which is elaborated in detail in this paper.

Topology is a form of geometry. In topology, a graph can be deformed randomly, but the number of its points, lines, planes and other structural relations remain consistent. The property of a topological space which is invariant under homeomorphisms is called topological property. Topologically transformed graphs are structurally identical to the original graphs, and these two graphs are called topological isomorphism. It means that a topological isomorphism can be transformed into rich spatial layouts. The author has been inspired by the fact that topological relations are flexible and are easy to be used to modify and refine schemes, which are apt to be used in the process of generating forms from concepts.

Architectural design, prior to the conceptual design, is often guided under the topological thinking. In this respect, Paul Laseau demonstrated a design process of a residence from engineering plan to design in his work *Graphic Thinking for Architects & Designers* (Laseau, 2001).

In landscape architecture, Norman K. Booth showed a similar design method in his book *Basic Elements of Landscape Architectural Design* (Booth, 1990). First, the Ideal Functional Diagram shows the relationship between the main function and space of the design, represented by circles or abstract graphs[1]. The next step is to represent information and the situation of the site by the Site Related Functional Diagram. Norman K. Booth's ideal functional pattern diagram is similar to the functional bubble diagram in architectural design, and it is an expression of topological spatial relations.

The spirit of landscape architecture design is the amalgamation of spatial elements. Professor Joseph S. R. Volpe divided the elements of landscape architecture into topography, water, plants and structures (Xue 2015). Professor Anuradha Mathur understood landscape as Sequence, Scene, Surface, and Material, from four dimensions to one dimension (Lin & Yuan 2015). Their teaching methods are very effective in the small-scale design and training. The author concern is whether a design training method suitable for cross-domain scale design can be established.

Existence, Space & Architecture by Christian Norberg-Schulz provides a system of knowledge about the vast built and natural environment, and describes the elements and hierarchical relationship between the cognitive existential space and the existential architectural space. He summarized the elements of existing space as centre, direction and area (Norberg-Schulz 1971)[2].

The theory of Christian Norberg-Schulz has the significance of integrity and operability to the planning and design of landscape architecture. In planning and design, abstract 'point-line-plane' can gradually evolve into 'site and node, route and axis, field and region' and other concrete spatial types and environmental elements. In a specific site, 'point-line-plane' should become an important part of landscape architecture design.

Based on the existing space and architectural space theory of Christian Norberg-Schulz, the author integrates it into 'topological layout method'. In the general plan of large-scale site, some scenic spots or structures can be simplified as 'point-line-plane'. These points and lines can also evolve into multi-dimensional spaces on small-scale sites.

In the autumn semester of 2015, the subject of the landscape architecture planning and design course hosted by the author was the campus green space reconstruction design of a university, with the site
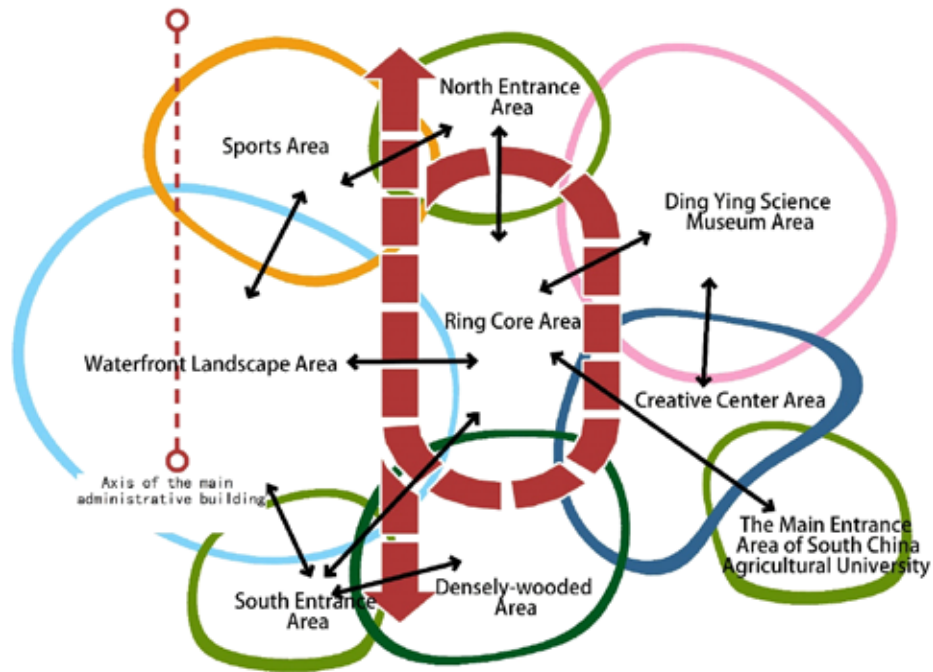
Figure 1. The ideal functional diagramme of a campus green space design (Drawn by ZHOU Shile)

area of about 9.74 ha. After detailed description, analysis and evaluation of the current environment of the site and the region, the students clarified the design problem, developed the design concept and basic functional partition, and then realized the transformation from the design concept to the form through the diagram of the ideal functional diagram (Figure 1). In contrast to Norman K. Booth's Ideal Functional Diagram, the ideal functional diagram in our teaching emphasizes the connection of linear elements between the site and region, which will eventually be translated into the road networks of the site.

The topological layout method of this paper takes the abstract 'point-line-plane' as the basic element, researches the topological relations of various functional elements, completes the layout of functions, and then applies it into a specific site to transform it into a landscape form with factual scale. This approach can be iterated over landscape spaces of various scales.

Notes
1. Image see Booth (1990), p.306.
2. Image see Norberg-Schulz (1971), p.18.

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The use of physical working models in teaching design in landscape architecture

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Keywords: Design methods, design thinking, visualisation, design teaching, landscape models

Landscape architecture, being a design discipline, includes the construction and articulation of three dimensional (3D) outdoor spaces. In the design process, design thinking is the core element, in which two modes of visualization are acknowledged; drawing and modelling, improving the dialogue between conceived and realized space. For designers (and also for clients) visual representation is an essential component in understanding the present spatial situation and the changes proposed.

In design learning it is rather challenging for students to imagine the existing and designed situation in any landscape development process, even in a 2D representation. This issue requires special attention in design teaching, as it cannot be learned from books, but requires fieldwork, map reading, interpretation skills and many exercises. In design teaching however, 3D studies, depiction and evaluation should be emphasized the most. Moreover, 3D thinking is even more complex, as space, volume and scale are necessary to be understood as well. Physical modelling, especially creating working models (sometimes also referred to as 'study models') provides a great amount of advantages in developing design skills by improving spatial thinking.

It is obvious that visualization by drawings plays a major role in developing designer-thinking. It is a quick and effective tool for understanding and showing the intended changes in any state of the design process. However, producing models is even more effective in certain areas of design teaching. While perspective drawings only show the proposed space from certain angles, 3D models promote the perception and interpretation of the design in greater depths than presentation via drawings. The distortion of the proposed space is another drawback of some hand-made perspective drawings of less talented students or of perspectives made by quick and less sophisticated 3D programs (e.g. Sketch-up).

When studying the professional literature, one striking phenomenon is the sparsity of references specifically on the didactic use of working models in landscape architectural design teaching, except for Lynch (1974), who explicitly refers to what he calls 'study models' and their crucial role in design. For digital terrain models there are many references, and as we have seen at the ECLAS conference in Rapperswill, there is even a school that specializes in digital models for use in landscape architecture. For the last five years of ECLAS conferences there hasn't been a single paper on the relationship between design thinking and design teaching in landscape architecture.

The key research question for this paper is how working models can be used in design teaching in different fields of landscape architecture, not only in studios but also in short exercises, seminars and other teaching modes (Digital modelling is not included in this study).

The research method is based on the principles of case studies of adapting working models in design teaching. The material is students' work in the Faculty of Landscape Architecture and Urbanism in Budapest, supplemented by examples from other schools and publications.

Discussion
As scale models are excellent tools in visualizing proposed changes of the topography, they are widely used in projects related to topographical design (grading-plan). One of the Budapest-case studies will present hand-made terrain models made by undergraduate students for a residential garden project. In this case the goal is to promote our understanding in the link between the three dimensional terrain and its two dimensional representation by contour lines. Though digital terrain models are easy to make even by a 3D printer, hand-made scale models for educational purposes are more useful, as during the model-making process the above-mentioned association between a 2D grading plan and 3D topography will be understood in depth.

Scale models are also used for comparing different alternatives in Schematic Design Phase to study different spatial alternatives. In the diploma thesis design process master students are obliged to make a design development model representing a characteristic detail of their design project (A typical design site for diploma thesis is approx. 1-4 ha and a 100-1200 m2 area is usually represented by model). These models are more refined and emphasize a slight shift from space to forms and structures. In some cases colours, textures or patterns of the model should be actual to show the character of the proposed space.

The material choice of working models in academic environments is also an important issue. To compare different design alternatives, it is important to use the same material and technics in model making. There are four main consideration when choosing material for the working model: suitability to represent landscape architectural spaces, easy to work with, aesthetical quality, costs. Taking all these aspects into consideration in our school cardboard models are requested.

The role of the teacher is crucial since students will not engage in using working models on their own; however, they have to do so themselves to discover the potential and limitations of this tool due to its morphological nature.

The case studies will be further analysed and compared from the viewpoint of didactics. We work out some types of exercises in the context of these

didactic principles.

Conclusion

In the process of design-teaching working models are very useful, as students' understanding of design can be significantly developed by physical modelling as working model-making is an instructive method for the development of design skills in terms of space, volume, scale and form. In some fields, e.g. topographical design, modelling is almost essential. As study models usually lack the details of a representative model, students are forced to focus on the core elements of the design.

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'The various aspects of landform design' Teaching methodology of artistic earth sculpturing to ground modelling

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Keywords: Landform design, topography, ground modelling, earthworks, land art

Landform design is one of the most important and most complex core subjects in landscape architecture (along with planting design). Earth is a physical material and also a tool to create better open spaces. Students need to experience the materiality of the earth, the levels of its plasticity and the spatial dimensions of the ground. At the same time, they need to understand the symbolic meaning, the artistic concept of landform sculpturing and also the functional needs related to the site, as well as to be aware of the technical details and their economic parameters. All of these must be taught and applied universally in dialogue with the parties involved, in order to achieve a long-lasting sustainable design.

In our presentation, we shall demonstrate our special pedagogical methods and achievements of the last years at the Department of Garden Art and Garden Techniques, Faculty of Landscape Architecture and Urbanism at Szent István University, Budapest.
Our main goal is to introduce this wide range of landform related tasks from the aspects of artistic creation and technical detailing to all our students. We want to provide them with the 'experience of creative work' and the 'complexity of thinking and solution making' as well.

Below we list the main topics and basic activities related to topography and landform design. (Most of the listed elements are regular parts of our study programmes at the Hungarian and English language landscape architecture courses at our University.)

1. Vernacular and professional nomenclature
- PLACE-NAMES – the importance of field and landform naming: Deep linguistic study in Hungarian dialects and unusual local expressions (learning 200 names and their meanings). Place names are added to students' imaginary panorama sketches.
- Technical drawing DENOMINATION of earthworks detailing

2. Theory
- Landform design in Garden History, an overview of design approaches throughout history.
- Theory: The work of the 20th century earth sculptors and the development of earth-based land art installations.

3. Field trips
- Historical landscapes: See/visit landforms of historical gardens and agricultural landscapes (PhD topic of M. Sárospataki).
- Case studies: E.g. lynchets in Kalotaszeg: history, morphology and land use from the aspects of landscape character assessment and vernacular heritage (PhD topic of A. Eplényi).

4. Visual appearance, landform studies
- Visual excursion: Terraces in the agricultural landscape – examples of the various rice, olive and wine terraces. Research assignment for students: choosing a site and drawing sections and topographic analysis based on GoogleEarth.

5. Economic aspects of earthworks
- Calculating earthworks cut and fill at different scales on worksheets.

6. Drawing practices
- Drawing + theory: History of cartographic techniques: 'shaded relief' and 'hatching' techniques from the last decade, drawing and colouring exercise of clay models.
- Model drawing: Drawing elevation and contour lines of simple clay models in a short time (10 minutes), empirical observation of landforms (with rotation: 6 models in an hour).

7. Modelling
- Modelling_1: CLAY relief models of 'hillsides and mountains': clay moulding in the size of 20 x 20 cm, transforming it into a topographic puzzle by cutting into pieces.
- Modelling_2: landscapes in PLASTER: 'Carrara - the cubist quarry': creating a negative clay relief with rectangular forms and transforming it into positive plaster forms – geological and industrial rhythms.
- Modelling_3: SAND Modelling at the nearby playground in groups. Inspired by Ch. Jencks' landforms. Method: negative central form, positive anti-centers, connecting elements, provision of artistic concept, metaphor, title. Creating cartoon-series on the process in the sketchbook (Figure 1).
- Modelling_4: Clay model inspired by I. Noguchi's playground forms, relief-like surface with dozens of smaller landforms (Figure 2).
- Modelling_5: CARDBOARD MODELLING at different scales.
  > The canyon landscape of L. Halprin, inspired by Lovejoy fountain Plaza, Portland: hollow out negative, levelled space (by fits and starts) (Figure 3).
  > Private garden ground models based on real situations, carried out in a precisely detailed way.

8. Design projects – detail drawings, sections, contour mapping etc.
- Design 1: minor design practices: Constructing a plain surface adjusted to a slope with a certain inclination angle.
- Design 2: artificial elements and terrain: Creating a creative, combined 'staircase landform' onto the model, drawing sections and details.
- Design 3: designing new functions in a private garden and adjusting the surface to the planned ground levels. Preparing contour map of the landform designed.

- Design 4: Transforming the Noguchi type landform model into functional playgrounds, section drawings, detail drawings: providing scale and function.

9. Other combined activities on landforms
- Theory with practice: Student presentations on contemporary landscape architecture projects with strong emphasis on landform design (list handed out, 3 sites for a group).
- Theory + painting: Ground modelling at a larger scale: mines, quarries, post-industrial landscapes and their landscape transforming nature. Painting a large picture of a post-industrial landscape together in cubist style.
- Complex design: Designing a garden, an open space and a landscape for a project of a subject or for the thesis. (Different scales and design assignments exist.)

In summary, we can conclude that the complexity and aesthetic variety of the surrounding landscapes and 'landshapes', the landforms and modelled spaces must be taught in an integrated way. Texts, maps, models, sections and details all must be explained accordingly. We believe that the empirical experience, the joy of doing, is a great opportunity for getting students involved in landform transformation. Enthusiasm will always help to overcome technical difficulties later at the technical detailing phase. The above-mentioned activities are generally practiced in small groups (15-20 students). We are attempting to develop these activities for larger groups of second year Bachelor students (90 students) in the future. Our goal is to combine these methodical units into a yearly curriculum providing the best competencies.

Figure 1.

Figure 2.

Figure 3.

Progressing research, practice and education in landscape architecture through the adoption of digital tools and evidence-based design

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Keywords: Adaptive urban design; human thermal comfort; green infrastructure; landscape research; nature-based solutions

We are living in an urbanized word, the urban population is growing and in order to face increasing socio-economic challenges in a climate-change scenario, we should aim at re-designing our built environment, improving resilience and sustainability. Landscape architects, together with other professionals from related disciplines, are deemed to contribute with risk-adaptive architectural and urban design, levering on appropriate technologies in order to mitigate negative impacts and strengthen urban ecosystem resilience.

A critical factor affecting community resilience is microclimate, due to its impact on quality of life of urbanites. Studies on microclimate of cities have already proved that human comfort, health and wellbeing are strongly interrelated and influenced by the geometry, the level of soil sealing, and the presence of natural capital (Evans, 1982).

Researchers, scholars, and practitioners need innovative methodological approaches to the study of responsive integrated solutions for those critical issues that are non-linear and more complex in their interactions, like urban heat island (UHI) mitigation and sustainable water management. Taking a resilience approach, it is fundamental to understand and control these phenomena, levering on both numerical techniques and field measurements. The knowledge transfer from climatologic and bio-meteorological studies to design tools has begun to take place only in the last decades, and although there has been an increasing number of methods to bridge the gap in landscape architecture research, education and practice, most of the design studio teaching approaches still consider comfort-related aspects as static phenomena.

Despite successful histories of early adoption in automated mapping technology, spatial analysis, and Geographical Information Systems, landscape architecture demonstrates a widespread resistance to computational techniques, which has until recently limited students and practitioners' ability to explore landscape metrics and performances as part of design processes. The convincement that technology negatively influences creativity, with landscape design conceived as requiring just individual creativity and human spontaneity; the limited understanding of the potential of digital technologies, reducing its value to that of a 'virtual drawing board' to replicate analogue models of representations; the manner in which design projects are discussed, with emphasis on the representational quality of the image and not on the role of digital technologies in the regenerative design process- i.e. disciplinary tendencies to over emphasise the conceptual and representational aspects of design over design processes and construction details - are

just some of the aspects contributing to difficulties in conceptualising a role for digital technologies, theoretically and culturally, within landscape design processes (Wallis and Rahmann, 2016).

Moreover, the question of how to introduce landscape performance simulation (LPS) in urban design and landscape architecture education, and where the two may converge in teaching, has received so far limited research attention. The international academic community has not yet strategically framed the questions of how and where LPS fits within the overall scope of landscape architecture education. Most publications about teaching LPS to architecture and landscape architecture students tend to be motivated exclusively by tutors' research interests, and are not necessarily grounded in academic literature either on teaching and learning theories, or on landscape architecture education.

With the support of digital tools, students, researchers and professionals of the design disciplines can better understand the impacts of their decisions on human health and wellbeing, and ultimately on the socio-ecological resilience of our urban built environment. Dynamic studies represent a disruptive approach in research and education, progressing evidence-based parametric design, and laying the bases for climate adaptive transformations. The integrated activities experimented, levering on the use of computational optimisation techniques, converge toward design solutions where outdoor comfort, indoor well-being and circular economy principles are negotiated, and whose expected multiple performances are documented. Informed projects propose holistic solutions aiming at improving microclimatic comfort, socio-ecological re-connection, energy efficiency, and overall sustainability of the interventions, within the dynamic 'Smart City for Smart People' framework.

A research-based teaching approach, focused on climate change critical issues, relies on the scientific application of digital tools and outdoor-indoor-coupled microclimatic simulations. This involves extensive use of experimental environmental measurements and building information modelling as means for understanding and anticipating patterns and behaviours at the appropriate scales, informing building and open space design with real-time feedback, to holistically optimise the retrofit and requalification measures. Experimental measurements and numerical simulations map and control environmental parameters as well as human response to varying outdoor conditions, factored by a thorough understanding of relevant qualitative conditions at the appropriate scales. The adoption of user-friendly digital interfaces informs evidence-based design and research-based teaching since the early

stages. The reduced time required for the simulations of microclimatic scenarios increasingly supports the exploration of interdependencies between landscape architecture, human thermal comfort, and energy consumption in a climate change scenario.

The growing body of global research we now have on urban nature and green public space tells visionary stories. It ably demonstrates the critical importance of green infrastructure (GI) within urban environments and the intrinsic relationship that humans as a species have with it. It demonstrates the multifunctional benefits GI delivers at all scales, which is crucial for humans to enable them to flourish in urban environments, and the role it can play in supporting the economic, social and environmental health of city environments. Advocates of a digital landscape design practice – ARUP, Transsolar, Case Design, Turenscape, Ramboll, and West 8, to cite just a few - disseminate methods and tools for assessing landscape performances, with metrics and indicators offering a comprehensive and innovative research-based approach to design, while progressing the digital discourse in landscape architecture. Combining this shift with the increased attention to nature-based technologies and improved accessibility to digital tools supports a new approach for teaching performance simulation to graduate and undergraduate students, thus challenging static design solutions (Cantrell and Holzman, 2016). Developments like the Olympic Park (ARUP, London), the Avasara Academy (Transsolar, Case Design and Hemali Samant landscape architect, Lavale, India), Bishan-Ang Mo Kio Park (Ramboll, Singapore), Madrid Rio (West 8, Madrid, Spain) (Figures 1-3), and Quzhou Luming Park (Turenscape, Quzhou City, China) represent successful attempts to rationalize interactive architecture and responsive technologies through the lens of contemporary landscape architecture.

The beauty and intrinsic value of nature is inspirational for most, but it seems talking more about its functional qualities may, for now, prove to be the most persuasive way to bring the multiple benefits of green infrastructure into sharper focus. Recent feedback in education (Andreucci et al., 2019) suggests that different digital tools (Ecotect, ENVI-met, CitySym, Revit Insight 360) hold great potential in describing the microclimatic conditions of the built environment, the interactions with its natural capital, and the related impacts on human comfort. Landscape performances and metrics will in the near future increasingly underlie debates about restorative architecture, with green infrastructure and nature-based solutions, playing an important communicative and collaborative role in climate change policy and practice responses. In this perspective, digital techniques will help designers to explore the ideas and concerns core to landscape architecture in the Anthropocene, such as designing with social ecological systems, working with landscapes in flux, or adapting to the extreme weather events caused by climate change, with processes of feedback, sensing the environment, managing the identified data, and visualizing climate adaptive responses representing the core design focus towards the development of inclusive urban landscapes and resilient communities.

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Figures 1-3. Madrid Rio, Madrid, Spain. Credits: M.B. Andreucci

Teaching digital photography to landscape architecture students

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Keywords: Digital landscape photography, presentation skills, creativity

Every Landscape architect needs to take pictures for various reasons, e.g. record the current situation of the design territory, present implemented projects, monitor landscape changes, etc. Photography as a method is used in landscape evaluation and landscape preference studies (Van den Brink et al., 2017). Repeated photography method – the comparison of historical and recent landscape photographs from the same camera point is widely used to describe landscape change. Photography skills are essential for landscape architects.

Landscape photography is one of photography fields with its own history and pioneers like Ansel Adams, Eliot Porter and others. Technique developed by Ansel Adams is still used and transferred to digital photography (Frye, 2010). Landscape photography has its own tricks. One has to be able to adapt to changing weather conditions and available light. In order to be able to show creativity and take beautiful images, technical knowledge and practice are necessary.

A small survey among colleagues of six universities offering landscape architecture programmes shows that only two of six universities offer a course or a part of the course in digital photography. Neubrandenburg University of Applied Sciences offers an elective module 'Photography, Film and Image Editing' in the bachelor's programme.

Szent István University has a three-semester-long course for master students named 'Drawing and Visual Communication' where students learn the basics of photography in the first semester. Wageningen University does not offer a photography course, but has a course in Landscape Theory and Analysis, where photo comparison method and its pitfalls are discussed in an assignment.

For several years digital photography was an elective course for fifth-year landscape architecture students in Latvia University of Life Sciences and Technologies. Since 2017, when the study programme was restructured from a five-year professional bachelor to a three-and-a-half-year academic bachelor's programme and one-and-a-half-year professional master's programme, photography is a part of the obligatory course 'Digital Tools in Landscape Projects' in the beginning of the first-year bachelor studies.
The aim of the paper is to present the way digital landscape photography is taught in Latvia University of Life Sciences and Technologies and discuss the value of such a course in Landscape architecture education. It is not easy to fit all the necessary courses in the curriculum and to find the best time for teaching them. My opinion is that we have found a good solution for photography studies in our program.

As mentioned above, photography is part of an obligatory course now. The course 'Digital Tools in Landscape Projects' consists of several parts and starts with an introduction to digital photography.

Later students develop photo processing skills in Photoshop, then acquire the Sketchup programme for quick modelling. It is followed by AutoCad for technical drawings and Lumion for model rendering. The course starts in the first year and continues until the end of the second year. Simultaneously students develop their graphic skills through drawing, painting and different graphic tasks. The photography part is six weeks long and consists of an introduction to camera and photography techniques in six lectures and ten practical projects.

Lectures start with an introduction to the digital camera and different lenses. This knowledge is essential for understanding how a camera works and what kind of lenses are the best for landscape photography spanning from wide panoramas to small details. These technical details help students to understand the kind of equipment they might need in the future.

Lectures and practical tasks about light help them to understand light conditions at different day times, light sources, reflected light in the landscape, how to deal with poor light conditions or excessive high contrasts. Working with light in the landscape is not easy and these skills can help to find the best time for field visits and photo monitoring sessions.

The subject of short and long exposure provides knowledge on how to bring landscapes alive by coveying movement of water, wind, clouds and people,. It adds extra quality to the photographs and is useful in landscape project presentation.

Composition, colour, rhythm, lines and textures are covered in two lectures and several practical tasks. This knowledge is used later in design courses. By looking and seeing details in the landscape students develop observation skills and can interpret the elements of composition in their design later.

The last theme is about techniques of panoramic photo taking and ways of presenting photomontages, which are useful in project presentation.

Photographs should be designed with intention. Students practice both technical skills and the ability to see, organize a composition by choosing the view point, shooting angle as well as work with light. Students take pictures in the class and we analyse them together. Each week there are home tasks. Photographs of the home tasks must be professionally printed in in order to see the quality of the pictures. It helps students to understand the quality of different cameras. In the end students must pass a test to show their theoretical knowledge and a photo exhibition of final works where they present their photos in a larger format. Six weeks is a short time and it is not possible to become a professional, but it gives basic understanding and encourages students to continue studies and practice independently.

In order to achieve a brilliant landscape shot one needs both knowledge about the equipment – camera, lenses, tripods, filters and about the theory – composition, light, colour, tones, lines, and forms. There are many possibilities to find information on these topics as well as different useful tips and advice about landscape photography online. My experience with fifth-year landscape architecture students showed that just few students use it. Only some students have taken photography courses outside the university. Recently many students have purchased good quality cameras, but most of them shoot in automatic mode and do not have the knowledge about technical options of the camera, which would help to develop higher quality photographs.

More than a half of the first-year students do not have cameras and take pictures with their mobile phones during the course. It has some drawbacks. Technical options of phone cameras are limited, and students do not have the possibility to practice some techniques. Students also learn what kind of photos they can acquire with a phone and what kind of equipment they might need in future. Mobile phone photography is developing as a separate field and there are more options than automatic mode and different applications, which can be used. It is good to have these skills as well.

Experience of teaching landscape photography to different-year students shows that a photography course is very useful especially at the beginning of studies. In the first year, when students have not yet developed their drawing and graphical skills, photography is a way to express themselves creatively. It gives the possibility for the teacher to recognize the potential of creative thinking and looking at landscape.

After years of teaching photography to landscape architecture students I am glad to see the photos of implemented projects taken by our graduates.

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Landscape values, on-line learning, and communities of inquiry: Lessons from landscape design history

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Two questions posed by ECLAS conference organizers may be answered by way of a third: 'How has technology been employed to achieve pedagogic goals?' Specifically, can new teaching technologies be used effectively to address the ethical dimensions of landscape architecture such as 'professional ethics, environmental ethics, and the relevant human and social values,' in circumstances where traditional lecture formats have been less successful? Learning outcomes from an online course in landscape history and theory suggests that they can. In particular, this presentation examines ways that social empathy may be developed and exercised in landscape history courses through an online 'community of inquiry' among students (deNoyelles, Zydney, and Chen 2014). Adopting this approach can help foster focused debate about historic actors, their social context, and impacts, through which students may co-construct a vital sense of design ethics and values.

The course being examined is History of World Landscapes, a one-semester survey course taught over a span of 14 years in two different American universities. Between 2003 and 2017, over one thousand students have successfully completed the course. Initially taught within a traditional twice-weekly 80-minute lecture format, in 2014 the course was restructured for a distance education platform blended with active face-to-face discussions (hybrid format).

At the University of Illinois, the course meets institutional goals for general education in three required subjects: Western cultural studies, philosophical perspectives, and advanced writing composition. The peculiar advantage of general education status is to offer skills in landscape and design literacy to every university student. Themes include: the history of ideas, especially our changing understanding of the relationship between human culture and natural processes over time; the history of environmental technics, industries, and infrastructures and their impact on landscape change; and of course the history of geo-political and socio-economic values.

In its current iteration, the course format offers all content (audio lectures, slides, readings, links, assessments) online in advance of face-to-face and/or online discussions. The supposition is that students will have prepared the required content before discussion in 'active learning sessions,' where a variety of active learning techniques are used, including peer-to-peer teaching, role-playing, and analysis of fictional accounts. This paper illustrates a range of topical examples together with student responses and course evaluations—before and after the format shift.

While online education offers many advantages (e.g. improved access and flexible pacing) for students, a perceived lack of social intensity or disconnection can lead to student dissatisfaction and thus lower retention rates. This perception has challenged institutions to create online student learning experiences with 'the capacity to sustain a strong sense of community that supports students both socially and cognitively' (deNoyelles, Zydney, and Chen 2014, 153). With this in mind, instructional designers employed an array of strategies in support of what is termed the Community of Inquiry (CoI) framework.

CoI was originally intended to enhance asynchronous text-based discussions through engaged inquiry, similar to what might happen in a face-to-face seminar. Garrison, Anderson, and Archer propose three conceptual levels to the CoI framework: social presence, cognitive presence, and teaching presence (2000). Expanding on the premise that teaching—and especially learning—landscape history is a value-laden enterprise, this paper explains how all three levels of CoI were achieved in The History of World Landscapes. Further, we explore how the CoI construct helps students engage with controversial issues by asking them temporarily to identify with historical subjects.

In American design education, religious, gendered, or class-based values are typically compartmentalized as private matters. Controversial topics are often signaled with 'trigger warnings' or avoided altogether as out-of-bounds in the classroom. How and when should educators help students explore, and be accountable for, their own social and environmental design values? The resilience of the online community of inquiry affords opportunities to process controversy and open up 'safe space' for discussing difficult social concepts. When a strong sense of a learning community is fostered, we have had some success with teaching techniques such as structured discussion and monitored debate among avatars.

Simultaneously, a substantial corpus of landscape historical scholarship produced since the late 1990s has made it possible to teach landscape history in a far more expansive way—as a humanistic discipline as well as an environmental one (Harris 1997; Meyer 2000). In the guise of landscape, the values of societies and social actors are everywhere made materially, socio-spatially, and aesthetically manifest (Deming 2015, 1). The rich production of new historical narratives can and should be challenging to present design students. Certainly, historical landscape forms created by past human actors may equally encode unjust, prosaic, and/or aspirational values. However, when reproduced, scaled, and exported by mass

culture, ordinary landscapes may problematically reinforce the durable and domineering social systems that produced them in the first place (Deming 2015; Mitchell and Mels 2015).

In the course History of World Landscapes, students learn that where landscape is enduring, its values—being socially constructed—are mutable and mobile. To help students question and discuss their own values, therefore, group discussion and analysis of historical case studies can be helpful, allowing students to take a conceptual distance while exploring values both alien and familiar. In professional degree programs, both the visible and invisible values that motivate canonical designs of major historical monuments can be explicitly foregrounded and analyzed in the context of period society. Students may then be asked to extend or relate those same values and motives to contemporary design theory and professional practices. Students further learn how bias, sometimes unconscious but often simply dismissive, is written into interpretations about some past cultures. They are then challenged to discuss the ramifications of omissions from the historical record, a conversation often helped by the fact that many students are non-designers and see the world differently.

If we agree with David Lowenthal that 'the past is a foreign country' (2015), a context that poses no immediate threat, then landscape history may permit students to externalize personal values, to discuss theories of 'goodness' or 'badness,' and to critique the ethical consequences of social values. Because of its apparent displacement—geographically and temporally—the study of landscape history provides a lowered-risk social setting for students to work through difficult conversations about competing values. Classes in landscape history thus seem to offer a relatively safe academic context in which to tackle highly charged and debatable subjects such as religion, war, colonization and exploitation, environmental degradation, slavery and racism, political ideology, gender inequality, civil rights, memorialization, and so on.

This assumption is guided by Abraham Maslow's theory of metamotivation, describing a process of satisfying higher order needs: 'We shall then postulate a desire to understand, to systematize, to organize, to analyze, to look for relations and meanings, to construct a system of values' (1954, 50). In teaching landscape history therefore, we are interested in strategies for teaching values as a system of critical thinking, which may contribute to transformative self-awareness for design students in evaluating their own landscape design decisions. The online structure permits this to unfold in a non-confrontational way.

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Learning how to create multicultural landscapes in Japan: an intercultural garden project as an educational workshop

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Keywords: Urban gardening, community garden, inclusive society, action research, education

Introduction

It is urgently important to develop inclusive societies in response to increasing migration and refugee flows. Co-existing with people from other cultures could create misunderstandings that lead to societal conflicts. Although Japan maintained highly restrictive immigration policies for a long time (Tian, 2018), its government is rapidly reforming them to attract foreign workers to counter serious workforce shortages caused by its aging society. However, the government has not implemented specific policies for integrating immigrants into communities. Even at universities Japanese students tend to hesitate to openly communicate with foreign students (Honda, 2017). As frequency of contact between people from different cultures might positively influence their general attitudes towards foreign cultures (Zajonc 1968), places are needed where people with diverse cultural backgrounds can learn about each other.

The notion of intercultural gardens was developed in Germany since the 1990s to promote social inclusion of immigrants and refugees (Moulin-Doos, 2014). These gardens are spaces designed for diverse people to interact in a spirit of mutual respect. Communities, church groups and dedicated individuals often volunteer to manage intercultural gardens (Müller, 2007). Activities at intercultural gardens encourage learning and facilitate ways beyond the conventional assimilation and integration approach (Schermer, 2014). Although community gardens including intercultural gardens are booming all over the world, those that have been studied mostly are in English-speaking countries (Guitart, 2012) with relatively more immigrants by nature, such as US, Canada and Australia. Countries that anticipate increased immigration like Japan would benefit from intercultural gardens.

Accordingly, this paper explores positive effects and problems of the experimental intercultural garden project as an educational workshop course at the University of Tsukuba. By this course, students were expected to learn how to create and manage a multicultural space. If successful, they will become actors to realise inclusive societies.

Methodology

The workshop course started in April 2016 using Muse Garden at the University of Tsukuba. The course's goal given to students was to manage the garden as a space where people from various countries could regularly interact as part of their everyday lives. The total area of Muse Garden is approximately 1,500 m2, and is mainly a lawn that regularly mowed. It also includes a garden space for vegetables, herbs and flowers. The workshop was mainly for the students enrolled in the Department of Policy and Planning Sciences. The students had to design the space and daily activities and arrange occasional events. The first year's students comprised eight Japanese, four Chinese and one Syrian student. In the second year, there were seven Japanese and two Chinese students. In the third year, there were nine Japanese, eight Chinese and one Syrian student. In addition to these core members, other students, researchers and local residents could participated in the garden's activities.

The evaluation of the course was conducted in 2018 using mixed methods including participatory observation and semi-structured interviews. The participatory observation aimed at checking if people other than the core members joined the garden activities. By this, it can be discussed how to attract people into the garden. On the other hand, semi-structured interviews with the eighteen students, who registered for the workshop course in 2018, were conducted in December 2018 to obtain information on what they felt in the garden project. From the transcription of the interviews, benefits and challenges of the workshop course were detected.

Results

From the participatory observation, it turned out that only the core members appeared for daily garden activities when they did not bring their friends. On the other hand, when hosting guests during the summer vacation and the university festival, other students and staff of the university and local people visited the garden. These guests were mostly Japanese, but included people from China, Taiwan, Bangladesh, Iran, Egypt, Uganda, South Africa, Hungary, Bolivia and Brazil. In other events, exchange students brought their friends from the same language regions.

The semi-structured interviews revealed the following positive aspects in terms of cross-cultural interaction. Most of the students mentioned that they could work together particularly while organising seasonal events. During this process, some of them found difficulties due to cultural differences and sought solutions for effective communication. Especially Chinese students stated that they did not have opportunities to become friends with non-Chinese students in other courses. Furthermore, the students started speaking English when a Colombian exchange student joined the garden activities. Although some of the students could not talk to her because of the language barrier, the rest enjoyed talking with her or made efforts to speak English.

The students also mentioned problems of the intercultural garden project. Most of the students were at a loss for what to do at first as the core members were all replaced each year. Then they made efforts to hold events afterwards. The need for spatial improvement was mentioned by a few students. Another difficulty pointed out was the prioritisation of the workshop. The schedule of garden activities often had a conflict with other classes, seminars or research

activities and there were five core members who did not appear at the garden more than once a month. One of them clearly insisted that the garden was not as much fun as expected, so she stopped going there on busy days.

Discussion

The positive effects of the workshop course suggest that most of the students learned the importance of multicultural spaces through their actual experiences. They had opportunities to work together and share their time with those who came from different cultures. However, the project as an educational workshop needs improvement. Firstly, it was difficult to involve people other than the core members in daily garden activities whereas there were guests from various countries in the occasional events. It is reasonable to assume that daily interaction is more important than occasional interaction for people's understandings of foreign cultures. Therefore, the workshop should put emphasis on the design of attractive daily garden activities and effective spatial features. For instance, garden allocation or artistic decoration might be a key to raise attachment to the garden. Secondly, providing adequate orientation to the core members should happen on a year-by-year basis. Too many instructions can limit the ideas and learning of students, however, there is not enough time to wait until students understand the course concept deeply as the course starts in April followed by the most popular gardening season. Thirdly, there is also a challenge on how to set regular working days and motivate students themselves to come to the garden. Some measures to provide a little sense of obligation might be necessary.

Conclusion

This paper showed the positive aspects and challenges of the intercultural garden project as a workshop course at the University of Tsukuba. This course can be an effective educational tool in Japan because the students could gain actual experiences in working with diverse people towards the same goal. However, the workshop organisation should be improved to lead students to think about the importance of daily garden activities and spatial features for social cohesion. Providing adequate guidance and controlling students' schedule and motivation are also considerable challenges.

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A cultural heritage workshop with international students as a teaching tool in landscape architecture

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Keywords: Vertical garden, public spaces, regeneration, academic workshop, heritage

The shrinking population in towns throughout Italy has left many abandoned public spaces. The sustainable revitalization of these public spaces and their historic backgrounds could bring back the city life in these towns and attract visitors from outside. Achieving the goals of environmental sustainability in historical cities should be done carefully inside their context, all the while focusing on bringing people together in a social space. Obviously, there are several planning tools to provide nature- based solutions inside the city such us closed canopy trees and vegetation covering many major roadways, raingardens and roof gardens (Scott et al, 2016). This special workshop focused on the installation of green walls as a specific nature based solution in the high density cities and other green elements. It addressed a comprehensive multi-tiered vegetation plan and a landscape replacement policy that mandates vertical greenery. The latter, at a minimum replaces what is lost at ground level; the benefits of green walls have been recognised in several publications(Manfred Köhler, 2008, Dunnett N, Kingsbury, 2004, Perini et al, 2013, Alexandri, Jones, 2008, Johnston, Newton 2004).

The goal of this paper is researching the use of such vertical gardening and Living Wall Systems as an educational tool for sustainable solutions tackling climate issues, while at the same time creating new attraction nodes of public spaces especially at the abandoned in derelict areas of the city.

The workshop combined a theory seminar from experts and professors and excursions in order to familiarize landscape architecture students with research-based design and to a better understanding of the relationship between landscape architecture (form) and its use (function). This could open up new possibilities for landscape design based on research results. A structured course evaluation with questionnaires was conducted to identify to what extent the course influenced how students judge, understand, and design landscape architecture. Based on the outcomes of the questionnaire, we draw conclusions for further 'research-based' landscape design education.

Based on the current analysis of the city of Piacenza, the research extends to target environmental and social objectives at the same time.

The research is conducted through the annual 'Special Topics in Landscape' workshop in Politecnico di Milano – Sede di Piacenza, with the 2nd year master students of Sustainable Architecture and Landscape Design. Approximately 80 students from 20 different countries were divided into groups of 5 persons. All students had studied at least 6 semesters of architectural training on the Piacenza campus so had particular knowledge of the areas.

Based on the analysis-synthesis cycle, which is often used to describe design processes (see e.g. Simon 1996; Zeisel 1984), a differentiation of the modules was made. The courses were designed in a way that the theoretical content was always deepened by practical applications. Furthermore, the students were given the freedom to develop their own strategies to apply the theoretical aspects in the design process. Some parts of the course, such as a field trip around the potential areas for the landscape design, and a literature research on project-related issues are not explicitly explained in the following, since they belong to the standard repertoire of a design project.

The lectures during the one-week workshop gave students an introduction and in-depth study on vertical greens. The students were then asked to choose from 4 site locations in the town of Piacenza, as a case study where they could apply their knowledge acquired from the lectures and their own research. The possible design location sites were abandoned public spaces around the historic wall.

The design projects were presented on the last day of the workshop. One key student project which could serve as an example for improving public spaces through sustainable ways such as vertical gardening from will be presented.

The proposed works had many points in common, such as introducing green spaces into the city of Piacenza. The chosen project's application is located in the 'Via Dasangallo', a road connecting the old wall and boulevard park 'Publico Passegio' with one main street of the city. The project proposes using an old separating wall to be turned into a living wall system, in order to regenerate the street as a new public space for the inhabitants of the neighbourhood. The wall contains air-purifying and edible plants, serving as an urban orchard. The street is proposed to be covered in green canopies, for shading while walking. The connection with 'Publico Passegio' is improved by building a new staircase, which can be used as a green space, sitting and 'urban stage' for various events (Figures 1,2,3).

According to the research and design works of the ten student groups, the use of green sustainable technologies could become an important tool for urban and historical regeneration. The interviews with the locals and the case studies on urban orchards show that people are attracted to greenery in public spaces.
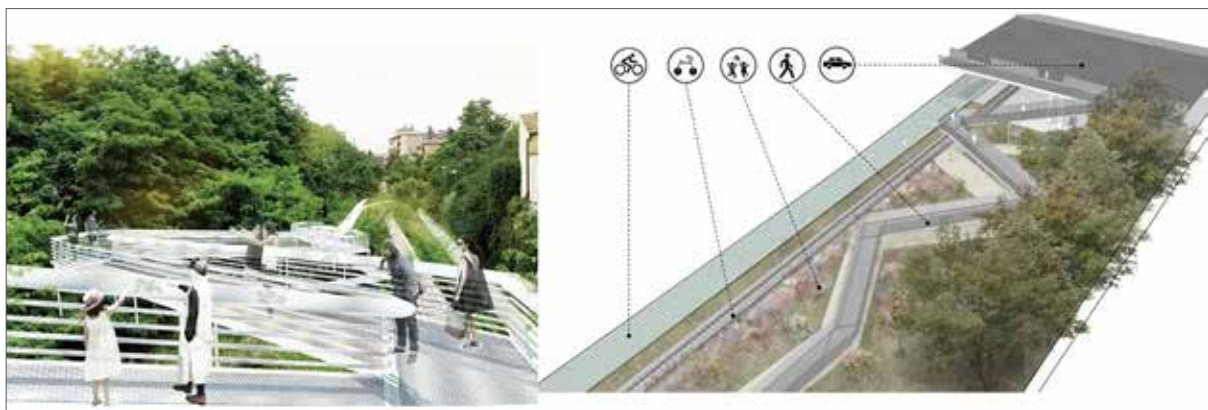
Figure 1. (By Bahrami Elmira, Loya Vishakha, Lutukurthi Sravya, Meta Bardha, Mohammadrezaei Hossein, Silahtaroglu Yasemin, Tirupathi Sneha)

Figure 2. (By Fontana, A. Foroni, C. Marhendra, L. Parizzi, V. Ranza, Wusihala)

Figure 3. (By Sylvia Akro, Naveen Kumar Battina, Ambereen Zahid Khan, Jiawei Pang, Eleonora Vaccari, Qiongchun Xu)

The same approach could be used in retrofitting historical sites as modern public spaces. The use of intensive design workshops as think-tanks for urban planning and sustainability could become a part of a strategic proposal for Piacenza and other historic towns. The combined input of international students and specific inquiries on sustainability practices would create an all-encompassing method of sustainable urban regeneration and engaging public spaces. The collection of works from the students shows a similar pattern of reusing abandoned spaces through vertical greenery.

The workshop resulted in thorough research and its findings about the benefits and potential uses in real-life locations of the city, therefore a design solution could be proposed to be applied as an urban tactic.

As seen from the students' design project, revitalizing abandoned streets into attractive public spaces, would create more urban connections between residential neighbourhoods and historic landmarks (case in point: the wall of Publico Passegio).

The landscape architectural team evaluated the project with a structured course evaluation and the students evaluated the procedure as well. The first questionnaire was handed out directly after the workshop in Piacenza, and focused on how the students assessed the lectures, case studies and navigation exercise provided by the researchers. This questionnaire was repeated directly after the students' final presentation in Piacenza campus to check for the stability of ratings and to compare students' initial impressions of how much the teaching input would impact their final designs.

Although we are not proposing a 'one-size-fits-all' strategy, the research of introducing more greenery into the cities should continue due to the importance of environmental and well-being issues.

This project presents an integrated effort to teach landscape architecture students to design a vertical garden application using scientific methods that have been adopted mainly from the lectures and from their own research. In addition to teaching theory and its practical application, the students were encouraged to develop their own 'research-based' design strategy. We have summarized the course syllabus and the experience we had with this project. In the questionnaires, students rated the project very positive, and appear to have gathered valuable knowledge and insight for their landscape architectural design process and way of looking at their own designs.

For future versions of this course, we intend to develop structured summaries of findings from the literature as well as several further case studies and movement analysis tools.

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'Becoming Garden', a landscape education project at the Zen district of Palermo

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Keywords: Landscape, education, garden, manifesta, Zen

On the occasion of the contemporary art biennial *Manifesta 12*[1], which took place in Palermo from June 16th to November 4th 2018, in the Zen district (Zona Espansione Nord) of Palermo, an urban garden was created by the French landscape designer Gilles Clément together with the studio of design Coloco and with the active participation of citizens and various associations: the Zen Insieme Laboratory, Orto Capovolto, Ground Action and Coldiretti Sicilia. Built in the 70s as a project by Vittorio Gregotti, based on the idea of a new town divided up into insulae, this district has never been completed and it is known for urban - social degradation, drug dealing and crime. But Zen is not only this, it is actually a complex neighborhood, where many people, most of which would like to redeem this place from its bad reputation and degradation. There are new generations who are committed in this sense and who would like to be able to build a different and better world.

The French landscape designer, writer and philosopher Gilles Clément, inspired the entire biennial with his book *The Planetary Garden* and proposed for Zen a project entitled 'Becoming Garden' in which landscape education becomes the recovery of places and their requalification and reorganization, but also and above all social recovery, construction of a collective project, identification of a new identity of belonging to a group and to a community.

This paper describes how Clément experiments in the construction of this garden his already known theory according to which our planet is a single Planetary Garden and humanity is its gardener.

The proposal to take care of their spaces made to the residents of Zen and the involvement of them in the direct implementation of transformation of places, is able to build a new and precise relationship. This kind of choice moves the daily point of view of the known and degraded places to project them into the dimension of dream, of desire, of hope for new plans.

The features of the garden are transmitted to the people and the people, as the title of the project suggests, become the garden themselves, that is, they can desire and imagine a better future just as they are building it. The construction of the garden coincides with the construction of a community and a new possible look at things. Not only new plants are planted in the garden, but plants that had been living in those places, perhaps in disordered and abandoned pots, were also replanted.

The re-composition of elements already present on site in the design of a new garden is an operation of inclusion that makes the existing one (things and people who are already there and who live there) as bearers of positive values that they can be welcomed and valued in the project of the new garden. The garden is a metaphor but also a real and concrete condition of a redevelopment not only of places but also social life of people.

The Zen's garden is like a work of art, realized through the participation of the inhabitants altogether, inviting them to take part. It has the nature of a performance and the public and the artists are not distinguished. The moment of creation and representation go together with the time of the garden which is infinite and contains infinite possibilities.

A series of meetings, workshops and guided tours were organized, which gradually involved residents in a relationship of active exchanges between people and between people and nature.

The garden itself is like a school and a place where, through the construction of common desires and common gratifications, a collective sense of belonging and sharing is created. In this way the seed of change insinuates itself, the future is sown.

The construction of the garden, which includes the dimension of the view with its infinite images of landscape and the technical and scientific notions of the practice of cultivation, is a school of skills and know-how and a source of emotions, visions and hopes.

Together with all this an active exchange is established between inhabitants and nature, and collective thoughts are developed together with an ecological and responsible awareness.

The contemporary urgency about environmental problems starts from the care of our spaces to take responsibility, as a planetary gardener, of our planet earth, that is our Planetary Garden.

At Zen the collective spaces that should be everyone's are abandoned and seem to be no-one's spaces. With this project one of the rectangles of land, placed among the 'insualae', was cleaned from the garbage and transformed into a 'becoming garden'.
A didactic vegetable garden, a shared vegetable garden, fruit trees and aromatic herbs have been planted, the walls have been painted and the paths marked, everything has been done to create a garden.

There are olive trees, pomegranates, peach trees, carob trees, figs, myrtle trees, lemon trees and other plants and there have been, and we believe there will be, young people and adults to work the soil, as well as people from outside the neighbourhood.

The garden is by its very nature constantly evolving and requires care and work over time. For this reason, it is not a finished garden that will remain at Zen after the end of Manifesta but the sense of sharing and the

process that will lead to the construction of a garden. It is an everyday place that becomes a common project through work and participation. People learn to build the garden and to maintain it and to take care of it through the exchange of knowledge and education in doing, through a necessary pedagogical action. It is about bringing about necessary education, through workshops and the assistance of volunteering expert gardeners. But this learning is a process, not a definite result.

'To make a garden, we need a piece of land and eternity' (Gilles Clément)

Therefore we cannot tell how the project ended because a garden does not end. We can record a series of positive aspects and we can observe that the attention to this neighbourhood has changed, as the story of the Zen neighbourhood is now told in a different way. The result is therefore made of nuances, it cannot be immediate and precisely measurable. The change of the place and of the people will be slow and the process is ongoing.

Manifesta concluded in November when gardening ceases, but a continuous action will be necessary in order to keep the interest and make people want to participate as this is the only way to build a new story of that place.

When I interviewed Sergio Sanna, a landscape architect volunteering with the people in the area in the building of the garden, he told me: 'A last impression is difficult. Things work and one makes them work continuously... they need to be kept alive, they are a project you can never abandon'.

The 'Becoming Garden' project fully agrees with the European Landscape Convention, which not only encourages the protection of exceptional landscapes, but also suggests taking into account everyday landscapes and supporting the landscape as a value to be shared between different cultures and beyond the borders.

'Gardens are places where diverse forms of life mix and adapt to co-exist.'

Figures 1-3. Roberto Collova in Lotus 167-pagg 119-127

Note:
1. Manifesta is a biennial exhibition of contemporary art which takes place in a different city every two years.

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Connecting Experiential and Performative Realms: Mapping Exercises in Interdisciplinary Education

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Keywords: Mapping, interdisciplinary, pedagogy, infrastructure, phenomenology

Walter Benjamin described architecture as 'the prototype of a work of art the reception of which is consummated by a collectivity in a state of distraction' (Benjamin 1968). Benjamin's use of the term *architecture* can be expanded to include the built environment at a range of scales, from landscape architecture to urban planning. The state of distraction to which Benjamin refers is, in large part, due to *habituation*, the psychological phenomenon in which the physiological response to a stimulus decreases with repeated exposure. This process is unconscious: the more we encounter something, the less we will pay attention to it. Further, some parts of the built environment, such as infrastructure, are rendered mute by design, their presence intentionally downplayed. We propose that students and professionals engaged in the design of the built environment must reengage their attention to context in order to adequately analyze it and propose responsive designs. The use of 'mappings' – drawings that 'discover new worlds within past and present ones'(Corner 2014) – is proposed as a means to achieve such critical reengagment. According to Anne Spirn, 'Landscape is loud with dialogues, with story lines that connect a place and its dwellers' (Spirn 1998). Here too we may understand Spirn's use of the landscape to refer to the built environment at large. Learning to hear, and to design with, these dialogues necessitate an understanding of physical and phenomenological or experiential qualities.

A critical, contextual, and interdisciplinary understanding drives *Principles of Environmental Design*, an introductory course taught to 150 students three times a year including landscape architecture, architecture, and urban planning majors, and students outside the design disciplines who are interested in the topics. The course investigates how the environment affects human behavior as well as the human impact on the environment, from a variety of cultural, geographic, and disciplinary perspectives. The course is organized by scale, beginning with the scale of the human body and culminating with the scale of natural systems. While there are numerous frameworks by which a course about the built environment could be curated and organized, the most obvious – a disciplinary framework in which each profession is discussed in isolation – undermines the reality of how the built environment is designed, constructed, and experienced. Multiple disciplines, stakeholders, and factors are constantly at play.

Our presentation describes the methodology for two projects conducted in this course: the first project, at the scale of the human body, and the last project, at the scale of natural systems. Each project explores mechanisms for dishabituation and contextual understanding. Both approaches appropriate and adapt earlier techniques for exploring and analyzing the urban environment. Both exercises ask students to investigate a built environment first hand, using

the same physical scale/space to study vastly different conceptual scales and issues.

The course begins by investigating the relationship between the human body and the built environment. We examine this relationship between the body and the built environment by looking at these two agents as well as a critical mediator between them: graphic representation. This is a vital introduction because the ways in which we communicate about the built environment impact how we understand our context, as well as how we design and construct within it.

The first project is based on Guy Debord and the Situationist International's *dérive*, defined as 'a technique of rapid passage through varied ambiences' (Debord 1958). This psychogeographic technique, in its revised form, is being explored as a means to reengage our attention and as a tool for site analysis. A reinterpretation of the *dérive* retains the subjectivity of Debord's concept but capitalizes on the strengths of contemporary mapping technology, namely the aggregation and filtering of many data points and sets. This new method serves as a strategy for crowdsourcing the location of a temporary intervention, a camera obscura. A two-phase exploration gives students the opportunity to analyze their immediate and surrounding environment, and to develop skills in mapping, cataloguing, representing, and abstracting those conditions.

The course concludes by studying the inter-relationships between the body, the community, and that which we call nature – the plants, animals, and natural systems within which, and from which, all built environments are constructed. We also discuss concepts and practices of sustainable and regenerative design, including interdisciplinary collaboration.

The Deep Section project at the end of the course reinterprets early sectional mappings of urbanism, inspired by drawings such as Eugene Henard's sections of early 1900s Paris that visually linked above ground structures with below ground support systems (Carlisle and Pevzner 2012). The deep section is reinterpreted to enlarge the site beyond its visual boundaries, asking students to connect the infrastructural systems below ground to adjacent buildings and landscape, as well as to more distant sources and sinks, naming where the resource originates and where waste is disposed of. The exploration asks students to map physical elements as well as dynamic flows, interrelatedness, and resource consumption, moving beyond an object appreciation of infrastructure.

This presentation describes two projects to enhance phenomenological and performative understandings of the built environment in an interdisciplinary setting, including specific methodologies for representations that interelate the cognitive, constructed and natural realms.

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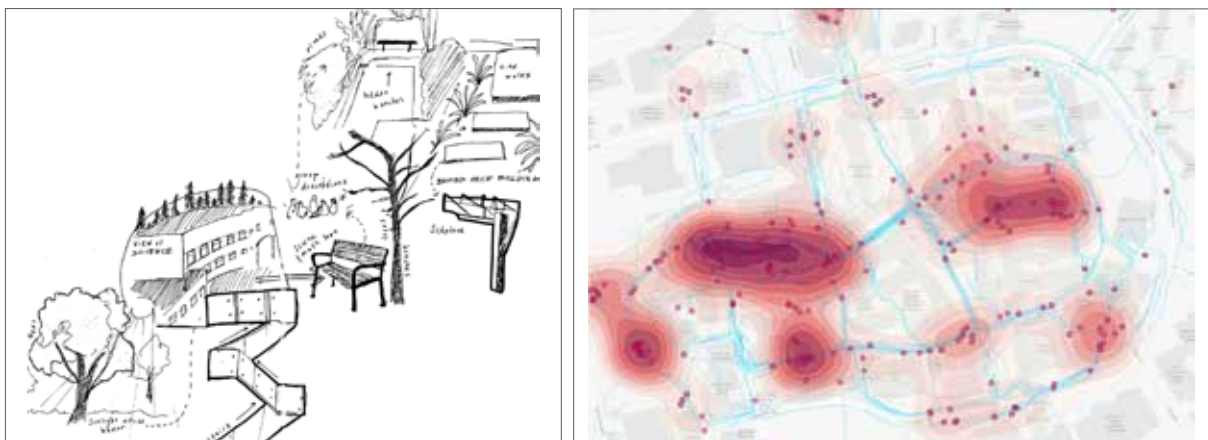
Figures 1 and 2. The dérive resulted in two psychogeographic maps: an individual map drawn by each student in his/her sketchbook, and an inter-active online map which aggregated all GPS-tracked routes, placemarks, and photos.
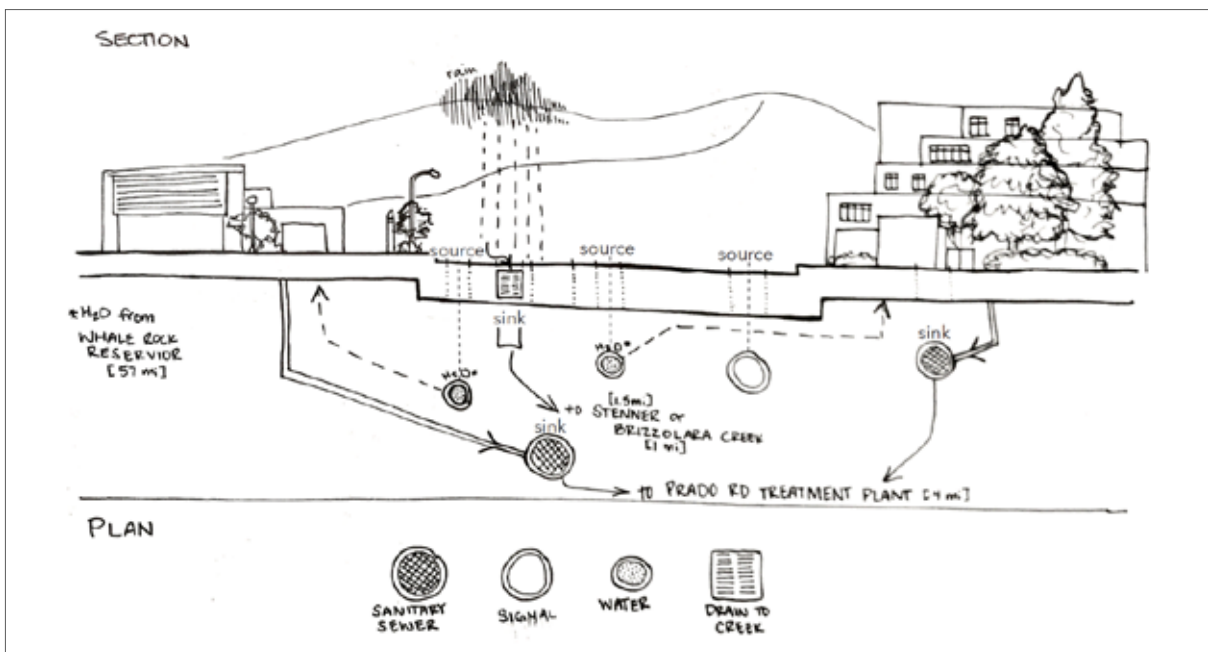
Figure 3. Students use visual markers of infrastructure in the landscape (in this case manhole covers and drains) to interpret relationships between the infrastructure, adjacent buildings, and larger land-scape context.

Landscape film studio experiments

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Keywords: Landscape film, bodily experience, landscape architecture, workshop experiments, SLU Alnarp

A landscape - time, space and sound

The contemporary landscape is defined through subjective experiences. These are done in a matrix of time, space and the aesthetics of the viewer. My thesis is that landscape is defined by how you experience a landscape with and by your body, and how you review and represent it.

Especially the acknowledgement of sound, duration and motion in the experience of a landscape, reveals landscape as something more than only a silent background, a static object or a stable geometrical entity. The inclusion of time, sound and subjective sensory encounters promotes a reading and understanding of a landscape being a surrounding of the subject with an ambient character in which the motion embedded in everyday rhythms or unexpected disturbances can be found significant for defining small aesthetic experiences. Through the events and different sceneries we attach a story to the landscape. Hereby we, through our bodily encounters, inscribe new meanings, memories and values in our ambient, ever-changing surroundings. These can be substantial for how we and students envision the landscape, as these meanings and small stories experienced provide the landscape with an identity and aesthetical value for the one experiencing it (Farsø 2013, Farsø & Petersen 2015, Petersen & Farsø 2019).

Film can be used as an effective medium to research and represent such experiences and happenings situated in time and space. Both duration and sound are important parts of what defines film as a medium of representation. Furthermore, the film medium can represent and disseminate very subjective readings of a site, which might help to communicate the sensory reading of a given site along the lines of a given subject's experience. The film medium can represent sensory, subjective events that might be significant for defining the site, by e.g. showing- through motion pictures- how movement, rhythm and gradation come to define a site aesthetically. Any bodily experience of this sort can be documented with film, ranging all the way from high-end film cameras to the small cameras that are found in contemporary smart phones.

A film – trailer and poster

This presentation explores the film results and approach findings that came out of a one-week long studio workshop on film in the first year of the landscape architecture master programme at the Swedish Agricultural University (SLU) Alnarp. The workshop was one of several workshops that introduced students to different approaches in understanding landscape architecture at the master programme. In this workshop, a small group of students - which had no former training in film - delivered a statement on their reading of their everyday school campus environment in the format of an ultrashort film and a supplementary film poster. The students were asked: How does the non-object, the non-static and the non-visual define your landscape (reading)? What is most significant in your bodily reading of the site? What makes Alnarp essentially different and attractive?

To challenge the students in their research outcome, thinking and representation, they were asked to rework and present their recordings as a 30 sec trailer. The trailer was meant to be a pilot, pitch or abstract of what they found their site was film-wise. They were asked to include a headline of the film that would indicate to which genre their film aspired to (e.g. horror, sci-fi, drama, thriller, comedy or documentary). Students were encouraged to avoid using music, unless it was produced by themselves (as this tends to disturb site-specific soundscape readings as well as it is hard to obtain the rights for the music for an internet publication). The films were recorded on standard photo cameras and smart phones and were edited in easy access film editing programmes such as Imovie, Windows movie maker or free film editing software. The films were uploaded to and presented from vimeo.com.

Additionally, students were asked to produce an A2-sized film poster, which was to include a headline, a main (star) image, director and names of key characters (could be a bike, street, buildings, trees, animals, weather, light etc.), and date, time and location of premiere (in this case: Oct 12, 2018 at 9.15 am at SLU Alnarps Studio Myllan. The portrait A2 poster was to be printed and pinned-up in the studio prior to the presentation. The poster was meant to highlight the subjective and commercial aspect of the film medium.

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Deep Landscape Studio: a transdisciplinary approach to understanding an inhabited landscape

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Keywords: Studio, nature-led solutions, landscape design, transdisciplinarity

This paper argues that meaningful approaches to the design and planning of inhabited landscapes are best taught by dissolving boundaries between disciplines.

A studio is discussed in which landscape-led learning is organised around teamwork, curiosity, exploration and deep mapping of multiple, interconnected real-world problems in a small seaside town. The pedagogy of our 'un-disciplined', research-led, landscape-focused approach to understanding and imagining (the future of) this inhabited environment draws from appropriate knowledge bases without regard for disciplinary boundaries. A deep in-situ analysis of wicked real-world problems encourages our Masters students to explore beyond the boundaries of (narrowly) defined fields of competency. Led by curiosity, and a desire to make a real difference in this place, students are emboldened to extend their reach for truly appropriate transdisciplinary solutions.

In the age of the Anthropocene, disciplines will have to work together to seek ways to overcome the challenges posed by climate change, sea-level rise, river flooding, loss of habitat and biodiversity, pollution, extinction… ultra-sedentary life styles, poor food, bad air and poor mental and physical health. Such an essentially interconnected approach to resolving problems affecting life on this planet can only be trans-disciplinary. We believe that this same approach works as well at the scale of a small town, and can be useful in a teaching about the inhabited landscape.

Introduction

The University College Dublin (UCD) Landscape Masters studio is a somewhat experimental studio that draws students from a variety of backgrounds, and cultures. For a 12-month period students are immersed in the study of a small coastal town (13,000 residents). The studio begins with questions about Guattari's Three Ecologies, about where a site starts and ends, about landscape and individual understandings of the term and about notions of the deep map - all discussions that endure for the year. This is a multi-annual project, and although the same town has been the object of teaching and research for the past five years, with the findings of each class feeding into the next, the pedagogy of the studio itself has morphed, partly in response to findings but mainly in response to feedback from students, teachers and the townspeople themselves.

Studio description

We will discuss two years in particular; the first year that the multidisciplinary studio ran (2013) and this past year (2018). Lessons learnt inbetween will be described, along with changing pedagogical approaches.

The studio morphed from a relatively short fast (single semester) multi-disciplinary classroom-based environment, with detailed briefs, an emphasis on secondary research, desk-top study, academic focus (in the sense of learning for the sake of learning) and individual projects, to an increasingly open, year-long site-situated studio which sees itself as part of a deep map. By 2018, students take things more slowly: exploring, walking, talking, spending time nosing around, unearthing everyday issues and generally probing into the place. The townspeople are involved in this research and help steer students towards discoveries. Student researchers experience the place (in the sense of Gomez, 1998) through the lens of its people in search of its essence. 'This is the "knowing" that complements knowledge…' (idem p.7). Students chart their initial understandings, following their own noses, analysing creatively and developing their own briefs, gradually, as part of a deep map.

Our hope is to contribute useful ideas to the on-going conversation about the future town. Results are important, but the learning process itself has become central to the studio, with a final review (in the form of a public exhibition) seen more as an opportunity for further discussion and public feedback than an assessment. The emphasis is on exchange of ideas and information, between students, the community, and experts, in the hope of demonstrating (to the students at least) the potential of trans-disciplinary interaction between experts in the real world.

Morphing. Methodology. Teaching & learning

The initial 2013 studio was run by four academics, each representing one of four strands of the Masters programmes: Landscape studies, Conservation, Urban design and planning, Sustainable building and development. Taught together in one class, although the majority of students came from an architectural background, not all were comfortable with this holistic approach. Landscape mapping provided a useful overview, but differences in focus (and scale of work) between the landscape architects and more 'technical' strands were apparent. A change of site in the second semester felt too quick for some of us; the landscape students felt that they had only just started getting to grips with the town.

By 2018, students of the MLA and MArchSc in Landscape Studies are taught together in a single class that is now known as the Landscape Studio. The main creative objective of this studio is, as Hille von Seggern (2018 p.156) puts it to celebrate '…being alive, living' in the small town, where quality of life and sustainability can go hand in hand (if the community has something to do with it).

Students carry out desktop and archival research, meet with locals and make their own in-situ discoveries. As topics of interest gradually develop and additional analysis is required, experts from UCD and elsewhere join in the discussion. We debate and critique differing disciplinary approaches, as well as regulatory documents that frame what is possible. The townspeople and students alike often raise similar themes, with critical questions about the town's planning documents voiced time and time again. It would appear that in this small community, the towns desire for truly sustainable development and concern for wildlife and nature is stronger than that of the planners!

In parallel, a series of lectures is delivered via a multidisciplinary module that introduces the class to the main disciplinary fields of the built environment. Planners, artists, environmental lawyers, psychologists, sociologists, urban designers, landscape architects, architects, engineers, hydrologists, ecologists, farmers, authors and politicians all contribute to the multi-disciplinary discourse.

Observations
Is it a bit overwhelming? Yes! The studio is demanding; it has a long lead-in time as students are expected to familiarise themselves with aspects of a town of 13,000 people, a history of 1000 years, a site of 50km2, 6 km of coastline and a 652km2 watershed. Students undoubtedly find the range of potential topics too broad. Nevertheless, presentation of the analysis as a deep map relieves through reading, research, weekly day-long site visits, and weekly discussions of findings, they start to get to know the place. Changes in scale, from a 1:1 walk down Main Street, a 10km coastal survey, the 1:10 000 Ordnance Survey, a 1:50 000 study of the watershed constantly challenge the students' perceptions of space, and pace, and remind them of the scale of the exercise.

A great deal of time is spent in debate. Students from different backgrounds share prior knowledge and on-going observations with the class. Students gain confidence in critically reviewing professional work (built projects in the town, abandoned proposals, local planning documents etc.). Students learn to speak in public, and overcome nerves. Students are expected to ask questions of one another, and voice increasingly informed opinions, until they present and explain their work as quasi-experts in the public meetings.

Conclusions
The ambitious range of topics that were explored, the interconnectedness between them and the enthusiasm with which this past year of students embraced the challenge of this studio are some evidence of the success of our undisciplined pedagogical approach. The small size of the class is a factor; there is nowhere to hide! Every student counts and individuals are encouraged to make the most of their skills to the good of the team. Student feedback is positive; students are learning a methodology. They appreciate the focus on in-situ discovery and local knowledge, but found the learning curve steep at the beginning. A full year is a long time to study a single site, and some students were less able to cope with

the freedom of the brief. Nevertheless, they were all very proud of the exhibition of work displayed in 2018, and delighted with its reception by the townspeople.

Our holistic, well-informed confident landscape-led approach results in students tackling complex real-world issues, very seriously, and proposing carefully thought-out site appropriate solutions to them. We hope these students will go on to think outside the disciplinary box. We feel that they have been prepared to work with other disciplines, as well as with the public and have learnt a trans-disciplinary approach to understanding place and site and investigating critical issues that will serve them well in their future careers.

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Pedagogy of participation. Painting new scenarios in the liquid landscape paradigm

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Keywords: Environmental design, pedagogy of participation, common landscape

Introduction

The article defines a first advance of my doctoral thesis that I am developing in the research group 'Intervention in heritage and sustainable architecture' followed by Pilar Chías Navarro (UAH) and Luca Maria Francesco Fabris (Dastu). The study includes several years of research in institutions such as the Politecnico di Milano, the Universita IUAV di Venezia and now the University of Alcalá de Henares. Throughout my career I have been able to verify that citizens and their representatives struggle to find viable and sustainable solutions regarding future development of transformation areas in peri-urban environments. In addition, these solutions are difficult to integrate into current or future urban plans. It is evident that many areas have suffered over the years unequal and inconsiderate growth within the urban context as well as the territorial and landscape contexts. The temporary repercussion of these processes leads to a state of continuous stress for the cities: increased cost of land, loss of productivity of these areas, little or no participation, and distrust of citizens and companies in public administrations and their representatives.

The key to reading the doctoral thesis is to overcome the traditional concept of public-private to introduce the concept of responsibility, associated with any type of urban and peri-urban intervention. This type of integrated territorial development reading is essential to cover these types of areas and to delineate the development patterns of highly populated areas with facilities with a broad impact on the environment: quarries, landfills, tailings, transformation areas, spontaneous growth, etc. In this article we present some first results related to a trans-disciplinary study that create a methodology to address integrated territorial development, based on circular economy norms that aim to fluidize the processes of soil transformation.

In particular, the research work will focus on those areas in transformation that, due to their peculiarity, have an 'expiration date'. Citizens need to know the deep functioning of the supply-transformation system on which the city relies. It is necessary for citizens to become aware of the rules that govern these elements because they have strong repercussions on the environment.

Pedagogy of participation

Since the participation ladder was proposed (Arnstein, 1969) many theorists have written on the subject and many instruments have been developed so that citizen participation is fully integrated into our administrative system. We take this article as an essential step in any public policy through the 'implication and co-responsibility of society in the management and planning of the landscape' (Nogue J. et al., 2010). In this article, we will deepen the study of some participatory processes in urban planning issues to verify their strengths and weaknesses. The concept of PARADOX OF PARTICIPATION will be introduced according to different points of view: the elements of citizen participation are always determined by the rules stipulated by the State (Mejía Lopez). Is there participation in contexts where there are no citizens such as mining areas, quarries, etc. or of heavy industry? (Fabris, 2009). Are there possibilities for participation in de-anthropized territory contexts? How will the old relationships be considered?

In a comparative study of participatory processes, some distinctive phenomena that contribute to complicate participation have been detected: the structure of land ownership, the accessibility of the areas, the traditional models and their crisis, knowledge and the verification of physical and antropic characteristics of territorial support, the economic aspects and of management of the performances, their predictable real benefit, and the implantation by phases.

For everything stated above, a PEDAGOGY OF PARTICIPATION is necessary. The citizen will need to be prepared for the process of participation through education and guidance. This requires an pedagogic activity that explains the development phenomena and empowers the citizen to address the decisions in a clear and efficient way, creating methods of analysis and development appropriate to the required objectives. Given the voluntary and free nature of the current phenomena of participation, academics and politicians have the moral duty to protect the citizen based on the precept of the acknowledgement of the value of others' time as well as clarity and integrity in decision making. Many of the challenges lost in the field of territorial participation have been due to excess of participation in the face of a minimum visible result.

Actual scenario

At the beginning of 2017, the growth estimates of the real estate and construction sectors already assumed the recovery of the purchasing power of families, at least at the statistical level. They already took for granted the relative need for new real estate developments to be concentrated in the most external areas of European cities (Euroconstruct, 2017).

In addition, due to the crisis of 2008 in the surroundings of the major European cities, there are still large underutilized and unsupervised areas likely to accommodate new residential developments and services in the immediate future. Despite the crisis that has helped to maintain free areas and preserve land consumption, the scarcity of resources of most municipalities has not allowed direct public interests reflected in new urban policies based on environmental sustainability (Bowen, Stern, 2012) and in the social and circular economy needs (Ikerd, 2013).

In spite of the above, the European Union is developing a new framework of action that foresees the development of policies aimed at the recovery of degraded, abandoned or contaminated areas. Some results can already be seen in areas with heavy pollution (Eionet NRC Soil, 2015), which aims 'by 2020 land is managed sustainably in the Union, soil is adequately protected and the remediation of contaminated sites is well underway 'and that 'Environmental considerations including water protection and biodiversity conservation should be integrated into planning decisions about land-use so that they are made more sustainable, with a view to making progress towards the objective of 'no net land take', by 2050'(European Parliament, 2013).

Due to what has been described above, the current peri-urban areas respond to objectives disconnected from the common interest and demonstrate a clear ignorance on the part of the collective intelligence of the cultural and environmental values of the city, its territorial support and its landscape environment. The excess of regulation that we can see in many urban centres, is diluted when it gives way to peripheral areas of cities, and results in border conflicts.

Conclusion

This article is part of a longer and more complete research work. Some case studies will be presented along with patterns of operation of the transformation areas of the peri-urban areas of the cities. Through these schemes, active procedural channels inclusive of environmental, participatory and sustainable development policies will be established in some European countries. The work will be useful for a better understanding of development programs of the different types of areas under transformation. In addition, it will be essential for the definition of the appropriate level of participation to promote democratic and active channels that allow to unite the environmental, social and economic development through the pedagogy of the Progetto Ambientale.

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Figure 1. Community engagement to preserve UNESCO heritage and landscape in Alcalá de Henares- Spain 2018

Figure 2. Waiting plots in the Spanish 'Sierra de Madrid' - 2019

Figure 3. Transitional use in the Quarries Park in Brescia - Italy 2017

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'Modern, postmodern, anti-modern' revisited. A critical appraisal of a theoretical design studio

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Keywords: Landscape design, model, studio, theory, world views

Introduction

The relationship between landscape 'design' and 'theory' is a delicate one. Many of us are inclined to subscribe to the commonplace that there is nothing more practical than a good theory. However, it is far from self-evident how (and if at all) theory (of which kind?) can help students in conceiving 'better' design proposals, or how it could contribute to making discussions of students' design proposals (e.g. during crits, presentations or in examinations) more helpful as well as assessments more understandable and transparent. A main challenge in landscape design studios is thus to make theory explicit, and to explore the interplay between theory and design proposals. There are frequently calls for innovative methods to do this, but perhaps innovation is less important than to learn and evaluate past experiments?

This paper argues for critical examinations of past studios as a way to accumulate knowledge and gain a critical perspective on the interplay of 'theory' and design(ing) in studio teaching and learning. In this case, a particularly interesting, and well documented studio has been studied in detail: the studio 'Modern, postmodern, anti-modern' that took place within the landscape architecture programme at the Technical University in Berlin 20 years ago. To tease out what we can learn from this pedagogical experiment for future studio teaching as well as research/scholarship in landscape design, I will identify and critically discuss the presuppositions of the pedagogical idea and the assumptions of the nature of landscape design that underpin this experimental studio. I will do so with the help of a close reading of the studio reader (Woraschk et al. 1999), additional literature primarily by the involved teachers (e.g. Eisel 2003; Eisel 2004; Eisel 2011), and, if possible, interviews with course participants. At the outset, I myself was not involved in the studio. I first learnt about it through a text from the studio reader that I was given during my education by my teachers, who themselves had been classmates of students who participated in the 'Modern, postmodern, anti-modern' studio.

The studio is documented in German language in a printed studio reader from 1999 (Woraschk, et al. 1999). However, this report is not available for the larger scholarly community; it has been printed in a limited edition to be distributed only to the studio's students, the teachers, and a few other interested course colleagues. The paper aims thus also at making the pedagogical and theoretical ideas behind the 'Modern, postmodern, anti-modern' studio more widely accessible.

The 'Modern, postmodern, anti-modern' studio: following models, reflecting on design

The studio ran over the course of two terms, the summer term 1998 and the winter term 1998/1999 (each with about 15 weeks' active teaching), i.e. one full academic year. The concrete design task was a proposal for redesigning parts of Hellersdorf, an estate of prefabricated houses in the periphery of former East-Berlin.

The studio's full title was 'Modern, postmodern, anti-modern – Designing after models of contemporary architecture', which indicates that its main idea consisted in following models, i.e. modern or contemporary architects or landscape designers students felt an affinity with, for example Paul Schultze-Naumburg, Leberecht Migge, Peter Eisenman, Aldo Rossi, Walter Gropius, Rem Koolhaas Zaha Hadid, or MVRDV. The method of imitation ('Nachahmung') or rather following ('Nachfolge') was developed by Immanuel Kant in his Critique of Judgement. It describes how artistic production can, despite the fact that it is determined by talent and taste and as such not subject to rules of reason, be learnt and taught—under the condition that talent is present (Kant 1790/1952; see Gammon 1997; Katz-Buonincontro 2015). To follow a model meant, in the chosen studio approach, not only to be inspired in a merely formal and aesthetic sense, but also to follow the model's world view.

The pedagogical strategy of the studio consisted thus in the following: (1) A model, which the students could chose freely according to their affinity with a designer's formal language or conceptual ideas, was, as it were, interposed between the student and the teacher. This enabled the student to follow a 'master' in a productive manner. Furthermore, it made it easier for both students and teachers to keep a certain distance to the presented ideas. (2) To allow for an objective discussion of the models and their oeuvre, the latter's life and design attitude had to be 'made objective' by being understood and interpreted as the expression of world views (Anonymous 1999, p. 14). The personal practice of following a master was thus transformed into a practice of intellectually following a model. However, before the model could be (used as) a productive source of inspiration in the design process, it had to be produced, as it were, by theoretically engaging with its built, conceived and written oeuvre (Anonymous 1999, p. 15). To be able to do this, students needed (to gain) 'background' knowledge in philosophy, history of ideas, and political ideologies that are relevant for a deeper understanding of modernity. In the studio itself, phases of designing alternated with theoretical input and reflection in an iterative process.

Outlook

We can see now that the studio's method relies on certain theoretical presuppositions. In the final paper, I will present and critically discuss two of them in more detail:

1. Architecture can be interpreted as a mirror of world

views or certain combinations of world views that emerged in the course of occidental history. Debates about landscape design concepts are thus not only controversies about different forms, styles, or ways of artistic expression, but also disagreements about different societal ideas and political ideals.

2. Landscape design is essentially an artistic practice, which is best learnt through the method of following a model (Eisel 1997; van Etteger et al. 2016; Zangwill 2007).

To further explore what we can learn from this past experimental studio, it will be compared with a strategically selected current studio course at SLU's landscape architecture programme, through interviews with teachers (and, if possible, students), and through observations of design crits and presentations.

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Drawing time: Developing the score as a contribution to the master thesis phase

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In the ECLAS Handbook of Teaching Landscape, soon to be published, I argued that time, in its many manifestations, is key in landscape, and thus, teaching the representation of landscape should lay the foundations for an understanding of time in landscape, how to apply this notion in design and how to draw time. Building upon a PhD thesis defended early 2017, experience in working with representation in landscape architecture education, and fruitful conversations with tutors on how to make students more aware of aspects of time in their landscape architectural design and its representation, inspired to develop a set of exercises (Van Dooren 2017). The chapter in the ECLAS Handbook presents the idea of such exercises and one specific example, introduced by a summary of the theoretical body supporting these exercises. Together with Copenhagen University we explored the application in a specific part of the curriculum, and discussed the outcome in a recent article in Landscape Research (Van Dooren and Busse Nielsen 2018). This paper describes a next step, which is the actual implementation of one of the main exercises, in this case in the Master Thesis phase at the TU Delft.

Formally, time can be seen as the fourth dimension of landscape, and hence of designs in landscape. Time can be considered a container that includes growth, change or dynamics, and so on. Speaking about time in landscape refers to cyclical (the seasons) as well as progressive phenomena - think of the growth of trees. It implies very short durations (hours) as well as extremely long durations (centuries); repetitive and predictable happenings as well as irregular events, such as floods. In fact, it touches upon what essentially distinguishes landscape architecture from adjacent disciplines, such as architecture, as the very material of landscape is subject to permanent change (Corner 1992, Lynch 1972).

Most practitioners and teachers would state that pointing out aspects of time obviously is part of their work, and that it pervades their entire teaching. However, even if the aspect of time is generally understood as inherent to landscape architecture, it has hardly any role in education, and is rarely found in representations of landscape architects (Mertens 2010 and Treib 2008). Drawing Time (Van Dooren 2017) proposes the development of a temporal domain of types of representation, next to the existing spatial domain.

One of the most challenging representations in this proposed temporal domain is the score, introduced in landscape architecture by Lawrence Halprin

(Halprin 1969). This revolutionary contribution was never fully appreciated. The progression of landscape architecture, and today's dynamic assignments landscape architects work on, strongly suggest to embrace 'drawing time', and to explore the score. The score is a notation as used by composers and choreographers. A tentative definition for the score as a type of representation in landscape architecture would be: a drawing that shows all relevant aspects of time in a design, the time scales in which they operate, the moments at which they become manifest, the actions by which they are provoked and the persons or institutions doing so. The ECLAS Handbook paper describes a series of exercises, related to different stages in landscape architecture programs. Working with scores clearly requires a matured level.

This paper presents the implementation of this theory and educational model in a weeklong workshop within the Master thesis phase, to be executed in January 2019. Some 30 students will take part. These students are in the midst of their thesis work. As not to distract that process, the workshop does not focus on their own projects, but adopts two projects from 'outside'. That is to say, two offices provide an actual practice project as the setting in which drawing scores can be exercised. Students are presented the projects, visit the site and set out to develop an experimental drawing. It is important that no new design is made; one could say, it is drawing itself that is conceptualized here. The projects as offered by the offices have a strong time dimension, but this was not made visible in drawings. The students are asked to develop a drawing, based on the idea of the score, that fits in the project.

Obviously, the exercise intends to raise the awareness for aspects of time, in general, and in relation to the thesis work. One of the mandatory products is a short reflection in which students describe in what way their thesis drawing work could be influenced by the workshop. In a larger frame, the link to office work is important. In this way, the school environment functions as an area for experimentation. The outcome is evaluated in educational terms, but also discussed as a potential contribution to practice: how do practitioners perceive the role such drawings could have in the actual process of testing out ideas and informing their clients? Taking into account that the products of a weeklong workshop will have their limitations, the idea of the drawings may have an impact on practice, and stimulate a debate on the conventions of drawing.

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Optimistic experiments in the teaching of landscape urbanism

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Introduction

This paper provides an analysis of the attempt to employ Landscape Urbanism as a normative critical theory to form a framework for teaching in a newly introduced Masters in Landscape Architecture. It provides a description of the difficult gestation and introduction of the programme, and how the theoretical structure evolved as a teaching method. Through the medium of individual project reviews, it then describes how, set within a unique set of physical and conceptual parameters, students produced work of exceptional innovation and imagination.

Context

In 2009, after nearly ten years of lobbying, Manchester Metropolitan University agreed to create a new one-year Masters programme in Landscape Architecture. This superseded the fifth year exit award of the Bachelor of Landscape Architecture or Part Two (a professional nomenclature).

Although the term Landscape Urbanism had been used as early as the mid-1990s, it made little impression in the United Kingdom. The Landscape Urbanism Reader, published in 2006, had little currency value in both academia and the profession. Conceived in the USA to justify an economic approach to regeneration of the post-industrial landscape and suburban sprawl and then co-opted by Northern Europe as a means of applying social democratic principles, they reflected a growing interest in ecological process and challenged the bourgeois approach to space making.

Narrative

In this section I provide an outline of the components of the programme and the adaptive measures required to apply the methodology in an English context. The Landscape Urbanism Reader became the essential text and formed, for the first time in the history of landscape architecture teaching at MMU, a theoretical model for intervention in the landscape. This provided the opportunity to create a framework in which all students would have a common critical starting point, but which would encourage diversity of opinion and product. It was envisaged that at first the conscripted theory would be applied lightly but firmly, like a piece of diaphanous gauze whose weft and weave would create a supporting and ordering mechanism for each student. This would enable the students to externalise the process of adoption and provide the required measures of flexibility and structure.

There were two key elements that defined the adoption of Landscape Urbanism as a teaching method and its application to the unique 'Island' condition. The first was the use of the words 'surface' and 'location' rather than 'site' to define the field of thinking. Students were presented with a choice of surface that covered several hundred square kilometres-this would take them out of their usual introspection at site level and challenge them to think at a scale, where the framing of knowledge was dynamic and open-ended.

This referenced a key approach, explored in Waldheim's (2006) Landscape Urbanism reader by James Corner, where Corner argues that landscape urbanism had to operate at large scales if it were to provide alternative readings of surface and occupation. This was contrived in the studio units through selecting areas that were situated as unclassified landscapes, containing relict small urban settlements, layers of post-industrial landscapes and agriculture on the edge of survival. They were also defined by their relationship to edges of various forms, the most important being the coastline, something that more than anything has influenced the landscape condition in England.

Locations included:
- Walney Island and Barrow in Furness - a weird juxtaposition of extremes containing nuclear submarine repair facilities, a coastal fringe of semi urban beaches, sand dunes and estuary. The bleak flatness of Walney Island embodies some of the most socially deprived communities in the North West and is adjacent to world class kite surfing and wetland migration and breeding grounds for wild fowl;
- The Wyre peninsula, dominated by large areas susceptible to flooding, relict tourism and high quality agriculture;
- The M6 corridor between the Lake District and Yorkshire Dales National Park;
- The Cumbrian Energy coast, with its dramatic contrasts of function, hiding large areas of poverty and deprivation, and in contrast;
- The Lune Valley, on the surface rich and beautiful but supressing the fragility of a highly subsidised landscape.

The second element of academic infrastructure was termed 'the condition'. This recognised that students, when confronted with complex multivalent theories would need to employ extensive and outward facing thinking. This form of prosthetic framing would enable them to more easily situate themselves in the process of understanding their location and provide them with something recognisable to attach their thinking to.

The words selected for the condition also formed an abstract and empirical vehicle for the implied relationship between the location and the theory, acting as a connection between the two. Students would self-select words and through democratic negotiation form like-minded groups. These groups would act as reading rooms to collect and collate information, share the investigation in to the common condition and become a launch pad for the development of a personal strategy. Condition words that were employed included 'Margins', 'Sacred and

Profane', 'Transience', 'Obsolescence', 'Mutation', 'Surrogacy', and 'Hybrid'.

Review
The key to unlocking this process was the investigation in to the condition as this would provide a sensor to register the success of the decision making process. Students sheltering under the umbrella of Landscape Urbanism, soon realised that they had to share this space with both the condition and the location.

A further challenge emerged as the students attempted to communicate the complexity of their thinking in space and time. Traditional methods were inadequate as they were unable to respond to multiple time scales and ways of thinking that were non-linear and open-ended. Instead, they had to find a new language of description, which was evident and is analysed in case studies of their work. Comparisons are made between student work from different cohorts to draw out successful responses to the theoretical infrastructure and the added-value of surface, location and condition in acting as foundation for the development of non-linear thinking.

The one year Masters was relatively short lived[1], before being replaced by an MLA and a return to conventional methods of design thinking and expression. However, the archive of these six years is a testament to the values of experimentation and intellectual discourse that emerged via the student work.

Note
1. The programme was closed down since market research indicated a two-year course would be more attractive to international students from associated disciplines and for home students who wished to change career and study Landscape Architecture.

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Toponyms as the indicator to identifying and mapping the correlativity between cultural and natural context based on GIS

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Keywords: Toponyms, GIS, landscapes character, landscape mapping, cultural and natural context

Toponyms are language symbols with specific meanings which inherit the accumulation of culture, reflect the changes of history, and also corresponds to its own geographical features: (1) Toponyms carry multi-dimensional information to enhance the self-identity of places (Rippon, 2013). (2) As a bridge for linking nature and culture, reflecting natural and cultural characteristics profoundly. (3) It contains historical stratification information, which is the proof of urban change.

This paper will take an empirical research in Wuhan, China, a typical city emerging by the natural and cultural landscape resources. This case study is carried out in the following steps: Firstly, more than 11342 toponyms are selected, and the naming rules and characteristics of Wuhan toponyms are analyzed through a literature review and statistical analysis. Secondly, the spatial distribution of toponyms and its landscape characteristics are analyzed by means of clustering and superposition. Thirdly, the perception characteristics and association of the public in a specific place are visualized through the big data collection and semantic analysis which indicates the relevance value of the toponyms as the carriers of emotional space. Through the above analysis, the association between toponyms and the natural and culture context has been fully explored.

Introduction: The relationships between landscape characterization and toponyms
The European Landscape Convention (Council of Europe, 2000) recognizes landscapes as an essential component of people's environment, an expression of the diversity of their shared cultural and natural heritage and a foundation of their identity. Landscape is result of interaction of natural and cultural factors and an expression of human ideas, thoughts, beliefs and feelings (Antrop, 2005). Landscape characterization is well established in landscape assessment and it involves the identification of distinct qualities, patterns and elements in landscape that make one landscape different from another (Swanwick, 2002). In many areas, the imprint of the past is still recognized through distinctive features (Antrop, 2005). There has however been little research on human perception and association. Meanwhile, Stephenson (2008, 2010) stressed the importance of identifying embedded and superficial cultural values in landscapes, including knowledge of past and present human relations and practices. Place names embody different types of meaning (Tent & Blair, 2011). Atik and Swaffield (2017) used toponyms to indicate the names associated with the indigenous and layered culture. In conclusion, toponyms could be viewed as the indicator of landscape character of place, which constitute a cultural layer that interacts with a natural layers, through people's perception.

Materials
Wuhan is a significant city in China located at the intersection of the Yangtze and the Han Rivers. It consists of three towns: Hankou, Hanyang, Wuchang , and six districts: Caidian, etc. (Figure 1). The materials include basic geographic information data and toponyms in Wuhan. The basic geographic data of Wuhan was downloaded by the Bigemap digital platform. The toponyms were obtained from historical documents, a historical atlas and the toponyms attribute list of Wuhan 2018 POI (Point of interests). Finally, 11342 data were obtained through correction and comparison.

Methods
This paper adopts the method of qualitative and quantitative analysis. In the first step, a literature review and statistical analysis were used for collecting the toponyms and analyzing the correlation between landscape attribute and connotation. In the second step, the affinity propagation algorithm (AP) was used to cluster the 21 variables which were useful. Meanwhile, the GIS platform was applied for visualizing the results of the clustering, for identifying the correlation between toponyms and landscape factors. Density analysis was utilized to visualize the distribution of toponyms. Based on this, the relationships between toponyms and landscape character factors are parsed through the overlay analysis. In the third step, density analysis and semantic analysis were used to visualize the perception of the public based on the statistics collected by big data and field investigation.

Results
Identification of naming rules and naming characteristics of Wuhan toponyms
The naming rules of Wuhan toponyms are the combination of generic names and specific names (Committee of toponymy, 1990), and two categories of landscape attributes including natural and cultural groups were identified. The three landscape attributes of natural groups including hydrology, topography, animals and plants, and cultural groups, divided into four landscape attributes: religion, settlement, heritage, and transportation; and 18 connotations including location, orientation, forms, etc. were identified. Through the above analysis, the description and records of the unique characteristics of different landscapes in Wuhan were demonstrated by Wuhan toponyms.

Identification and visualization of toponyms distribution and key characteristics
Due to limitation of data collection and summarizing of the datasets, only four types of data are available (Figure 2a). The selected 21 geospatial landscape factors were clustered by affinity propagation algorithm (AP), and 20 landscape character types were mapped (Figure

2b). Seven categories of landscape distributions were visualized (Figure 2c) by density analysis. By means of overlay analysis, the key characteristics of toponyms were distinguished. Taking toponyms of topography as an example, the key characteristics of topographic toponyms were identified (Table 1).

Identification of toponyms as the carrier of public perception
Brown and Brabyn (2012a) argued that perception involving place attachment, understanding and preference is a cultural layer of the landscape. There are 24 toponyms chosen from the database as the representation of human perception. These include the GUI Mountain, Changchun Temple, Hubu lane, etc. The proportion of positive, negative and neutral emotional values for the 24 toponyms was identified and the density of emotional values was mapped in GIS. From the perspective of human perception, the perceptual descriptions of 24 toponyms are statistically analyzed by semantic analysis. Table 4 shows the adjective description and public sensory objects with the highest frequency of public perception. According to this, the relationship between human perception and toponyms is identified and established.

Discussion and conclusion
Naming is a way to distinguish between a specific location and other places and the overall environment. Landscape character and identity is thus more than appearance, but also rich with the associative meanings that create identity (Antrop, 2005; NZILA, 2010a). This study illustrates the naming rules and characteristic of Wuhan toponyms, meanwhile, identifying the spatial distribution of Wuhan toponyms and its relationship with landscape factors, and visualizing the perception and association of the public at specific locations, to revealing the potential role of toponyms as features. The significance of this article is to discuss the relationship between cultural and natural context on the basis of Wuhan toponyms, and to explore the values of spatial continuity between toponyms' landscape attributes. The relevance value of toponyms as emotional space feature carriers is also discussed. Further analysis may lead to conclusions that toponyms as an indicator could reflect local characteristics. However, as a unique source of information, toponyms are a source of information that changes with time. In this paper, the discussion on the historical values of toponyms is insufficient, which may cause the research results incomplete. Therefore, further exploration will focus on the evolution mechanism of toponyms.

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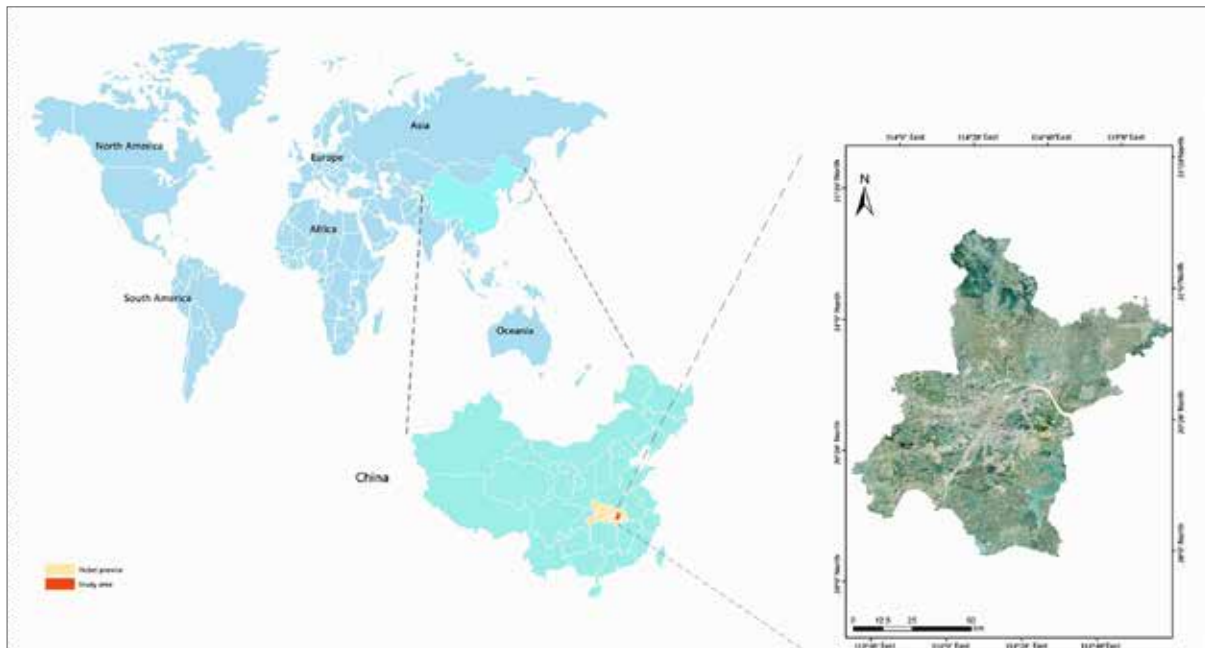
Figure 1. Map showing the location of the study area in Wuhan
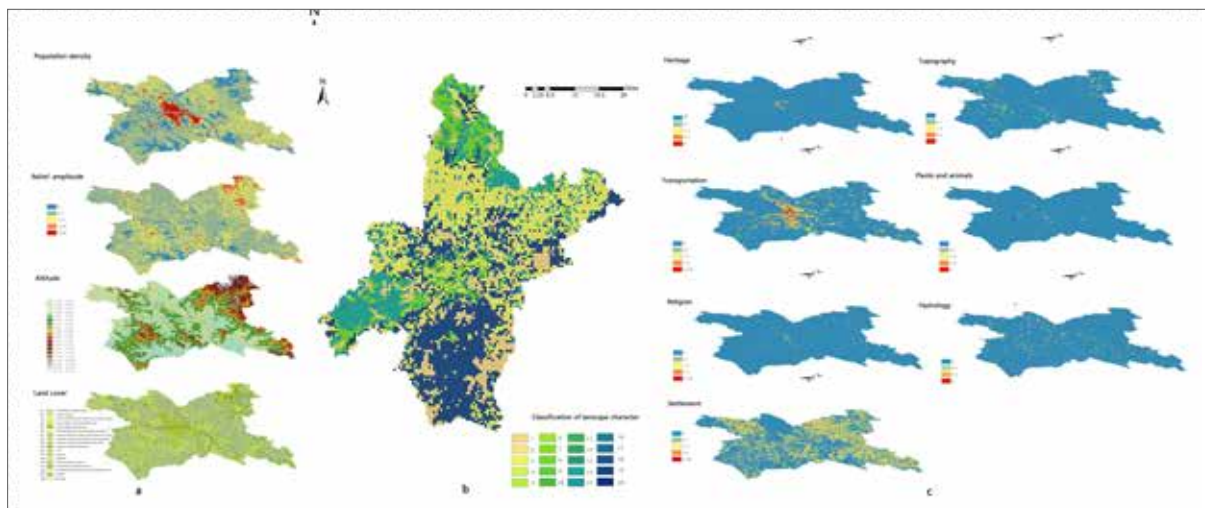
Figure 2a (left). Density of land cover, altitude. Relief amplitude and human distribution
Figure 2b (middle). Map of twenty landscape character types
Figure 2c (right). Density analysis of seven landscape distributions

Table 1. Average values and key characteristics of topographic toponyms

Type	Number of toponyms	Percentage composition (%)	Average population density(persons/km²)	Average altitude(m)	Land cover	Average relief amplitude(m)
1	26	11.45	101	47	LC1,3,4,5,11,12	1.616
2	1	0.44	340	59	LC2	1.606
3	20	8.81	519	48	LC1,2 ,3,5,7, 12	1.571
4	2	0.88	15787	33	LC3,14	1.968
7	4	1.76	4466	87	LC3,4,5,14	2.800
8	53	23.35	139	161	LC1,3,5	8.696
9	1	0.44	13776	42	LC14	1.621
11	1	0.44	8697	21	LC10	2.282
12	15	6.61	122	213	LC3	17.529
14	19	8.37	566	56	LC1,2,15	2.473
15	6	2.64	938	52	LC1,3,13, 15	1.580
19	79	34.80	202	63	LC1,2,3,5,16	2.452

Landscape architecture education in Europe: Searching for common ground

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This paper summarizes the outcome of a six-month research project about landscape architecture education in Europe, carried out in 2018 for Fondazione Benetton Studi Ricerche[1] and with the guidance of UNISCAPE. The work consists of a survey into the development of landscape architecture in some European countries, identifying specific aspects as well as the more common areas of the process; the aim is to outline a scenario that can serve as a basis for further investigation into possible common ground for the future of landscape architecture education in Europe.

Seven case studies were taken into consideration (France, Germany, Italy, the Netherlands, Portugal, United Kingdom, Spain[2]); the evolution of landscape architecture in the twentieth century and up to current events has been outlined, highlighting peculiarities and fundamental dynamics: cultural derivations, foreign influences, key figures and institutional roles that have guided this development. Professional expectations of landscape architects were also considered, particularly in relation to the different levels of career opportunities in the public sector in the various countries.

The research was carried out by consulting reference texts and web documents on the theme of landscape architecture training in Europe and for each of the specific countries considered[3], with the support of interviews with representatives of the discipline from some of the countries concerned[4].

The outcomes are not to be read through a historical lens, but rather as an attempt to build awareness of key roles involved in the evolution of the discipline.

Key roles: pioneers, professional associations, the political world, social changes
The development of landscape architecture as an academic discipline in Europe began in the twentieth century, at different times depending on the country and in different university areas, related to agronomy, life science, applied arts and architecture. The relatively recent history of this process shows only a partial reflection of the evolution and state of the discipline in a European context.

The so-called 'pioneering' period, identified as the years between 1919 and 1948[5], in which we witness not only the birth of the first training courses, but also the foundation of the professional associations in a number of European countries, should be read in light of the international unrest of the early decades of the century. This evolution was carried out by pioneers that led to the construction of an international network and the first definition of landscape architecture through their professional and academic work. A pivotal moment happened in 1948: the foundation of the International Federation of Landscape Architects, IFLA.

When studying these figures from the first decades of the IFLA, we can see how the definition of the discipline developed in both the professional and academic sphere, starting with protagonists capable of operating between the two fields, like Ferdinand Duprat, Geoffrey Jellicoe, Pietro Porcinai, Caldeira Cabral and others.

The latter of these protagonists, Caldeira Cabral, is one of the less known examples of this dynamic. The first landscape architecture course in Portugal was founded by this Portuguese pioneer in the Agricultural College of Lisbon in 1942. Cabral trained from 1936 to 1939 in Germany, under the guidance of professor Heinrich Wiepking at the Agricultural College in Berlin, one of the first landscape architecture schools in Europe. On his return to Portugal, he led the evolution of the discipline in his country following the German teaching method, a different approach and ahead of its time[6] compared to the rest of southern Europe. Cabral trained the first generation of landscape architects in the country, including Ribeiro Telles, who founded the landscape architecture school in Evora in 1978.

Professional associations played a key role in the foundation of the first training courses in a number of cases. In many countries the establishment of professional associations and academic courses were closely related, but sometimes occurred due to a cause and effect mechanism, as was the case in the United Kingdom with the Institute of Landscape Architecture (ILA, Landscape Institute since 1978). Here, the New Towns Act of 1946 gave landscape architects the task of designing new masterplan layouts. The ILA was aware of the lack of preparation and of the numerical insufficiency of landscape architects available at the time for this assignment. This drove the ILA to a global review of the professional skills required, in the light of which the ILA opened a dialogue with universities to improve the syllabus (hitherto predominantly based on horticulture) and to create new courses. The Landscape Institute still plays a role in evaluating landscape architecture education in the UK and in compliance with professional standards[7].

In other countries decisions were taken directly by divisions of government, leading the state to play a direct role in the development of the profession and training. An emblematic case is the Netherlands, where the profession has historically been linked to the public sector (Holland is, with France, one of the few European countries who established an office of Government Advisors on Landscape). In the Netherlands - where the first course was introduced in Wageningen Agricultural College in 1939, by the pioneer Jan Tis Pieter Bijhouwer - national land restoration and land reclamation campaigns, managed by the state, have a long tradition, and public

bodies have provided the bulk of job opportunities for Dutch landscape architects until recently[8]. The biggest employer was the Department of Water and Forests, whose field of intervention was necessarily functionalist, thus influencing the training of Dutch landscape architects.

The last century shows a link between the growth of training programs and events that led to great social changes. In many countries landscape architecture as an academic field arose in response to the needs generated by post-war reconstruction: it became essential to broaden the scope of large-scale projects and for public good. This process corresponds with a first 'wave' of numerous courses established in many countries, particularly in north-western Europe. A second wave occurred following the fall of the Iron Curtain in 1989, with the establishment of new independent states and the consequent emergence of the first courses in Eastern Europe. The close relationship between the drive towards change and the formalization of the discipline is also found in individual cases such as Spain. Here a renewed language for landscape projects arose from the need for re-appropriation of public spaces and identity renewal of the country following the fall of Francoism. This new approach influenced a whole generation of Spanish designers (escuela de Barcelona) and led to the opening of the first course in Barcelona in 1982 founded by the urbanist Manuel Ribas Piera.

International cooperation: towards a European identity

International exchange, both at an institutional and individual level, is a constant in the evolutionary process of landscape architecture in Europe. The prolific system of mutual influences and circulation of knowledge has continued throughout history to act as a catalyst for development, so much so that it is impossible to consider the current state of landscape architecture in Europe without taking it into account.

Indeed, the idea of defining a European common approach to landscape architecture has been floated for some time, with the difficult objective of establishing shared goals while respecting the broad cultural diversity of the continent. Training is undeniably the cornerstone of setting common methods and objectives in this regard, and the will to share a critical reflection in a European context is at the core of this desired common identity.

Notes

1. Fondazione Benetton Studi Ricerche, since 1987 is a cultural institution based in Treviso. Its scientific goals focus especially on studying landscape, carrying out a wide range of research activities.

2. The choice of case studies is primarily due to the ease of finding specific literature on the topic (see the bibliography for reference to some of the sources consulted for the different countries).

3. In addition to the specific literature on the subject of landscape education for each of the countries considered, fundamental references are: the 'Blue Book' of EFLA (1992), which gives a comparative account of the state of education in some countries (France, Germany, Italy, Greece, Netherlands, Belgium, Denmark, United Kingdom) and more recently the ECLAS project LE: NOTRE, which involved several universities across Europe for a survey on the origins and educational settings of training in different countries. Also the Landscape Architecture Europe Foundation publications were taken into consideration, which point out, every three years for a little over a decade, the progress of landscape architecture in Europe.

4. The interviews were proposed as the beginning of a possible collection of points of view on the subject. The interviewees were: Francesca Mazzino (professor of landscape architecture at the University of Genoa and coordinator in the inter-university course Progettazione delle Aree Verdi e del Paesaggio Genova/Torino/Milano); Bas Pedroli (professor and senior researcher at the University of Wageningen; Chair of External Affairs of UNISCAPE); Teresa Andresen (coordinator of the University of Oporto course in landscape architecture until 2014; member of the scientific committee of Fondazione Benetton Studi Ricerche).

5. The development of landscape architecture courses is commonly divided into five phases starting from the beginning of the twentieth century. See: Birli, B., Vugule, K., (edited by), (2010). 'Rare Knowledge': From the Modernist Period of Landscape Architecture Education, Summary for final Report Le:Notre 2.

6. In Italy and Spain the first university courses in landscape architecture were introduced in the 80's, despite, in the Italian case, the figure of Pietro Porcinai trying to found a school in his studio decades earlier.

7. For more information, visit www.landscapeinstitute.org/education/university-course-accreditation/

8. The concentration of the sector in the public sphere begins to progressively decrease starting from 1985, the year of new state policies that led to the birth of numerous private landscape design studies, encouraged by public subsidies for the start-up of young companies. See: Helms, K., (2008). Le rôle des paysagistes néerlandais dans l'aménagement du territoire des plans de paysage aux nouveaux quartier denses Vinex. In Association des Paysagistes Conseils de l'Etat (edited by), Séminaire aux Pais-Bas. pp. 2-5.

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Land Landscape Heritage: Experimenting a new Master in Science in landscape architecture at the Politecnico di Milano

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Keywords: Master in Landscape Architecture, international teaching, Italian environment, landscape and territory

The paper illustrates the experience, from the project, to the start up and the first academic years, of the new Master in Science in Landscape Architecture activated in 2017 at the Politecnico di Milano. Offered to a class of maximum 80 international students, under the name - Landscape Architecture _ Land Landscape Heritage- the M. the programme opens a new didactic and research line, in one of the oldest Italian Technical Universities, and fosters the Landscape disciplines as a transdisciplinary field necessary to face the needs and challenges of the contemporary environment and territories. Opening a new M. in Landscape Architecture at Politecnico di Milano has been a necessary challenge: the specificity of the Polytechnic School and of the Italian context characterize a transdisciplinary approach oriented at the tradition of Land and Open Space design. It addresses the different meanings of the word Landscape-Paesaggio and the centrality of Heritage in the sense of both conservation and innovation projects. Therefore, the M. adopts the aims and the scope of the European Landscape Convention (ELC): protecting, managing and upgrading all territory, 'outstanding' landscapes, as well as 'everyday' and 'degraded' landscapes in natural, agricultural, urban and peri-urban areas.

The Master will be one of the courses of the School of Architecture, Urban Planning and Construction Engineering (AUIC) with the contribution, under a specific didactic and research agreement, of the Environmental Sciences and Politics, and Agricultural and Food Sciences departments of the Università degli Studi di Milano. The two years of study and 120 d. credits course will integrate technical and cultural approaches and will cover a range of subjects, such as design of public space systems, landscape heritage restoration, large rural landscapes and nature management, suburban areas regeneration, hydrogeological risk and landscape degradation recovery, ecology and agroecology, infrastructure systems design and sustainable tourism mobility. The teaching approach consists of core design studio and thematic courses. Practical experience in design studios is the core of every semester of the Master's. The landscape project allows the students to understand landscape phenomena in their continuous evolution, and find the techniques and skills needed from time to time. The course should help students develop critical analysis, mentality research, imagination and technical-practical tools.

The Master Degree Programme aims to train multidisciplinary and polytechnic landscape architects, and provide them with the ability to understand the challenges of contemporary landscapes and territorial changes as well as to connect and integrate with different disciplines such as architecture, urban planning, agronomy and forestry, hydraulic engineering and infrastructure, ecology, social science, history, law, economics and land management.

The paper will describe the Master Course following the seven pairs of terms, and related main reference and cultural backgrounds, which in brief guided the objectives and the issues of the cultural and didactic project:

- Polytechnic Knowledge / Design and Culture. The Master's program involves different cultures of Architecture and Landscape Design, Urban Design and the cognitive and methodological contributions from Environmental Engineering and Agricultural and Agroecological Sciences; it focuses on the critical practice of contemporary Landscape Design for natural and artificial open spaces, built areas and infrastructure. (Secchi 1989, Cosgrove 1998)

- Conservation / Recovery and design: great importance is given to the protection of heritage; great attention is also given to the recovery of degraded assets and the integration of new assets, always reading and respecting heritage as a fundamental resource for the future (Sereni 1997, Turri 2001, Corboz 1983).

- Vision / Management: the Master's program will focus both on the vision and the design of places/ as well as long-term management, planning and care of landscapes. The dialogical and interactive approach, borrowed from contemporary planning is part of the competence of a good Landscape Designer (Friedman 1993, Magnaghi 2010).

- Ecology / history: the program focuses on the environmental and ecological aspects of landscape / while at the same time on the historical, social and cultural dimensions of landscape. (Forman, Ingegnoli, Farina).

- Open Spaces / Built spaces: the landscape project will focus on open spaces, while at the same time it is strictly connected with built areas (historic and recent). The fragility of the Italian cities and territories: The particular fragility of the Italian territory makes it necessary to address the themes of the landscape project in an integrated and holistic way.

- Projects of landscape / landscape for projects: landscape design can be a specific project (parks, gardens, open spaces, rural areas …) or could insert the landscape dimension into other projects such as urban and infrastructural regeneration, agricultural reorganization, territorial planning etc.

- Italy/World: the Master considers Italian territory, its landscape and its many problems such as geomorphological extreme articulation, landslide risks, fragility and quality of historic landscapes, poor quality of new urban landscapes and more as a laboratory for contemporary landscape strategies, while it is receptive to the international dimension and to the challenges that facing the planet.

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The paper aims to describe current developments and adaptations of the Master, with reference both to the profile of international students who began attending the course, and to the objectives of collaboration on strategic lines and cultural actions with the other Italian and International Universities (UNISCAPE).

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Millennials, Centennials ... Who´s next? The need for rethinking the learning environment to offer to students

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Keywords: Active Learning, classgarden, botanic garden, generation, future

The more instructors are able to understand and identify the attitudes, family roles, lifestyle, and cultural diversities of each generation, the more accurately an educational delivery system can be developed (Sandeen, 2008).

The current body of Portuguese college students is composed mostly of Millennials, or Generation Y, the generation born between 1980 and 2000 (although the literature is not consensual with regard to this span) (Pinder-Grover & Groscurth, 2009). This generation grew up in a time of economic prosperity, in a very friendly social environment, and with great care and parental protection. These conditions determined a behavior that is often negatively labeled. Unmotivated, unfocused, egocentric, with a constant need for recognition and obsessed with social networks, are characteristics often associated with this generation. While there may be some truth in some of these attributes, the reality is that they are a too broad generalization of the stereotypes associated with a generation with many qualities as they also are pragmatic, tolerant, technologically sophisticated, multi-tasking able, and collaborative (Eckert & Deal, 2012). The key to successful learning then seems to be in adopting strategies that will make them turn off from themselves. Because they could be very self-centered, their expectations and learning needs change very rapidly, so they need constant encouragement to keep them interested and focused (Kotz, 2016). Simultaneously, their multi-tasking qualities, collaborative aptitude and teamwork fitness are important skills that must be optimized. In view of this knowledge, the Active Learning model, in its most diverse categories, has been recommended in the literature as the most appropriate pedagogic approach to this generation of students.

Active Learning strategies, adopted in the course unit (CU) - Green Spaces Maintenance Techniques, of the bachelor in Landscape Architecture of the Faculty of Sciences of the University of Porto, are here described justifying the reasons for this choice and constraints on its application; evaluation of student satisfaction is also presented. It ends with some thoughts on the future of this CU and the teaching and learning (T&L) challenges of the next generation of students, the Centennials. Yes, they are coming...

Green Spaces Maintenance Techniques (GSMT)- goals, program, teaching and learning strategies
GSMT aims to equip students with technical knowledge regarding the installation and maintenance of urban green spaces (UGS) and runs during one hour of theoretical class and three hours of practical classes. All the classes occur mainly in the Botanical Garden of the University of Porto (BG UP). Theoretical classes combine short lectures with debates, focusing on good and poor practices case study analyses. Knowledge application is mostly ensured by the execution of maintenance tasks in the garden during the practical classes. Although, there are several study visits, seminars, and workshops with guests (Figure 1).

Figure 1.

As mentioned, models based on Active Learning, in which the student is the main driving force of learning and the teacher a facilitator, are pointed out, by extensive literature as more effective (Beard, 2010; Stasio Jr., 2013; Roehling, 2018). The Active Learning strategies adopted in GSMT classes are as follows: 1) Cooperative Learning in that students cooperate and work together in small groups to achieve common goals and 2) Learning by doing, since the knowledge and skills are acquired in a context of training and experimentation. These strategies enable more efficient assimilation of concepts and a more solid development of competences, as experiences endure in those who have performed it (Gibbs, 2013).

In addition to the advantages already mentioned, by actively participating in the conservation of a garden, students emotionally attach to it, feeling rewarded by observing the results of their efforts. Also, as the GSMT attracts many Erasmus students, and students from other knowledge areas, peer teaching sessions are promoted, contributing to students' self-confidence. Several constraints stand out: the unpredictability of climate, the risks associated with the use of maintenance tools (e.g. scissors), and the expected reluctance of managers to accept the execution of tasks by students. A more exhaustive analysis of these aspects can be found in Fernandes (2016).

The impact of Active Learning was evaluated by comparing the results of questionnaires conducted before and after the adoption of this T&L method (2012 onwards) (Figure 2). Students can answer the questionnaires every year, at the end of each semester and the same questionnaire is applied in all courses of the University of Porto. The completion of questionnaires is done online, is anonymous and optional. Not being mandatory, the respondent rate is different every year, as it is also related to the number of students attending GSMT classes. The average respondent rate between 2011 and 2017 was 21%. All analyzed dimensions scored higher after the

application of Active Learning. The result of the student-related question shows that involvement seems to confirm Millennials' preference for more dynamic, informal and interactive learning environments (Stasio Jr., 2013). In 2017, an independent online survey was carried out to investigate, in a more direct and accurate way, the students' perception of this Active Learning approach. Results, for 74% of respondents are shown in Figure 3 that corresponds to a poster presented at the Green Surge Conference, in Malmö, Sweden (Fernandes et al, 2017).

Final remarks and future perspectives

When we prospect the future of Green Spaces Maintenance Techniques curricular unit, it is inevitable to think of the next generation of students and the suitability of this program to their values and mindset. Centennials, also identified as iGeneration or Generation Z, are extraordinarily creative, multi-tasking able (as their predecessors) and globally connected, but are also more impatient and with a significantly lower attention span. With regards to Centennial education, it is said that it 'is less about the transfer of knowledge from teacher to student and more about helping students make sense of the overabundance of information available to them.' (Seemiller & Grace, 2016).

For this new group, the literature has been suggesting the adoption of Blended Learning that focuses on facilitation of personalized activities and especially on individualized attention (Graham et al, 2013). Within this model Flipped Classroom Strategies are especially recommended. The classroom is no longer the main learning space, happening anytime and anywhere (Lang, 2017). To centennials, learning is a continuous, multi-faceted and completely integrated experience. Education is no longer an exclusive responsibility of the teachers but a co-creation of the binomial teaching-student. Assuming these predictions, GSMT seems to be prepared to receive them. We will be attentive.

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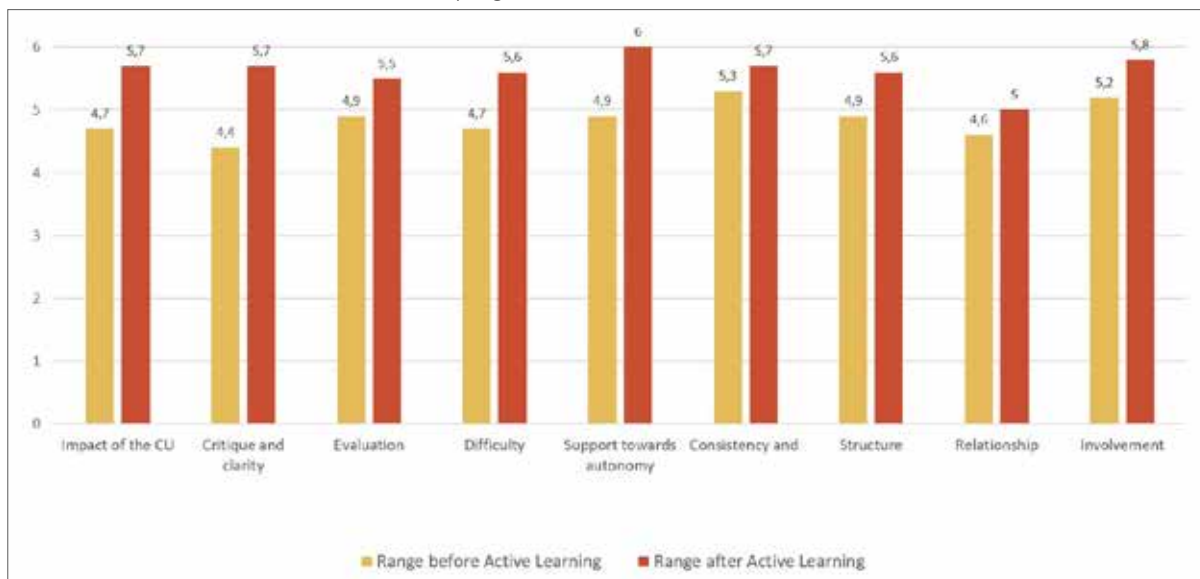

Figure 2.

Figure 3.

Workshop

The power of imagined landscapes—Workshop on the meaning, role and power of unsolicited and unexecuted research and design projects (90 minutes)

Organisers:
Aurelie De Smet
Erasmus University College Brussels
Bruno Notteboom
Catholic University of Leuven, Belgium

Academic design studios often offer platforms for out-of-the-box thinking on current (socio) spatial challenges. Unfortunately, the sometimes very innovative proposals produced in these 'laboratories' or 'free zones', may remain stored in drawers or on bookshelves. Also, when responding to research calls, research teams work out elaborated and well thought-through project proposals, aiming at answering and even formulating questions that can be very relevant to the field. If these proposals are not honoured, the envisaged questions can remain unaddressed. And even if they are carried out, it is not always evident that their results are applied to education and practice.

We ask:

What is the status of the 'alternative realities' that take shape in the imagined landscapes and paper projects created in an academic context? What are their strengths and weaknesses and how can they find their way out of the institution and into the real world?

The aim of this workshop is for the participants to learn from each other's approaches. The workshop will therefore be organised in the form of a group discussion and working session. Attendants are asked to bring a case to the table, in which they took part themselves, and which, in their eyes, is either a 'good practice' or represents a 'problem' in the context of the issue at hand. The participants will be provided with a number of preparatory questions to reflect on, in relation to their case. The participants are not asked to bring any materials or to prepare a presentation.

POSTERS

Using applied active e-learning for bachelor thesis

Frida Andreasson
Swedish University of Agricultural Sciences

Keywords: E-learning, movies, films, canvas

The structure of the bachelor thesis course at the landscape engineering program at SLU is similar to the structures used for distance learning. However, today, we do not use the technical aids and educational ideas available for distance education and applied active e-learning, such as movies or quizzes. With slight changes in the structure of the course and with the use of the available tools we aim to support the students better while working independently.

During 2018 the course structure has been changed and the use of movies and other online material has been developed in the learning management system canvas. Parallel the university library has developed canvas modules for scientific writing using applied active e-learning.

On this poster results and reflections on the use applied active e-learning for bachelor thesis at the landscape engineering program during the academic year 2018/2019 will be presented.

Competition based Bachelor Thesis in Landscape Architecture —Design Plurality for Sustainable City Development

Birgit Kröniger
HfWU Nuertingen Geislingen University, Germany

Keywords: Bachelor thesis, competition, design, plurality, urban mapping

The Bachelor thesis marks the conclusion of the landscape architecture degree at HfWU Nuertingen Geislingen University. It is carried out in the form of a competition which not only uses teaching resources very efficiently but also leads to a wide range of solutions. The graduates choose one of two given topics and work on them independently within three months.

The content focus is on the development of new perspectives on the sustainable development of urban landscapes. In view of limited space resources and competing demands, landscape architecture is not only asked to develop concepts for securing existing public open spaces. Great potential also lies in the discovery of unconventional open spaces.

In this complex field, design as a method is equal with other scientific techniques. It enables the students to develop new conceptual solutions, including scientific methods of analysis and evaluation as well as design-oriented methods such as urban mapping.

Colour studies in practice – Examples from full scale outdoor teaching in landscape programs, Sweden.

Petra Thorpert
Swedish University of Agricultural Sciences

Keywords: Education, perceived colours, pleasurable experiences

Our outdoor environment is constantly changing through seasonal changes, vegetation dynamics, and succession as well as through the addition of colourful features e.g. benches, playgrounds and fitness equipment, where coloured artefacts in urban green settings have the ability to change the overall perceived colour situation as well as generate pleasurable or unpleasant experiences (Motoyama and Hanyu, 2014). Perceived colour qualities such as perceived colour contrasts in the outdoor environment has proven to be a positive parameter in relation to experienced pleasantness (Southon et al. 2018; Oleksiichenko et al. 2018; Arriaza et al. 2004). It puts demands on the landscape programmes to integrate colour knowledge and discussions about outdoor colour qualities in education and planning processes. The methods explained and discussed in this presentation aim to increase the understanding of perceived and experienced colour differences and of colour as part of a conscious design approach.

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Outdoor learning and full-scale studies – A design approach to structure, scale and colour knowledge

Petra Thorpert
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Keywords: Education, workshop, place identity

This presentation aims to demonstrate the variation of different learning situations and approaches used in outdoor education and full-scale studies. The explained methods purpose to generate knowledge and understanding in design teaching with focus on structure, scale and colour approaches. Exercises carried out as outdoor learning and laborative hands-on actions seem to be a good course of achievement towards a deep and sustainable understanding of situated knowledge and place identity development (Prominski, 2008; Berleant 1997; Casey 1996; Tuan 1991; Norberg-Shultz 1980). This is a strong argument for continued implementation of this kind of workshops. The result of the full-scale studies also indicate that anonymous green structures can be related to and find new ways to be developed. Further actions of this kind could increase the experiences of scale and colour as well as the knowledge of spatial qualities and pleasurable experiences related to these qualities.

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The synoptic timeline revisited as a tool to explore complex system: case studies of urban wetlands

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Keywords: Urban landscapes temporalities, system complex, synoptic timeline, collaborative tool, iterative tool

The multi-functional agenda of wetlands is challenged by the dynamics of urbanization of periurban and urban landscapes in many regions (Franchomme & Kergomard, 2006).

This contribution is based on a teaching experience conducted with landscape architecture students and aimed at teaching them to summarize trajectories and identify the factors orienting the re-qualification of urban wetlands.

By strengthening the temporal dimension in interpreting landscapes, it is possible for students already familiar with photographic, spatial and cartographical representations of landscape to highlight various transformation processes. Creating a timeline has the advantage of being a collaborative and iterative approach. This process encourages debate, provides a variety of interpretive frameworks and serves as a support for projects of site redevelopment.

The synoptic timelines produced by the students will show examples of how urban landscape trajectories and their complexity can be transcribed within an interdisciplinary approach and will be put into perspective with other representations of landscapes.

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Green to the streets - the potential of research-integrated education

Katrin Hagen, Beatrix Gasienica-Wawrytko
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Keywords: Living Lab, urban design, green infrastructure, awareness, climate change

Against the background of ongoing urban densification, increasing migration and the effects of climate change, it is the public space that has a huge potential for finding consensual answers to the manyfold ecological, societal and respective economic challenges. Hereby the main focus has to be laid on an interdisciplinary approach including the integration of the citizens themselves. Awareness raising and co-creation (e.g. by means of Urban Living Labs) help to enhance the acceptance of as well as active support for necessary change. Likewise, important is the awareness raising of (future) urban planners at an early stage. The Landscape Department of Vienna UT involves students of architecture and spatial planning in the process of the project LiLa4Green that aims at the implementation of green and blue infrastructure measures framed by a Living Lab. In close exchange with stakeholders and citizens innovative green urban design solutions will be developed, discussed and implemented.

Ecological design in landscape architecture practice to support education – challenges and opportunities

Christine Haaland, Carola Wingren
Swedish University of Agricultural Sciences

Keywords: Biodiversity, ecological design, landscape architecture, recreation, urban green

Ecological design in a landscape architecture context can be understood as design of complex environments in a way that resilience, biodiversity and ecological integrity are maintained or increased (Rottle & Yocom 2011). In a pilot study a number of European landscape projects involving biodiversity, form and design were visited and explored to support pedagogic development of the theme. The studies included parks, buffer zones, storm water management, residential areas and green roofs. From observations we conclude that there are many visible efforts to integrate high biodiversity in contemporary urban landscape design projects, with inspiring examples from Südgelände, Nordbahnhof, and Potsdammer Platz (Berlin), Norra Djurgårdsstaden and Årsta (Stockholm), rain gardens (Sheffield), designed meadows Landbohöjskolen (Copenhagen), and biodiversity and open water solutions in suburban parc in St Denis (Paris), but that there still remain challenges in relation to such things as a green urban infrastructure or specific recreational needs.

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The Concept of Landscape in Secondary Education in Hungary

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Keywords: Bachelor, curriculum, middle school, teaching, base

All bachelor students hold a concept in their head about landscape. This knowledge is based in their secondary education. Is this concept correct? Do they understand the complexity of landscape? What kind of concepts do bachelor students have about landscape? Which subjects' these concepts are based on? Are there more concepts and do they relate to each other?

The study explores what is the concept of landscape that students have in mind before they begin university studies; it also examines the curriculum of each subject and the various relationships between subjects in secondary education.

Contemplating space through drawing: artistic upgrade

Renata Waldgoni, Roberta Pavlovic
University of Zagreb, Croatia

Keywords: Space, drawing, analysis, visual, harmony

Drawing is the method of analyzing urban space through function and form.

The painter interprets, the architect defines.

Freehand drawing is derived from a free choice of the position and the content of the drawing.

Drawing by the ruler, by means of point and line, can be two and/or three-dimensional, it rationalizes what is perceived.

Getting to know the wider space when walking from home to the faculty, note-taking by drawing.

Recording space with historical maps and reducing to the essential with drawing.

Selection of the most interesting in the wider space.

Getting to know the immediate surroundings with free-hand drawings.

Analyses (functional: mobility, surfaces; formal – sizes, proportions) through plans and sections.

Perceived disharmony in space is mitigated/corrected with a drawing.

(based on a bachelor thesis by student Filip Horvat 2017/18 School of Landscape Architecture)

Sowing collegiality to harvest synergies: SLU Landscape Teaching Synergy Forum

Åsa Bensch, Marina Queiroz
Swedish University of Agricultural Sciences

Keywords: Teaching materials, teacher development, collaboration in education

Knowledge sharing between teachers is crucial to building a cooperative, societally relevant, interdisciplinary landscape education environment. The SLU Landscape Teaching Synergy Forum is a 'real time experiment' allowing landscape educators to learn how to best share pedagogical know-how, in the service of developing a stronger educational environment.The Forum fosters quality landscape education by harnessing the collective capacity and knowledge of the SLU Landscape teaching community. Educators working in the Landscape field at SLU are spread over three separate departments and two campuses. The Forum allows us to meet and discuss methods, exchange ideas and materials, and explore collaboration opportunities.

Learning from Venice. A film of spatial, ambient impressions from a 1-year Swedish landscape architecture student group trip, crossing the Alpes, visiting the 16th International Architecture Exhibition in Venice

Mads Farsø
Swedish University of Agricultural Sciences (Alnarp)

Keywords: Landscape film, 16th Architecture Exhibition, Venice, landscape architecture, student group trip

Recently the bachelor programme in Landscape Architecture at the Swedish Agricultural University in Alnarp has been remodelled to create greater transdisciplinary understandings. One new costly element in the first year's 'project studio' is an international study trip for more than 50 students. In 2018 the students visited the 16th International Architecture Exhibition 'Freespace' in Venice as well as a few iconic historic gardens on the road. The tour went over the Alpes by bus to (re)introduce the European landscape or its spatial morphology and landscape characters as experienced from the ground.

This short film collects and presents the educational, ambient impressions made on site.

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Cristina Castel-Branco is a Landscape Architect and Professor at the School of Agriculture (ISA), University of Lisbon (ULisboa). She holds a Master in Landscape Architecture from Massachusetts University and a Researcher post at the Centre for Applied Ecology of Prof. "Baeta Neves" (CEABN), InBio, School of Agriculture (ISA), University of Lisbon (ULisboa) and is the founder of Association of Friends of the Botanic Garden of Ajuda and of the Historic Gardens of Portugal Association. She is a voting member of ICOMOS/IFLA International Scientific Committee on Cultural Landscapes. Since 2013 Castel-Branco has been President of the Scientific Board of Institut Européen des Jardins et Paysages. URL: http://europeangardens.eu/institut/le-conseil-scientifique/

Benedetta Castiglioni is Associate Professor in Geography, at the University of Padova, Italy. Her main research topic is landscape, with special attention to the relationship between people and landscape, the social questions concerned and the possibility of using landscape as an 'intermediary' and a 'tool'. Among others, her research concerns educational values of landscape, awareness raising processes and popularization. She coordinates and/or supervises several projects on landscape education, at different levels. She is member of the Scientific Committee of the Regional Landscape Observatory, Veneto, Italy. As expert of the Council of Europe, she prepared the report "Education on landscape for children".

Melissa Cate Christ is a registered landscape architect (Canada) and the founding director of transverse studio. Melissa has taught at Hong Kong Polytechnic University, the University of Hong Kong and the University of Toronto. She has also worked in practice at Gustafson Guthrie Nichol Ltd. and DuToit, Allsopp, Hillier. Melissa has a Master of Landscape Architecture from the University of Toronto and a Bachelor of Liberal Arts from St. John's College.

Elisa Cristiana Cattaneo researches experimental ecological design and its theoretical implications, to generate new territories of imagination. In particular, she considers design as a "weak" field evolvable and renewable through new transdisciplinary approaches, based on paradoxes such as cognitive methods. (Weakcity, 2015; On, 2012-2017). She has been educated at Politecnico di Milano, MIT and Harvard, and is currently teaching 'Landscape Design' at the Politecnico di Torino.

Anaïs Chanon is a Teaching Fellow at the Edinburgh School of Architecture and Landscape Architecture (ESALA). After studying at both the Ecole Nationale Supérieure de Paysage Versailles and ESALA, Anaïs worked on many community-led design projects in Scotland, ranging from master planning to the crafting of site interventions. Researching through making is at the heart of her practice. In 2016 she co-founded GRAFT, a creative and critical platform used to inform and interrogate contemporary landscape architecture practice through the exchange of ideas, debate and experimentation. GRAFT's work combines elements of art and ecology into holistic and multi-layered landscape proposals and research projects.

Agnieszka Cieśla, PhD, architect and urban planner, is a lecturer at the Department for Spatial Management and Environmental Sciences, Faculty of Geodesy and Cartography Warsaw University of Technology. She specialises in issues related to demographic ageing and its spatial consequences (doctoral thesis at the Bauhaus University Weimar). She is a social-activist, founder of the "Despite the age" foundation, author and creator of the first showroom apartment for the older people in Poland (www.mimowieku.pl); her research topics also relate to planning history and participation.

Margherita Cisani is a post-doc research fellow in Geography at the University of Padova, Italy. Her PhD research was dedicated to the exploration, using mobile methods, of the theoretical and empirical inter-relations between everyday landscapes and practices of mobility, namely walking groups in a peri-urban context. Currently, her research, conducted using a national survey as well as research-action activities and international comparisons, focuses on landscape as an object and a tool in educational contexts, with emphasis on its political dimensions and on the role of outdoor education and mobility in landscape perception, literacy and awareness.

Daniel Coombes works for Birmingham City University (BCU) as the Programme Leader of Landscape Architecture at Birmingham Institute of Fashion and Creative Art (BIFCA) based in Wuhan, China. Previously he was a Visiting Lecturer at Sunkyunkwan University in Korea. Daniel's Master's project investigated contemporary landscape theory through a series of experimental installations. He has presented his research at several conferences and across a number of disciplines, including ethnography, social science, philosophy, architecture and landscape architecture. He has forthcoming chapters in two writing projects, relating to fieldwork in landscape architecture and notions of creativity for first year Chinese landscape architecture students.

Viola Corbari is a landscape architect. She has worked as project coordinator for design studios on landscape projects such as Expo Milan 2015 and Parco della Pace Vicenza. In 2017 she taught 'Executive project in landscape design' for the post-graduate specialization course Progettazione del Paesaggio, CURSA, Rome. In 2018 she won a landscape scholarship of Fondazione Benetton Studi Ricerche, for research on landscape education in Europe, developed in collaboration with UNISCAPE. She is currently a PhD landscape architecture student at Sapienza University, Rome. Viola earned a Master with honors from Politecnico di Milano, with a thesis on landscape photography and landscape representation.

Linda Corkery is a Professor in the Faculty of Built Environment, UNSW Sydney and acting Discipline Director of Landscape Architecture. Linda teaches across all four years of the Bachelor of Landscape Architecture programme, and in the new Master of Landscape Architecture. She convenes interdisciplinary, service-learning electives, and supervises post-graduate students. Linda's educational qualifications include a BSc from Iowa State University, and an MLA and MRP from Cornell University. She is a Registered Landscape Architect, Fellow of the Australian Institute of Landscape Architects (AILA), and immediate past National President of the AILA.

Luca Csepely-Knorr is Senior Lecturer at the Manchester School of Architecture. Her main interest is to map the design decisions, disciplinary and interdisciplinary dialogues in architecture, landscape architecture and urban design theory. As a result, her work focuses intently on the knowledge transfer of theories and design ideas spread through borders and continents. She is fascinated by the inseparable links between social, historical, political movements and design theory, and the evolution of these ideas through decades and even centuries. Dr Csepely-Knorr is co-leader of an international research project that investigates the Architecture and Landscape of Post-War Infrastructure.

Torben Dam is a landscape architect and Associate Professor. Dam is head of studies and part of the Landscape Architecture and Urbanism Research Group at the University of Copenhagen. He researches and teaches in the fields of landscape architecture, nature and technology and is particularly interested in the intersection between landscape architecture, natural science and cultural history - an interdisciplinary approach that provides him with deep insight into landscape architecture. Dam's research areas and professional activities have included urban nature, design with dynamic plantings, growing conditions, climate adaptation and stormwater management.

Aurelie De Smet is an architect and spatial planner. Before joining the Department of Landscape Architecture of the Erasmus University College Brussels (EhB) in 2014, she worked as an independent architect and as a researcher at the KU Leuven Faculty of Architecture in Belgium, where she is still employed today. At EhB, Aurelie leads the Centre of Expertise tuin+, focusing on the exploration the 'gardenscape', the accumulation of semi-public, semi-private and private open and green spaces, on a theoretical, spatial and operational level. Aurelie also has an in-depth expertise on 'temporary use', 'bottom-up urbanism' and 'tactical urban planning'.

Sven De Visscher is a lecturer in social work at University College Ghent in Belgium. He is part of the urban education team in the department of social work that develops research and teaching projects about education and social work in urbanising contexts. Sven holds a PhD degree in Educational Sciences (Ghent Uni) since 2008, based on a study of the social pedagogical meaning of the neighbourhood for children. His main research topics include child friendly cities, childhood studies, urban public space, community development and urban regeneration.

M. Elen Deming is Professor of Landscape Architecture at North Carolina State University, where she directs the Doctor of Design programme--an interdisciplinary distance-education model that facilitates new kinds of partnerships between designers working on shared problems in academic, professional, and hybrid practices. She has taught design studios, design research for professional and post-professional students, and design history and theory topics for the past 25 years. Deming is former editor of *Landscape Journal* (2002-2009). She co-authored *Landscape Architecture Research* (with Simon Swaffield, 2011), edited *Values in Landscape Architecture and Environmental Design* (LSU Press 2015) and *Landscape Observatory: The Work of Terence Harkness* (ORO/AR+D 2017).

Arlind Dervishaj lectures at the Politecnico di Torino and at Polytechnic University of Tirana. He graduated from Politecnico di Torino in "Architecture, Construction, City" and attended Alta Scuola Politecnica conducting research on the development of new strategies that can make hospitals more sustainable, developing a multi-criteria methodology for measuring sustainability. The work was published by Springer. Dervishaj has worked as an architect in Italy and Albania. He was a speaker at the EC Conference in Brussels on "The Future of Education" and on "Climate Change and Resilience" in Spain.

Lisa Babette Diedrich studied architecture and urbanism in Paris, Marseille and Stuttgart, science journalism in Berlin, and landscape architecture at the University of Copenhagen, where she received her doctoral degree. Since 2005 she has been working as editor-in-chief of the book series *Landscape Architecture Europe* (Fieldwork/ On Site/ In Touch/ On The Move/ Care Create Act) and as co-editor-in-chief of *'scape - the international magazine for landscape architecture and urbanism*. Since 2012 she has been a professor of landscape architecture at the Swedish University of Agricultural Sciences in Alnarp/ Malmö where she currently directs the research platform SLU Urban Futures.

Annegreth Dietze-Schirdewahn is Professor in History of Garden Art at the Institute of Landscape Architecture, Norwegian University of Life Sciences Ås. She heads the Historical Archive of Norwegian Landscape Architecture. Her current research interests include methods to document and manage historic gardens; social, political and economic aspects of garden art; and the role of landscape architecture in commemoration sites.

Gareth Doherty's research and teaching focus on the intersections between landscape architecture, urbanism, and anthropology. His newest book, *Paradoxes of Green: Landscapes of a City-State*, was published in 2017 by the University of California Press. Previous publications include *Is Landscape...? Essays on the Identity of Landscape*, edited with Charles Waldheim (Routledge, 2016); and *Ecological Urbanism*, edited with Mohsen Mostafavi, (Lars Müller Publishers, 2010, and revised in 2016), which has been translated into Chinese, Spanish, and Portuguese, with Arabic and Persian editions in process. Doherty is a founding editor of the *New Geographies* journal and editor-in-chief of *New Geographies 3: Urbanisms of Color*.

Judit Doma-Tarcsányi is a landscape architect and has been senior lecturer at the Department of Garden and Open Space Design, Faculty of Landscape Architecture and Urbanism, SZIE in Hungary since 2016. Doma-Tarcsányi founded Gardenworks landscape architecture studio in 2003, where she is a leader landscape architect, with a fully comprehensive (K) license since 2009. Currently she teaches plant knowledge and plant application, as well as planting design with Krisztina Szabó who is an assistant professor of dendrology.

Beata Dreksler holds a PhD in landscape architecture from Warsaw University of Life Sciences – SGGW in Poland. She has more than 20 years of experience as a landscape architect in Poland, Central America, and the Middle East. She worked on various projects: landscape planning and management, urban parks and residential development. In 2017, she won the First Prize for The Best Public Space in Poland in the competition organized by Society of Polish Town Planners and Association of Polish Cities. Her research focuses on urban revitalization and recycling of abandoned landscapes with notions of ecosystem services in both rural and urban contexts.

Clemens Driessen is a philosopher and cultural geographer working at Wageningen University, the Netherlands. He explores philosophical questions around nature and human-animal relations. He is one of the coaches of a transdisciplinary planning and design studio at Master level.

Tao DuFour is Assistant Professor at the Department of Architecture, Cornell University. He obtained his PhD in architecture from the University of Cambridge. His work explores overlaps between architecture, philosophy, and anthropology. His interests are in the phenomenology of perception and corporeity, phenomenological accounts of the experience of spatiality and the 'natural' world, and their significance for the investigation of landscape and environmental experience. DuFour's wider research interests explore the question of architecture's embeddedness in environmental histories. He is the author of *Husserl and Spatiality: Toward a Phenomenological Ethnography of Space* (Routledge forthcoming 2020).

Ram Eisenberg is professional assistant professor of landscape architecture at the Technion, Israel Institute of Technology. Ram is the Landscape Architecture programme technical courses coordinator. He has a passion for teaching topography, various Landscape architecture studios and focusing. In his practice, Ram's award-winning projects have gained significant acclaim in Israel. In 2018 he received the EDRA Place Design Award for "Kiryat-Sefer Park" in Tel Aviv. Ram has taken part in various social initiatives such as the "Elul" pluralistic Bet Midrash, The Middle East Design Forum, and the UN millennium task force "Global Studio". He is also a summa cum laude laureate for his Technion LA master's thesis "The Nature of the Goodness Experience in Nature".

Anna Eplényi PhD, Landscape Architect (MSc,) and Art Teacher (BA). Since 2008, she is senior lecturer at the Dept. of Garden Art and Garden Techniques at Szent István University, Hungary. She teaches and leads the 'Creative Art Workshop for Children' Foundation. Eplényi was awarded the 'Teacher of the Year' and 'Outstanding Colleague' titles at the Faculty, and the 'Primavera- Talented Art teacher Prize'. She teaches freehand drawing, sketching, garden history and other art related modules, such as 20th century sculpturing and contemporary ground modelling (being a scholar of the Hungarian Academy of Arts in this field). She is the author of 5 creative art teaching and garden history activity booklets.

Monika Fabian is instructor of horticulture at the Faculty of Agricultural and Food Sciences at the American University of Beirut. She holds a Master of Science in Horticulture from the Corvinus University, Hungary. She teaches courses in Landscape Horticulture, Plant Material, and Landscape Botany and co-teaches soils and studio. Fabian is working to promote the use of low input green wall and green roof technologies for greening and gardening in densely populated and marginalized communities and investigating vermicomposting as a friendly organic waste management strategy. She is also an active member of the university wide committee to transform AUB into an Arboretum.

Luca Maria Francesco Fabris, journalist and architect, obtained a PhD in Architectural and Environmental Technology, a Master in Urban Planning and Environment, and is an associate professor of Architectural Technology at the Politecnico di Milano, where he teaches at the AUIC School's MS in Landscape Architecture. As a visiting professor at European, American and Asian Universities, he focuses on research related to the contemporary built environment, sustainability and landscape.

Paulo Farinha-Marques is a landscape architect and an associate professor of Landscape Architecture at the Faculty of Sciences of the University of Porto – Portugal. He graduated from the Technical University of Lisbon – High Institute of Agronomy (1988) and obtained a PhD from the Faculty of Architectural Studies at the University of Sheffield – UK (1999). Since 1996 he has combined university teaching, urban biodiversity research and landscape design practice across scales. His main areas of interest are the planning, design and management of publicly accessible green spaces, articulation with climate, water, and biodiversity. Farinha-Marques has published on urban biodiversity and landscape design and instructed landscape design execution projects. He believes in freedom, knowledge, equity and beauty.

Mads Farsø is Assistant Senior Lecturer at the Swedish Agricultural University Alnarp (SLU) in Landscape Architecture and Representation and is educated Landscape Architect PhD and MSc BSc in Geography from the University of Copenhagen. Mads researches how an alternative, ambient aesthetic language of landscape can be developed, assisted by the film media. In 2008 he founded his landscape architectural practice Farsø Have, which specializes in garden designs. In 2013 Mads co-founded the Copenhagen Architecture Festival (CAFx), which has become the world's second most visited festival of its kind, with a special focus on architectural films.

Sara Favargiotti, architect, PhD, Assistant Professor of Landscape Architecture at the University of Trento- DICAM and Research Affiliate at the Office for Urbanization, GSD Harvard University. Sara specializes in landscape urbanism with a specific focus on emerging infrastructure and their influence on cities, landscapes, and territories. Her research and teaching focus on contemporary landscapes with a design approach based on transformation, adaptation, and anticipation. She is author of the book *Airports On-hold. Towards Resilient Infrastructures* (LISt Lab, 2016), and co-author with Charles Waldheim of the book *Airfield Manual: A Field Guide to the Transformation of Abandoned Airports* (GSD Harvard, 2017).

Ľubica Feriancová is full Professor of Landscape Architecture and guarantor of the field of study of Landscape and Garden Architecture in Slovakia. She studied Landscape Architecture at the Faculty of Horticulture in Lednice (Mendel University in Brno, the Czech Republic) and received her PhD in Ecology at the Technical University in Zvolen, Slovakia. Dr Feriancová worked as practicing Landscape Architect for 15 years in Banská Bystrica, mainly for Stavoprojekt- Urban Design Studio. Since 1994 she has been working as a university teacher of Landscape Architecture, first at the Technical University in Zvolen, Slovakia, and since 2002 at the Slovak University of Agriculture in Nitra.

Cláudia Fernandes first graduated in Agricultural Engineering but her wonderment for the landscapes of Mozambique where she was born and raised (Douro Valley) pushed her into Landscape Architecture. Hence after completing her PhD in Environmental Sciences she studied Landscape Architecture at the University of Porto where she is an assistant professor of planting design and urban green spaces maintenance and management. Cláudia´s research interests are diverse and include the assessment, planning, design, and management of a wide-ranging of habitats and ecosystems especially in urban environments concerning resilience and adaptation to global changes and future challenges. She believes that urban green spaces will play a decisive role in this process.

Ellen Fetzer holds a diploma and a doctoral degree in landscape planning from Kassel University, Germany. Since 2001 she has been working at the school for landscape architecture, environmental and urban planning in Nürtigen (Stuttgart area, Germany). She is primarily coordinating an international master's degree in landscape architecture (IMLA). The second focus of her work is in the Centre for University Didactics as an e-learning coordinator. Ellen works a lot in the field of computer-supported collaborative learning and facilitates online seminars in international co-operations. She is president of ECLAS, the European Council of Landscape Architecture Schools.

Wolfgang Fischer is a Professor at the Faculty of Agriculture Environment Chemistry in Dresden University of Applied Sciences, Germany. His field of specialty covers landscape structures and vegetation techniques. He received his diploma from the Department of Landscape Architecture and Urban Planning at Technical University Dresden. He has been practicing as a freelancer since 1990 and lecturing at HTW Dresden since 1995.

Ian Fisher has been teaching for over twenty years and at various points was Programme Leader for Landscape Architecture, Undergraduate Course Leader, Programme Leader for the MA and Erasmus coordinator. Due to the often ambiguous nature of teaching and research in the UK, Ian has focused on his role as a teacher to deliver the highest level of student experience. He has contributed several papers to academic conferences, worked with European colleagues to aid student learning through projects in Portugal, Norway and Germany and run a small practice, which has supported his studio teaching.

Marius Fiskevold, Cand. Agric. in landscape architecture from the Agricultural University of Norway (now NMBU) 1998. He worked as a landscape designer and planner for a number of consulting companies for ten years before starting his PhD- study. His work draws heavily on his long experience with, and passion for, landscape photography. Marius is currently employed as a landscape architect at Sweco Norge AS and as an assistant professor at the School of Landscape Architecture at NMBU. In both positions, his work concentrates on landscape analysis methodology. He recently co-authored the book *Arcadia updated* with Anne Katrine Geelmuyden.

Karen Foley's early research work focused on the vernacular Irish landscape, examining landscape preference, drivers of landscape change and exploring scenario-based tools to engage with a range of stakeholders. More recent research has centred on urban open space, and the identification of tools and techniques to develop robust multifunctional landscape typologies in cities that satisfy social and environmental needs. Her most recent research award (Interreg) looks at the co-creation of design solution and explores building community resilience, facilitating marine and climate citizenship by (re)connecting coastal communities with their place, their dynamic coastal systems and our changing climate.

Pieter Foré has been a researcher and lecturer in Landscape Architecture at the faculty of the School of Arts, University College Ghent since 2009. His research topics include climate adaptation, research by design, planting design and children and youth in urban planning and landscape design. As professional designer Pieter works at the landscape architectural firm FOREST. The portfolio of FOREST consists of a range of large-scale projects such as the agricultural park Spoele te Lokeren and urban policy plan city centre of Roeselare, Belgium, along with smaller scale projects such as housing developments, schools and private garden projects.

Bjørn Anders Fredriksen has a PhD from the Norwegian university of Life Sciences (NMBU) in the field of garden- and landscape history. His research focus has primary been on the history of landscape gardens in Norway and on caretaking of historic gardens, parks and landscapes. Since 2014 Fredriksen has been garden director for the University Park at NMBU, leading comprehensive reconstruction works in the historic park, as well as developments and modern additions relevant in the education of landscape architecture students.

Pia Fricker holds the Professorship for Computational Methodology in Landscape Architecture and Urbanism at Aalto University, linking between the area of large-scale landscape architecture design and urban design. Prior to her current position, she was Director of Postgraduate Studies in Landscape Architecture at the Federal Institute of Technology, ETH Zurich, Chair of Landscape Architecture, Prof. Girot. Her research and teaching focuses on the experimental integration of emerging computational methodologies for dynamic landscapes. She is a member of the editorial board of the *JoDLA*, as well as expert peer reviewer for several journals, like the *International Journal of Architectural Computing*, *Landscape and Urban Planning Journal* and the *Journal of Architecture and Urbanism*.

Fan Fu is a full professor of Landscape Architecture at the School of Architecture and Urban Design at the Beijing University of Civil Engineering and Architecture, where he conducts research on Landscape Architecture and Environmental Design applied to Chinese megapolises.

Christine Fuhrmann is a landscape architect, garden and landscape conservator and architectural historian. Her doctoral thesis (2016) is from Martin-Luther-University Halle-Wittenberg, Germany, and is about landscape architecture at the Bauhaus with a focus on Walter Gropius´ competition entry Hanging Gardens 1927. Since 2008, Christine has been Researcher and Teaching Associate at the department of landscape architecture, the BTU Cottbus--Senftenberg, Germany teaching design projects, seminars and courses in architecture and city-and regional planning. Her focus is on design of postcoal landscapes, modern landscape architecture, landscape urbanism and nature-based solutions in city and landscape planning. Since 2018 she has been developing and organising the Welzow Winter School for postcoal mining landscapes.

Hansjörg Gadient, Prof. Dipl. Arch. ETH, is the Director of the Archives of Swiss Landscape Architecture since 2015 and was appointed as a Professor at the University of Applied Siences in Rapperswil in 2011. He teaches the design and planning of urban open space in the bachelor's and master's study programmes. He worked as a landscape architect, is a member of several Swiss cultural societies and publishes regularly articles in different journals.

Juanjo Galan is an Associate Professor of Landscape Architecture at the Department of Architecture, Aalto University and Chair of the Landscape Observatory of Finland. His research focuses on landscape planning, landscape design, sustainable development, regional and urban planning and, on a more general level, on the intersections between social and ecological systems. After finishing his master studies in Landscape Architecture at the Heriot-Watt University of Edinburgh, he received his PhD in Landscape Planning in 2011 from the Department of Urban Planning at the Polytechnic University of Valencia, where he founded and coordinated its Master in Landscape and Garden Design.

Chi Gao is the Professor and doctoral supervisor in Landscape Architecture at Huazhong Agricultural University and the vice President of Chinese Landscape Architecture Society. His main research directions include sustainable landscape architecture planning and theory, plantscape planning and design, landscape architecture education. He has completed more than 30 landscape architecture projects and presided over 10 research projects and published more than 80 academic papers.

Tongxi Gao is a PhD student in Landscape Architecture at Huazhong Agricultural University. Her research interests include Landscape Character Assessment in cities for inheriting the cultural identity in Wuhan, and city perception based on big data. Her publications includes Tongxi G. et al. The Research on Identifying the Values and Proposing the Protection Strategies of Panlong City Site [A]. Proceedings of the 2016 CSLA [C]. CSLA, 2016: 5. Her awards include Honourable Mention, 7th LE:NOTRE Landscape Forum Student Project Competition, March 2018 and Honourable Mention, UN-Habitat 2018 International Urban Design Student Competition.

Clara García-Mayor is a lecturer and researcher in the Urban Design and Regional Planning Unit at the University of Alicante, Spain, since 2004. Her research covers various topics including landscape perception for territorial and urban space analysis. Her main research field is landscapes of the Spanish Mediterranean Arc. Dr García-Mayor has also participated in various researchi projects related to urban and territorial perception in collaboration with the MappingAME Research Laboratory of the University of Alicante.

Beatrix Gasienica-Wawrytko studied Landscape Planning and Landscape Architecture at the University of Natural Resources and Life Sciences, Vienna. She worked for eight years in a landscape planning office, where she obtained important planning skills. She has been employed at the Department of Landscape Architecture since 2012 and is currently writing her dissertation on the identification and characterization of urban cultural landscapes. Her main research fields are urban climate, urban morphology and typology, open spaces, sustainable urban planning, landscape and spatial planning.

Davorin Gazvoda, Professor, has been teaching landscape design studios at the Biotechnical Faculty, University of Ljubljana into bachelor and master study programmes since 1989. His international experience includes teaching landscape design studios at universities in Turkey, China, Serbia, Croatia, Russia, and USA often through short and intensive landscape design charrettes. In the field of landscape design he accomplished dozens of landscape and urban design projects and competitions, most of them awarded. His research work includes published articles, papers at international conferences and research reports. In the last twelve years he was a vice dean for landscape architecture, the dean of Biotechnical Faculty and is currently serving as a vice-dean of academic affairs.

Anne Katrine Geelmuyden, Cand. Agric. (1982) in landscape architecture from the Agricultural University of Norway (now NMBU). She holds a Doctor scientiarum degree from the same university (1989) with a study which was an early example of the "social constructivist" approach in landscape studies, at least within landscape architecture. She now works as a professor and heads the study programme board at the School of Landscape Architecture at NMBU. Her research emphasis lies on the conceptualisation of landscape, landscape aesthetics and landscape criticism. Recently co-authored the book *Arcadia Updated* with Marius Fiskevold.

Pol Ghekiere studied Landscape Architecture and Urban Planning. He worked as a full-time lecturer at Hoger Rijksinstituut voor Tuinbouw, Horteco, in Vilvoorde, Belgium between 1976 and 1984 and at Hoger Rijksinstituut voor Tuinbouw in Melle between 1984 and 1992. He was both coordinator and lecturer at Erasmushogeschool Brussels (Erasmus University College Brussles) in Vilvoorde and Jette, between 1992 and 2012. He worked as a senior lecturer between 2005 and 2012 and retired in 2012. He was a member of Education Committee at the International Federation of Landscape Architects (IFLA) European Region between 2007 and 2014. Being both an urbanist and a landscape architect, Pol Ghekiere contributed to landscape architecture education for 40 years.

Mojca Golobič is professor and Head of the Department for Landscape Architecture at University of Ljubljana, Biotechnical Faculty, in Slovenia. She teaches courses in Landscape evaluation, theory and methods of spatial planning, Landscape planning - studio and environmental planning. Her research interests are mainly in methods of landscape planning, national-level planning and policy evaluation. She leads the research group "Landscape as living environment" and projects funded by EU and national research programmes.

Steven Goossens graduated in 1999 with a degree in Landscape Architecture. Since 2001 he has been part of the teaching staff of the department of Landscape Architecture at Erasmus University College Brussels, Belgium, where he has since 2012 been Course Director of the three- year bachelor programme in Landscape Architecture. Steven's areas of expertise are botany and design with a specialization in urban design. He co-founded Kubiekeruimte vzw in 2005, a Belgian association creating a platform and a network for landscape architects and others who are involved in shaping the public realm; and actively involved with the research centre "tuin+" or "garden+" formally known Green+City.

Sevgi Gormus is Assoc. Prof. Dr. in Department of Landscape Architecture at Inonu University, Turkey.

Maria Goula is Associate Professor at the Landscape Architecture Department, CALS, Cornell University, and adjunct researcher at the Institute for Research Habitat, Territory and Tourism", ihtt, UPC/UMa, Spain, developing research on coastal tourism, especially in regard to the interpretation of leisure patterns and coastal dynamics. Maria has also been Foundation Member of the International Landscape Architecture Biennial in Barcelona since 2000. She leads the design team that is one of the finalists for the international competition "Reimagining the New York Canals", 2018.

Guido Granello is a first-year PhD student in Architecture at Universidad de Alcalá de Henares (Madrid) with International Mention in collaboration with Politecnico di Milano. His main research interest centers on how people participate in the transformation of peri-urban areas and propose common development of the land. For his PhD Thesis, he is working under the supervision of Pilar Chías Navarro (UAH) and Luca Maria Francesco Fabris (DASTU – Politecnico di Milano) to understand how promoting environmental design, from a cultural and pedagogic view to citizens and administration can contribute to create new tools for peri-urban development.

Marius Grønning, architect (ENSAPB Paris 2004), PhD in Urbanism (IUAV Venezia 2010), and Associate Professor in urban and regional planning at the Norwegian University of Life Sciences (NMBU). As a practicing architect and consultant, he has co-authored several plans and directives for public spaces and site-based art. His research spans over topics such as place-making and land-use planning, institutional planning systems, and spatial ideas in urbanisation processes. Grønning has led the NMBU study programme board for Urban and Regional planning, as well as associations such as the Norwegian Housing and Planning Association (Norsk BOBY) and the Norwegian Association for Planning Education (FUS).

Andrea Guaran is an associate professor of geography at the University of Udine, Italy. Over the years he has conducted various research activities in the geographical area, focusing on: a) the geography of water resources, mainly on the study of the relationship between tourism development and water resource management; b) territory, landscape and identity aspects, taking part in the working group that supported the Region in the elaboration of the Friuli Venezia Giulia Regional Landscape Plan and participating in the national working group of geographers working on 'Territorial Identities', with a specific attention to participatory processes.

Christine Haaland is a researcher at the Department for Landscape Architecture, Planning and Management at SLU Alnarp, Sweden. She is an ecologist and has been teaching landscape architects in ecology for more than 10 years. Her research interests are amongst others urban biodiversity and multifunctional green spaces.

Katrin Hagen studied Landscape Architecture at the TU Hannover. After 8 years of planning praxis in the fields of landscape architecture and historic garden conversation she entered an academic career at the TU Vienna in 2006. With her PhD *Enclosed open spaces. New approaches to microclimate in urban landscape architecture* in 2011 she established the research focus on climate change adaptation at the Department of Landscape Architecture. Linked research fields are sustainable urban planning, green infrastructure and lessons from historic design principles.

Magdalena Haggärde is an architect and partner of 70°N arkitektur, Tromsø. With an educational background in Sweden and Paris, her engagements span from exhibitions and housing to urban and regional planning, with an experimental, participatory and research-based approach - the latest years with a special focus on the Arctic. In this, work methods, investigations and proposals centred on notions of openness and planning for an unknown future, encompassing issues of multiplicity and indeterminacy – themes further developed through teaching, both in Norway and abroad, and articles presented at conferences and in publications internationally.

Richard Hare is a Landscape Architect and Senior Lecturer at the Division of Landscape Architecture and Planning, University of Copenhagen (UCPH). With post graduate qualifications in Landscape Architecture and Art and Design from Leeds Beckett University, Richard has worked in consultancy with historic parks in both the UK and in Denmark. Since 2006 Richard has been Director of Studies in Landscape Architecture through various periods of restructuring and, while no longer in that role, Richard has consistently been active in developing the bachelor studies curriculum at UCPH and has taught first year students since 2000. Richard has various teaching roles at UCPH throughout the Bachelor and Master's programmes.

Ranja Hautamäki is Associate Professor in landscape architecture, at the department of architecture, Aalto University, Finland. Her field is landscape planning and society and her teaching and research address open space and green planning and management, in addition to historical landscapes. She is in charge of Landscape Architecture Major in the Bachelor's Degree Programme. Dr Hautamäki has a 13-year professional background as the head of the green planning unit at the City of Tampere, Finland.

Stefanie Hennecke, professor for open space planning at University of Kassel, Germany, department of architecture, urban and landscape planning. Dr Hennecke studied landscape architecture and holds a PhD from the University of the Arts Berlin, where she had been assistant of research and teaching at the department of garden culture and open space development. After coordinating the Graduate School of Arts and Sciences at the University of the Arts in Berlin she was junior professor for history and theory of landscape architecture at the Technical University of Munich. Her research topics are the history of urban green spaces in the 19th and 20th century and contemporary initiatives of autonomous adaption of public spaces like urban gardening.

Lars Hopstock is Junior Professor of Landscape Architecture at the Technical University of Kaiserslautern. He was previously, in 2018, a post-doc associate at the Brandenburgische Technische Universität Cottbus-Senftenberg. Lars completed his PhD on Hermann Mattern (1902–1971) in 2015 at the University of Sheffield. He graduated in Landscape Architecture from the Technische Universität Berlin in 2003 with a thesis on ornament theory. He has worked with landscape architects in Berlin, Lisbon and Sheffield and taught for several years as an assistant professor (2010–2012, Technische Universität Berlin; 2015–2018, Technische Universität München). His research interests focus on the historiography of the profession and the relationships between Modernism, naturalism and aesthetics.

Ines Hrdalo is a landscape architect specialising in sustainable urbanism and landscape design. She teaches landscape design courses within the School of landscape architecture programme, University of agriculture in Zagreb. She is very passionate in a field of landscape architecture design and besides her work with students she submitted many architectural competitions of which ten have been awarded. Ines combines creativity with innovation and is active in public participation processes via her voluntary work at children workshops through urbanistic associations. At the same time, she respects debate and discussion on landscape themes, so she gained experience within round table discussions on the urban specific topics in organisation of diverse associations and town municipalities.

Maria Ignatieva was born in St Petersburg, Russia. She graduated from the Landscape Architecture Programme at St Petersburg State Forest Technical University, the oldest landscape architecture programme in Russia (started in 1933) and received her PhD in botany and urban ecology from Moscow State University. In Russia (FTU), then in the USA (SUNY ESF, USA), New Zealand (Lincoln University), Sweden (SLU, Uppsala) and now in Australia (UWA), Maria has worked with urban ecosystems and ecological design in biophilic cities. Her latest FORMAS Swedish Research Council project in Sweden was dedicated to the lawn as a cultural and ecological phenomenon. Other important research and teaching interests are history of landscape architecture and restoration and conservation of historical parks and gardens.

Carsten Johansen is a trained architect, educated from the Royal Danish Academy of Fine Art, School of Architecture. Carsten has been involved with teaching of architecture and landscape architecture for more than 10 years. At the Division of Landscape Architecture and Planning University of Copenhagen, he is responsible for managing and developing the model lab. Carsten has a fundamental role in teaching and developing modules where the model lab plays an important role and generally supports students with project work related to model building. Next to his part-time involvement at the university, Carsten works as an independent architect and designer.

Andrea Kahn is founder of designCONTENT, a consultancy offering strategic process, collaboration and communication support for complex design and planning projects. Since 2015, she has been Adjunct Professor of Site Thinking Research and Practice at the Swedish University of Agricultural Sciences (SLU) in Alnarp/ Malmö, where she also facilitates the SLU Landscape collaboration initiative, as part of her research on collaboration and transdisciplinary knowledge creation. Her design teaching career began in 1984, and she has since authored and edited numerous publications, including, with co-editor Carol Burns, *Site Matters: Design Concepts, Histories and Strategies* (Routledge, 2005).

Monika Kamenecki is a registered landscape architect and Assistant Professor at the Study of landscape architecture University of Zagreb. Her professional interests are in the area of design, research and realization of landscape architecture projects but also in a field of plant use from the preliminary design to the implementation planning, from the plan presentation to the practical implementation, planting and care. She works on modules regarding landscape construction and material science, technical planning and detailing, and plant use.

Elif Karacor is a faculty member in Landscape Architecture Department of Düzce University, Turkey. She received her bachelor's degree (2003) and master's degree (2006) from Abant Izzet Baysal University, and her doctoral degree (2012) from Düzce University, all in the field of landscape architecture. Additionally, she has a second master's degree (2015) in City and Regional Planning from Istanbul Technical University. She worked as a research assistant at the Department of City and Regional Planning of Mimar Sinan Fine Arts University while conducting her PhD study. She was visiting staff at the Department of Landscape Architecture of Mississippi State University - USA (2011-2012). Her main research topics are urban life quality, public space and social sustainability.

Ulrich Kias has been teaching digital methods in landscape architecture at the Weihenstephan-Triesdorf University of Applied Science since 1988. He was the first professor to establish GIS in landscape architecture in Germany and has been awarded for his work in 2018 with the ECLAS "Outstanding Educator Award". Since 2018, Dr Kias is also president of the German FLL Landscape Research Forum, for which he already chaired the working group on computer graphics in landscape architecture from 1995 – 2002. https://www.hswt.de/person/ulrich-kias.html

Mintai Kim is an associate professor of Landscape Architecture in College of Architecture and Urban Studies at Virginia Tech, USA. He earned his Ph.D. degree from the University of California, Berkeley. Dr. Kim is interested in research related to environmental disturbances resulting from urbanization, the resilience of places, and the urban ecosystem regeneration in leftover urban spaces.

Pinar Koylu is an assistant professor at Duzce University, Department of Landscape Architecture. She studied Landscape Architecture at Ankara University, received a MFA in Interior Architecture and Environmental Design from Bilkent University, Turkey, and holds a PhD in Landscape Architecture from Ankara University. She has been the master of Basic Design Studio and Design Studio I for more than 10 years.

Ulrike Krippner is a senior researcher at the Institute of Landscape Architecture at BOKU Vienna. She holds a PhD in landscape architecture and teaches landscape history. Her research and writings concentrate on the profession's history of the 20th century, with a special focus on women in landscape architecture and on post–World War II landscape architecture. She has established a comprehensive digital inventory on Austrian landscape architecture and operates the LArchiv Archive of Austrian Landscape Architecture together with Lilli Lička.

Birgit Kröniger, born 1971 in Nuremberg, Prof. Dr.-Ing., landscape architect and urban planner, is professor for landscape architecture and design at HfWU Nuertingen Geislingen University in Germany since 2014. Together with two partners, she founded the office ver.de landschaftsarchitektur in 2000, which since then has been successful in numerous design competitions and realized open space projects of various scales. Birgit Kröniger graduated from Technical University of Munich in 1997 with a degree in landscape architecture and received her PhD from Prof. Peter Latz and Prof. Dr. Martina Löw on the city as a stage in 2005.

Maria Kylin is a landscape architect with a professional background where she developed her designing and planning skills in offices from 1984 to1998. In 1998 she joined a PhD programme and in 2004 she received her doctoral degree for studies of how children's experiences and perspectives on outdoor environment can be used and discussed in planning contexts. Maria teaches in a variety of courses that cut across a wide range of topics; urban planning and design, children and young people's outdoor environments and studio courses that focus on the design methods for Landscape architects. As knowledge production in the built environment disciplines differs from other disciplines, such as natural sciences or social science, she is interested in developing pedagogic challenges that cut across scientific methods.

José Miguel Lameiras is a landscape architect and an assistant professor at the Faculty of Science of the University of Porto. He received his doctoral degree in Landscape Architecture from the University of Porto in 2018 under the subject "Digital Terrain Modelling in Landscape Architecture". José Miguel focuses on design projects, particularly dealing with topography, drainage, built structures and information technologies. Currently he is the research centre (CIBIO) coordinator for the H2020 project on social innovation through nature-based solutions (URBiNAT).

Bettina Lamm, PhD, is Associate Professor at the Division of Landscape Architecture and Planning, University of Copenhagen. Lamm's research addresses the interaction between the urban environment and the lived life in the public realm. She studies through practice and theory how temporary interventions, play design and art installations can facilitate social interaction in public space and contribute to a reprogrammeming of the urban landscape. She curated the exhibition Urban Play where artists created works for Køge's industrial harbourscape as part of a transformation strategy and wp leader of the EU project SEEDS that explored temporary use as a tool for reprogrammeming derelict urban spaces. Lamm is co-author of the book *Playable*.

Bin Li is an architect and landscape architect from Beijing, China. Her work bridges disciplines of architecture and landscape architecture, scales of miniature and panorama, environments of rural and urban. Before moving to Oslo and joining AHO, she practiced in Boston, Berlin and Hong Kong including Vogt Landscape Architects and Rural Urban Framework. Bin holds a Master of Architecture degree with a concentration in Landscape Architecture from Massachusetts Institute of Technology, and a Bachelor of Arts in Architectural Studies from University of Hong Kong.

Dan Li is a PhD candidate in the Landscape Architecture track of the Architecture and Design Research Programme, College of Architecture and Urban Studies, Virginia Tech, USA. She is currently conducting her doctoral dissertation exploring how landscape architecture programmes and their faculty teach sustainability in landscape architecture using a three-phase mixed method research design. Dan Li is interested in research and teaching related to sustainability and resiliency, design education and pedagogy, research methods and community engagement.

Lilli Lička graduated from University of Natural Resources and Life Sciences BOKU Vienna before examining urban green spaces in the Netherlands and collaborating with BplusB in Amsterdam. She was principal of koselička from 1991-2016 and started off as LL-L landscape architecture in 2017. She has been heading the institute of landscape architecture at BOKU since 2003. Other engagements include Nextland: contemporary landscape architecture, LArchiv: Archive of Austrian Landscape Architecture of the 20th and 21st century, Master mind of Lx international Lecture series since 2007 and x-LArch international conference series since 2003 as well as publications, research, design of streets, squares, housing, heritage and corporate landscapes. Lilli is a member on design boards, juries and academic commissions.

Guangsi Lin is the Head and Professor of Department of Landscape Architecture, School of Architecture, South China University of Technology (SCUT). He studied at the School of Landscape Architecture, Beijing Forestry University (BFU), and earned a bachelor's and PhD's degrees of Landscape Architecture. Guangsi Lin was a postdoctoral fellow at the Department of Landscape Architecture, School of Architecture, Tsinghua University and a visiting scholar in the Department of Landscape Architecture, School of Design, University of Pennsylvania. He is also the executive chief editor of Landscape Architecture (ISSN 1673-1530), an international academic journal of landscape architecture, urban design and public art, sponsored by BFU.

Gunilla Lindholm is a senior lecturer in landscape planning with a research interest in the interface between landscape architecture and urban planning; her latest published paper is "The Implementation of Green Infrastructure: Relating a General Concept to Context and Site", *Sustainability* 9(4),610. Gunilla Teaches landscape architecture at master and PhD level at SLU Campus Alnarp in Sweden and is a member of the Swedish University of Agricultural Sciences (SLU)'s Educational Board, as well as a member of the steering committee for research platform "SLU Urban Futures".

Linnea Lindström is a landscape architect and teacher at the Swedish University of Agricultural Sciences (SLU) Alnarp, focusing on social aspects in urban planning. She specializes in different aspects of the everyday landscape and urban development through a health perspective.

Mei Liu is a PhD candidate in the Section of Landscape Architecture at the Faculty of Architecture and the Built Environment, Delft University of Technology, The Netherlands. Her Ph.D. research topic is Mapping Landscape Spaces: The interpretation, measurement, and evaluation of spatio-visual landscape characteristics in landscape design. She has expertise mainly in digital mapping methods and tools, spatio-visual landscape characterization, and visual landscape preference studies.

Gianni Lobosco, Architect, PhD in Landscape Architecture at the University of Ferrara, Italy, where he teaches "Parametric Landscape & Infrastructure Design" in the Final Master Studio. Giannin is a member of the Research Centre Sealine and research fellow at the TekneHub. He has also been visiting teacher in several academic institutions among which the Master in Landscape Architecture at the UPC, Barcelona. His academic and professional activities focus on emerging relationships between landscape and infrastructures rising from the evolution of global phenomena such as tourism and climate change. These topics' investigation is carried out in collaboration with public and private companies interested in addressing decision-making process by landscape-oriented and resilient strategies.

Antonio E. Longo (b. Milan 1966) is Associate Professor at the DASTU Dipartimento di Architettura e Studi Urbani and director of the MSc in Landscape Architecture and Landscape Heritage at the School AUIC in the Politecnico di Milano. His key research themes include: open space policies and projects , interactive practices in urban and landscape design. Design practices in actual contexts, theoretical reflection, teaching and educating as closely tied and complementary practices. Antonio has conducted research work at both the national and international levels, with a special focus on northern Europe and Germany.

Gisle Løkken is an architect, founding partner and manager of 70°N arkitektur, Tromsø, Norway. Through architecture practice, teaching and writing he is continuously developing an experimental approach to architecture, urban development and planning, both locally and in a broader Scandinavian, and Arctic, context. Gisle Løkken teaches regularly and a demanded lecturer, assessor and jury member in competitions and prize committees, nationally and internationally. His work has been exhibited, published and awarded.

Liv Løvetand is a designer and educator, specialized in graphic & spatial design. Apart from working with general communication at the Division of Landscape Architecture and Planning, University of Copenhagen, Liv teaches various courses, focusing on the link between studio work and representational modes. Liv is part of the core teaching team on Plan & Design (1st year), providing supervision, as well as specialized tool courses on photography and graphic design. She holds a M.A. in spatial-and furniture design from Denmark's Design School and has extensive professional experience from working in large public institutions, design/architecture offices and as an independent designer.

Lisa Mackenzie is a Senior Lecturer in the Edinburgh School of Architecture and Landscape Architecture. Lisa has taught and lectured widely including teaching periods in Japan, the US and a three-month position at the Ecole Nationale Supérieure de Versailles. Lisa is the lead for Edinburgh University in the European Master's in Landscape Architecture. In her practice, research and teaching Lisa examines the exchange between Landscape Architecture, artistic practice, cultural geography and ecological design towards the sensitive transformation of urban and rural environments. Her work evolves strategies for multi-dimensional, collectively imagined, landscapes that express different manifestations of design thinking.

Jala Makhzoumi is Professor and affiliate faculty at the Department of Landscape Design and Ecosystem Management, American University of Beirut. In teaching, research, and practice, she advocates a holistic, expansive landscape approach that mediates community needs with ecosystem health, biodiversity protection, and landscape heritage conservation. Her professional practice in the Midcdle East spans thirty-five years and includes post-war recovery and landscape planning in Iraq, Syria and Lebanon. Dr. Makhzoumi is recipient of several awards, founder of the Lebanese Landscape Association (LELA) and co-founder and senior fellow of the Cambridge Center for Landscape and People, UK. She is author and co-author of several books on landscape planning.

Monica Manfredi, architect and landscape designer, adjunct professor, fellow researcher and PhD at Politecnico di Milano, has dealt with water landscapes inventing Hydro-Landscapes. She has designed the public spaces of the historic center of Intra in Verbania, Italy and has collaborated with Umberto Riva on interior design, museum installations, exhibitions, public spaces and landscape design. She has been teaching at Politecnico di Milano since 2000, writes and conducts research on issues of architecture, environment and landscape.

Meri Mannerla-Magnusson is a landscape architect and lecturer in landscape architecture, at the department of architecture, Aalto University, Finland. She has participated in the strategy work of the programme, and had a central role in curriculum planning 2018-2020, including curriculum analysis, where each bachelor level course was cross-checked against the intended learning outcomes of the degree. After graduation she gained six years of professional work experience in the USA, and since returning to Finland has operated her own design practice in Helsinki.

Madara Markova is Doctor of Architecture, Assistant Professor at the Landscape architecture and planning Department, Latvia University of Life Sciences and Technologies. Madara's research fields include sacral landscape, cultural landscape and its elements and teaching methods in landscape architecture.

Marlies Marreel has a master degree in social work and is currently working as a researcher at the University College of Ghent, Belgium. She is connected to the department of Social Work and is working on 'BLOK', an interdisciplinary research project conducted with the department of Architectonic Design. The research focuses on the position of children and teenagers living in layered housing environments. Using methods of participative research and research-by-design, she builds on previous work experience as a member of staff in the research centre Kind & Samenleving, where she contributed to several socio-spatial studies with children and teenagers in different contexts.

Olivier Marty was educated as a landscape architect at the school in Versailles (ENSP). He now heads the 'Département d'Arts Plastiques' at the ENSP and teaches courses, workshops and participates in studios in which drawing, visual thinking and sensory perception form a key part. Besides his teaching at the ENSP he also developed and practices as an artist (www.olivier-marty.fr). His artistic work is related to the landscape but as teaching, research and artistic work are strongly interrelated, he also relates to other forms of artistic expression such as poetry, choreography, dance, music.

Tessa Matteini, PhD, is an architect and landscape architect and Associate Professor in Landscape Architecture at the Department of Architecture (DIDA) of Florence University. Matteini is a registered member of the Italian Association of Landscape Architect within IFLA Europe (AIAPP) and has been working since 1997 in Florence as a professional in landscape architecture. She co-founded *limes,* a landscape architecture firm with Anna Lambertini in 2011. Since June 2017, she is Director of UNISCAPE, the European network supporting the principles of the European Landscape Convention. http://www.uniscape.eu/

Francesca Mazzino, PhD, is an associate professor in Landscape Architecture and president of Landscape Architecture master course, University of Genoa. She is vice-president of the Italian scientific society of landscape architecture, and member of several organisations among them the international scientific committee Genoa Fortification in the world, Eirene Project, bid to compete for UNESCO world heritage status, Italia Nostra; scientific committee projects de Paysage; steering committee ECLAS (2002-2013). Mazzino is on the editorial board of *Architettura del paesaggio* and was vice-president of Italian Association of Landscape Architecture (AI-APP) (2000-2003). She has authored 100 publications on landscape analysis and planning, landscape rehabilitation and historic gardens restoration.

Wendy McWilliam is a Senior Lecturer at the School of Landscape Architecture at Lincoln University, New Zealand. Dr McWilliam specialises in the study of urban and rural green infrastructure planning, design and management. She and her students engage in basic and applied research in a wide variety of rural and urban landscapes.

Sophia Meeres is a civil engineer and landscape architect with 15 years in practice before joining academia. Her work focused on design and planning of small settlements, and rural lands, and on public participation in planning. Her research is connected to the transformation of inhabited landscapes in both rural and urban contexts. Sophia seeks to understand the process of change, its drivers and consequences and, through case studies, to explore forms of visualization that help explain them to the public. She is also Director of the University College Dublin taught Master's programme in Landscape Architecture, her research is connected to her teaching through the Master's Landscape studio.

Bardha Meta is an architect and landscape researcher from Prishtina, Kosovo. After her bachelor of science studies in her hometown, she continued her master program on Sustainable Architecture and Landscape Design in Politecnico di Milano, Italy. Currently she is working as an architect, and continuing research on sustainable landscape strategies.

Alexandru Mexi is a landscape architect from Romania whose interest lies in cultural heritage and especially in garden history and garden restoration. He owns a MA in cultural studies and is a PhD candidate studying the role of public parks in the modernization of Romania. Alexandru works at the National Heritage Institute and deals with the protection of garden heritage and cultural landscapes from across Romania. He is engaged in several national and international research projects concerning cultural heritage. In 2017 he published a book about the royal gardens at Peleș castle. Since 2018 he is coordinating a cultural and research project regarding garden heritage and landscape architecture history in Romania.

Leonie Mhari is a poet, researcher, and landscape designer in Scotland. Her interest in the discipline of landscape research and design is underpinned by her PhD thesis, completed in 2016, entitled *Breaking old and new ground: a comparative study of coastal and inland naming in Berwickshire*. Her thesis focuses on the names of topographic features and the role of perception in their naming, this is the first comparative study of inland and coastal place-names. Leonie applies her abilities to analyze a landscape in her design work, bringing experimental methods in her site fieldwork. Her approach explores the performative relations between human and more-than-human actants.

Enrico Michelutti is an architect and urban planner, working as a research assistant at the University of Udine, Italy. Enrico has worked on the strategic part of the Friuli Venezia Giulia Regional Landscape Plan, focusing on soft mobility and tourism development in relation to landscape conservation and promotion. Enrico is part of the research group 'Landscape, Participatory Dynamics, Educational Processes and Knowledge Production', where he develops research activities focusing on local practices of landscape education and co-production of knowledge in relation to landscape.

Behzad Mirzaei Yeganeh is currently a PhD candidate in Social Sustainability and Landscape Design at Tarbiat Modares University, Iran. He is interested in sustainable landscape design and its aim to reduce negative environmental impacts. Behzad completed his Master's in architecture focusing on the design of the social spaces in cities. Working as an architect, and designer for more than a decade, he is currently focusing on landscape design in public spaces. His main areas of research include Landscape Sustainability, Ecosystem Services, Ecoparks and Urban Landscape Design. He has delivered lectures on the History of Architecture and Landscape Architecture in the Islamic Azad University, Iran.

Sareh Moosavi is an Academic Fellow and lecturer in Landscape Architecture at the University of Melbourne. She has a background in architecture and landscape architecture and holds a PhD in Landscape Architecture from Melbourne School of Design, the University of Melbourne. Sareh's research and teaching interest focuses on addressing challenges of applying innovative design solutions to build flood resilience in fluvial and coastal landscapes. She is particularly interested in designing for droughts and floods and fluxing ecologies resulting from climate change. Sareh teaches a number of design studios at the Melbourne School of Design.

Ana Moya is a Post-doc researcher with a Foundation of Science and Technology grant (FCT) at the Centre of Art History and Artistic Research (CHAIA), University of Évora, Portugal. She holds a post-graduate qualification in Intervention and Management of the Landscape Heritage by the UAB, Barcelona (2009). Her PhD is in Urban Landscape Theory and Urban Culture from the Department of Architectural History and Theory at TUE, The Netherlands (2007). She was Assistant Professor at the Department of Town Planning at ISMAT, Lusophone University, Portugal (2010-15), and lecturer of Landscape Theory, Landscape Architecture Design and Architectural Design at the Faculty of Architecture, TUE (2000-2007). She is the author of the book *The Perception of the Urban Landscape* Ed. Biblioteca Nueva (2011).

Rikke Munck Petersen is an associate professor at the Section for Landscape Architecture and Planning, University of Copenhagen. Her research bridges design and the humanities, and her interests include an ecological and transient, multisensory and sensory-aesthetic spatial approach to large-scale landscape transformations: cultural heritage, ecology, aesthetics and ethics, spatial theory, media theory and design theory. Rikke leads BSc and MSc design courses reflecting her research areas: Practice and Aesthetics in Landscape Architecture Studio and Landscape Film Studio. Over the past four years she has pioneered the use of film, particularly drone filming, as an affectivity mediator in large-scale design, planning.

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Bruno Notteboom is doctor in urban and regional planning. Before joining the Department of Architecture of KULeuven, Belgium, as Associate Professor in Urban and Rural Landscapes in 2017, he was an assistant professor at Ghent University and the University of Antwerp, and a visiting scholar at University of California Berkeley. Notteboom's current research focuses on landscape design in a context of urbanization and shifting disciplinary alignments, from a historical and a contemporary perspective. His most recent book, *Recollecting Landscapes. Rephotography, Memory and Transformation 1904-1980-2004-2014* (co-edited with Pieter Uyttenhove, Roma Publishers, 2018), deals with landscape transformation in Flanders.

Simon Orga, Dipl. Arch. ETH, joined the staff at the Institute for Landscape and Open Space in 2012 at the University of Applied Sciences in Rapperswil and has been working for the Archives of Swiss Landscape Architecture since 2015. He studied architecture at the ETH Zürich and the EPF Lausanne, and established his own architectural practice in Zürich in 2010.

Veli Ortaçeşme is a Professor at the Department of Landscape Architecture, Faculty of Agriculture, Akdeniz University in Antalya, Turkey. He obtained his B.Sc., M.Sc. and Ph.D. degrees in landscape architecture from Cukurova University, Department of Landscape Architecture in Adana, Turkey. He participated in an international post-graduate specialization programme on rural planning in relation to environment in the Mediterranean Agronomic Institute of Zaragoza (IAMZ), Spain, in 1992-93. Following this programme, he conducted another M.Sc. study on protected areas at the same institute in 1993-94. His specialty and research interests include landscape planning, protected area planning and urban green space planning.

Dirk Oudes is a landscape architect and PhD researcher at the Amsterdam Academy of Architecture and Wageningen University and associate of NR-Glab, a research laboratory on energy transition. His research focuses on large-scale transformation of the landscape for energy transition and the potential role of design in this transition.

Elisa Palazzo is an Urban Landscape Architect with experience in both academia and the profession. She holds a doctoral degree in Urban design, regional and environmental planning. Prior to joining the University of New South Wales, Sydney, in 2014 she taught in Italy and China. Elisa is a registered architect and landscape architect (AILA) with over 20 years' experience in several architectural, urban design and landscape projects for the public sector in Europe, Middle East and China. Her research interests include: climate and water sensitive cities and landscapes; design for flooding; adaptive urban design; adaptive capacity of urban landscapes; urban ecosystem design; resilience of cultural and sub-urban landscapes; mobility corridors and green infrastructures planning and design; drone mapping for landscape planning and design.

Selma B. Pena, PhD Landscape Architecture, is Researcher in ecological base planning and policies at the Linking Landscape Environment Agriculture and Food (LEAF) R&D Unit from Instituto Superior de Agronomia (Universidade de Lisboa), since 2004. Since 2011, she is an Invited Assistant Professor in the Landscape Planning classes.

Nadja Penko Seidl is Assistant Professor and has a PhD from the University of Ljubljana, where she graduated with the thesis researching the role of toponymy in defining landscape character and its applicability in planning and management processes. At the Department of Landscape Architecture she teaches typology, management and protection of cultural landscape, and assists in teaching landscape evaluation, theory and methodology in spatial planning, and the planning studio, as well as a few courses at other departments and faculties. Her research focuses on several aspects of (cultural) landscape, as well as on strategic levels of green infrastructure planning.

Petra Perekovic, mag.ing.prosp.arch., Assistant Professor. Her research and professional interests are focused on open urban space design. She is particularly interested in the connection between the perception of landscape and its features.

Paolo Picchi is an agronomist and landscape architect and Postdoc researcher at the Amsterdam Academy of Architecture, associate of NRGlab, a research laboratory on energy transition. His research focuses on the relationship between communities, landscape quality and sustainable energy transition with a specific focus on participatory and transdisciplinary research methods. Among other publicationsPaolo is author with Sven Stremke of the book chapter "Co-designing energy landscapes: application of participatory mapping and Geographic Information Systems in the exploration of low carbon futures", in Barry D. Solomon, Kirby E. Calvert *Handbook on the Geographies of Energy*, edited by Edward Elgar Publishing in 2017.

Tomaž Pipan graduated from architecture in Ljubljana. He received his master's degree in Landscape Urbanism from the AA in London in 2008 and a PhD from London Metropolitan University in 2014. His doctoral thesis "Capacity of Industry for Civic Culture" is an in-depth topographical study of industrial models and their ethical agency. Currently he is a senior researcher at the Department of Landscape Architecture in Ljubljana leading Interreg project trAILs on revitalization of alpine industrial landscapes. He taught at London Metropolitan, TU Berlin and the Bartlett, University College London. His teaching interests are diagramatisation of processes and visualisation of spatial complexities. Students under his co-tutelage received the RIBA President's Medals Student Award, The Global Schindler Award and Le:Notre Student Competition Awards.

Jørgen Primdahl has a background as a landscape architect with a PhD in landscape planning and planning theory. He has been Professor in Countryside Planning at the University of Copenhagen since 1997. Recent books include *Globalisation and the sustainability of agricultural landscapes*, Cambridge University Press, 2010 (Co-edited with Simon Swaffield). *Landscape Analysis*, Routledge, 2017 (Co-authored with Per Stahlschmidt, Simon Swaffield and Vibeke Nellemann) and *European Landscapes In Transition*, Cambridge University Presss, 2018 (Co-authored with Teresa Pinto-Correia and Bas Pedroli).

Martin Prominski is Full Professor and chair of "Designing Urban Landscapes" at Leibniz University Hannover, Germany. He studied landscape planning at TU Berlin and received a Master in Landscape Architecture from Harvard University, GSD. He has a PhD from TU Berlin (2003) and is a registered landscape architect. His current research focuses on design research strategies, qualification of urban landscapes, and integrative concepts of nature and culture. He is a member of the STUDIO URBANE LANDSCHAFTEN, an interdisciplinary platform for research, practice and teaching on urban landscapes, and the Co-founder of the "Sino-German Cooperation Group on Urbanization and Locality Research".

Indra Purs is a freelance researcher and entre-preneur with interests in atmospheric, ephemeral landscape - climate, weather, seasons' sky and air - as art materials as well as studies of bodily and psychic perception of landscape. She has a MSocSc in Business Administration and BEcon in Financial Management and successful practice in the financial sector as a consultant and; Indra also owns a Professional Bachelor's Degree in Landscape Architecture and Planning. She is currently a candidate of DrArch in Landscape Architecture. She is an active member in non-governmental organizations – project leader in the Latvian Association of Landscape Architects and delegate in the International Federation of Landscape Architects and Baltic Sea Region Landscape Architecture Group and Board Member of Urban Institute, Latvia.

Marina Queiroz is a landscape architect working as a lecturer at the Swedish University of Agricultural Sciences (SLU) Ultuna. In 2017, as part of SLU Landscape Call for Ideas, Marina, in collaboration with Åsa Bensch, initiated an 8-month seed project to explore how to increase synergies and collaboration between landscape educators at SLU, which subsequently transformed into the permanent SLU Teaching Synergy Forum.

Kevin Raaphorst is a lecturer and post-doc researcher at the Landscape Architecture and Spatial Planning group at Wageningen University. His background is in spatial planning and human geography, as well as in geo-information science. His primary research interests lie in the socio-political implications of how space and place are visually represented. In his PhD thesis he studied visual communication processes and how visual representations shape participatory planning and design processes.

Arthur Rice is Professor of Landscape Architecture, Past President of the Council of Educators in Landscape Architecture, Past Chair of the Council of Educators in Landscape Architecture Academy of Fellows. Arthur came to the College of Design at North Carolina State University in 1990 and served Head of the Department of Landscape Architecture, Director of the PhD in Design Programme, and Associate Dean for Academic Affairs. He has taught numerous disciplinary and interdisciplinary design studios to both beginning and advanced design students. His research focuses on design education and the understanding and development of creative abilities.

Marcus Robinson is a Senior Tutor at the School of Landscape Architecture at Lincoln University, New Zealand. Marcus has many years global experience as a practising landscape architect and master planner. His areas of expertise include digital design applications, visual communication, design, and residential and landscape master planning.

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Michael Roth studied landscape architecture and landscape planning in Dresden. He obtained his PhD at the School of Spatial Planning, Dortmund University of Technology in Gemany. He held research and teaching positions at TU Berlin (2002–2006), TU Dortmund (2006–2013), Michigan State University (2011–2012), University of British Columbia (2013), and University of Natural Resources and Life Sciences in Vienna (2016). Since 2013, he has been professor for landscape planning and landscape informatics at Nürtingen-Geislingen University in Germany. His research focusses on landscape aesthetics, landscape perception, landscape visualisation and participation in planning.

Deni Ruggeri is Associate Professor of Landscape Architecture and Spatial Planning at The Norwegian University of Life Sciences. His research focuses on everyday landscapes' influence on residents' place identity/attachment, and livability in urban design. Ruggeri holds a PhD in Landscape Architecture from the University of California, Berkeley and graduate degrees in both Landscape Architecture and City Planning from Cornell University. He has practiced landscape architecture and community design internationally, and in 2007 he was co-initiator of the Zingonia 3.0 Participant Action Research initiative, which is seeking to re-envision the future of one of Italy's only New Towns.

Ágnes Sallay has a M.Sc in Landscape Architecture and Environmental Engineering. In 2003 she earned a PhD at Szent István University; her research topic was landscape planning tasks related to the disposal of communal solid waste. She was habilitated at the Corvinus University of Budapest in 2014 and is currently associate professor at the Department of Landscape Planning and Regional Development of the Szent István University. She is Chairman of the Scientific Student Council of the Faculty of Landscape Design and Settlement, Member of the Scientific Committee of the Doctoral School of Landscape Architecture and Landscape Ecology, and a member of the Hungarian Landscape Architecture Subcommittee.

Máté Sárospataki, PhD, is associate professor and MSc in Landscape Architecture. He has been teaching at the Dept. of Garden Art and Landscape Techniques, Faculty of Landscape Architecture and Urbanism at Szent István University in Hungary for 10 years. He teaches garden construction, geodesy, open space design and modules related to landscape gardens in Hungary, arboretums and dendrological parks.

Elinor Scarth is a landscape architect and lecturer at the University of Edinburgh where she directs the Master in Landscape Architecture programme. She has over ten years experience working in an international context with renowned landscape and architecture practices. Elinor's approach to research is enriched by a 'making with' approach to design; conscientious of the processes that form and perpetually transform landscapes, Elinor aspires to develop work that allows us to observe, understand, and question the landscapes we inhabit. The activation of a landscape through the invitation to physical exploration is instrumental to her investigation process.

Cornelius Scherzer is a Professor at the Faculty of Agriculture Environment Chemistry in Dresden University of Applied Sciences, Germany. His field of specialty mainly involves the planning of open green areas. He obtained his diploma from Technical University Berlin, Germany. He has work experience from New City GmbH Hanover between 1984-1985, research assistant at TU Berlin between 1986-1991, research assistant at Hannover University between 1993-1995 and lecturer at HTW Dresden since 1995.

Olaf Schroth has more than ten years of experience in research as well as in teaching digital methods in landscape architecture. Since 2017 Olaf is professor in geodesign and landscape informatics at the University of Applied Sciences Weihenstephan-Triesdorf, Department of Landscape Architecture. Before that his experience included: lecturer in landscape planning and GIS at the University of Sheffield teaching EIA/SEA for landscape planners (2012 -2017); postdoctoral researcher at the University of British Columbia conducting research on the visualization of climate change in the context of planning processes under Swiss SNF and Canadian SSHRC grants (2008 – 2012) and writing his PhD Thesis at ETH Zurich in the EU FP5 Project VisuLands (2003- 2008).

Berfin Senik received her Bachelor's degree in landscape architecture (2012) from Ege University, Turkey, and her first Master's degree in city and regional planning (2016) from Dokuz Eylül University, Turkey. She participated in an international postgraduate specialization program on the integrated planning for rural development and environmental management in the Mediterranean Agronomic Institute of Zaragoza (IAMZ-Spain) between 2016 and 2017. Currently, she is a Master student and research assistant in Düzce University, Landscape Architecture Department. Her major research interests include urban ecological planning, landscape planning, water management, open and green spaces.

Jennifer A.E. Shields is a Registered Architect and Assistant Professor of Architecture at California Polytechnic State University, San Luis Obispo. Her research and teaching are interdisciplinary, engaging colleagues and students from other disciplines to investigate the relationship between graphic representation methods and spatial perception. Her first book, *Collage and Architecture*, was published by Routledge in 2013. She is the lead editor for the recently published book entitled *Environmental Design: An Anthology* (Cognella 2019). She received a Bachelor of Science in Architecture and a Master of Architecture from the University of Virginia.

Naomi Shimpo is Assistant Professor at the Faculty of Life and Environmental Sciences at the University of Tsukuba in Japan. Naomi majored in landscape planning and ecology and gained her PhD from the University of Tokyo. She also studied at Vienna University of Technology in Austria as an exchange student and did some researches at Lincoln University New Zealand as visiting scholar. Her main research interests lie in functions of urban gardening related to social integration and disaster recovery examined through social survey and spatial analysis. Especially governance and design of intercultural gardens are a key topic of her current research.

Jorg Sieweke has been practising as a registered landscape architect and urban designer in Berlin since 2001. In 2015 he received his PhD. from TU Berlin for his dissertation reflecting and explicating design research methods in landscape urbanism. He was a DAAD Fellow as a Visiting Professor in Urban Ecology at HafenCity University Hamburg in 2014 and a resident fellow at the German Academy Villa Massimo in Rome in 2015. From 2009-2016 he held a full-time faculty position at the School of Architecture at Thomas Jefferson's University of Virginia among other appointments at TU Dresden, TU Berlin, RWTH Aachen, as well as Art Academy's in Berlin and Stuttgart.

Ana Luísa Soares is a landscape architect and Assistant Professor of Landscape Architecture at School of Agriculture (ISA), University of Lisbon. She holds a PhD in Landscape Architecture from there. Ana is Researcher at the Centre for Applied Ecology of Prof. "Baeta Neves" (CEABN), InBio, ISA, University of Lisbo . From 2009 to 2014 she was Vice-president of the Management Board of the ISA, taking responsibility for the heritage. She has been a member of Management Commission of Botanical Gardens of the University of Lisbon Since 2016, and from 2017 the coordinator of the 2nd cycle of Landscape Architecture course at ISA/ULisboa. Ana is Founder of the Historic Gardens of Portugal Association.

Mamdouh M.A. Sobaihi is the Head of the Landscape Architecture Department at King Abdulaziz University in Jeddah, Saudi Arabia. He has been teaching and supervising students of landscape architecture for over 20 years. In that time he has held many administrative positions including Vice Dean for Development. Dr. Sobaihi has consulted on many projects is the Kingdom to government agencies and private entities. He also practices in the field of design and construction and has been involved in projects up to four million square meters. Dr. Sobaihi holds a PhD from The University of Sheffield in the UK.

Per Stahlschmidt is a landscape architect and was until 2008 a partner in a landscape firm and associate professor at the University of Copenhagen, where he for many years was the leader of the landscape architecture programme. He recently published the book *Landscape Analysis*, Routledge, 2017 (Co-authored with, Simon Swaffield, Jørgen Primdahl and Vibeke Nellemann).

Stefania Staniscia is an architect and landscape architect. She holds a PhD in Architecture from Venice University IUAV, Italy. She is an Assistant Professor of Landscape Architecture at West Virginia University; her research investigates the island and mountain as powerful cognitive devices and design tools. Stefania's work has been widely published in journals such as *New Geographies* 08: Island (2016) as well as books, including the monograph entitled *Islands* (2011). Parallel to her long-standing investigation on islands she is more recently developing research on a much contested landscape: the mountaintop removal areas in central Appalachian coalfields.

Henriette Steiner is Associate Professor at the Section for Landscape Architecture and Planning at the University of Copenhagen. Her research investigates the cultural role and meaning of architecture, cities and landscapes. She is author of *The Emergence of a Modern City: Golden Age Copenhagen 1800-1850* (Routledge, 2014) and has co-edited ten special journal issues and books. She holds a PhD in History and Philosophy of Architecture from the University of Cambridge, UK, and was Research Associate in the Department of Architecture at ETH Zurich for five years. She is currently Visiting Associate Professor at MIT's Department of Urban Studies and Planning.

Sven Stremke is Professor of Landscape Architecture at the Amsterdam Academy of Architecture, Associate Professor Landscape Architecture at Wageningen University, Principal Investigator at the Amsterdam Institute for Advanced Metropolitan Solutions (AMS) and founding director of the NRGlab, a research laboratory on energy transition. His research and teaching focus on the relations between energy and the living environment. Sven has published more than 15 scientific papers and a large number of book chapters on the planning and design of energy transition. Together with Andy van den Dobbelsteen, he edited the *Sustainable Energy Landscapes: Designing, Planning and Development* (Taylor & Francis, 2013).

Jan Støvring is a senior research consultant. Jan was educated as a landscape architect at the University of Copenhagen, graduating in 2002. In 2008 he joined the Landscape Technology Research Group at the University of Copenhagen in order to teach and work on applied research projects. From 2012 to 2017, he carried out PhD research on permeable pavements. Jan is a course administrator and co-teacher (with Torben Dam) on the course in 'Plants and Technology in Landscape Architecture 1+2', a compulsory course for third-year landscape architect students.

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Ján Supuka is Professor of Landscape Architecture and former ECLAS Representative (2000-2017) at the Slovak University of Agriculture in Nitra. He worked as researcher in the field of dendrology, park and landscape design at the Slovak Academy of Sciences for more than two decades. His current research focuses on woody vegetation structures in urban and rural landscapes and on the design of recreational spaces. He has authored over 300 publications, including more than 30 books and over 80 journal papers. His works have been cited more than 750 times (200 in WoS/Scopus).

Kianoush Suzanchi is an assistant professor in Landscape Architecture, within the Department of Art and Architecture, Tarbiat Modares University, Iran. He received his PhD in Environmental Sciences from the Indian Agriculture Research Institute (IARI), in 2009. His research interests are in the area of Landscape Ecology, Land Use Cover Change, Ecological Landscape Design, and Urban Landscape. He delivers a course on "sustainability in landscape architecture" as part of PhD courses for students in Landscape Architecture. He also offers courses on Plant Ecology, Plant Application in Landscape Design, Site Engineering in Landscape Architecture, Landscape Design Studio and Regional Design Studio.

Simon Swaffield is professor emeritus of landscape architecture at Lincoln University in New Zealand where he was head of the landscape architecture programme for much of the period from 1985 to 2007. From 2011 he has also been honorary professor at University of Copenhagen. Recent books include *Theory in Landscape Architecture*, University of Pennsylvania Press, 2002, *Globalisation and the sustainability of agricultural landscapes*, Cambridge University Press, 2010 (Co-edited with Jørgen Primdahl), *Landscape Architecture Research*, Wiley, 2011 (co-authored with Elen Deming), and *Landscape Analysis*, Routledge, 2017 (Co-authored with Per Stahlschmidt, Jorgen Primdahl, and Vibeke Nellemann).

Krisztina Szabó b. 1971 in Pécs, Hungary, has been an assistant professor of dendrology in the Department of Garden and Open Space Design, Faculty of Landscape Architecture and Urbanism, SZIE since 2011. She earned a PhD degree in 2008 in Horticultural Science at Corvinus University of Budapest. Earlier Krisztina worked at the Zoological and Botanical Garden where she gathered practical information about plants from tropical, subtropical and temperate climates. Currently she teaches plant knowledge and plant application as well as planting design with landscape architect Judit Doma-Tarcsányi.

Zita Szabo is PhD student at Szent Istvan University. She earned her master's degree in in Landscape Architecture in 2009. Zita won two scientific prizes for her thesis. She also has a master level in teaching. After graduating from university she worked for a couple of years in secondary education and adult education. She also worked as field engineer to investigate power plants and refineries across Europe. She began her PhD studies in 2017. Her research topic is Energy Facilities in Landscape Planning. Zita has won design competitions in Germany and Hungary with her colleague, Claudia Spanhel.

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Salma Talhouk is professor of landscape horticulture at the Faculty of Agricultural and Food Sciences, American University of Beirut. Her academic contributions revolve around biodiversity conservation in general focusing primarily on plant conservation. Her current research interests are the promotion of community stewardship of natural resources through decentralization strategies. Dr. Talhouk is engaged in interdisciplinary problem-focused research in bio-prospection and eco-health, in developing a framework linking people to nature using action research and participatory mapping and integrating nature in cities using urban ecology and sustainable applications of horticulture to green roofs and green walls.

Alan Tate is outgoing Head of Landscape Architecture at the University of Manitoba, Canada – a position he held for twelve of twenty-one years there. Tate has a degree in Town and Country Planning, an accredited Diploma in Landscape Design from the University of Manchester and a PhD in architecture from Edinburgh College of Art. He has over twenty years professional experience in London and Hong Kong and is author of two editions of the book *Great City Parks*. Tate is a Fellow and Past President of the United Kingdom Landscape Institute and a Fellow of the Canadian Society of Landscape Architects. He was promoted to the position of Professor in 2007.

Zydi Teqja has teaching experiences in Environmental Sciences, Green Areas and Landscape architecture. His studies and experience have provided him with broad knowledge of sustainability, land use and green space planning, design and management. His main research interests are the impact of green space on health and well-being of the population and the impacts of climate change on the distribution of horticultural plants. After spending 9 months at the Landscape Architecture Department of University of Wisconsin-Madison as a Fulbright visiting scholar, he is using the experience gained, to establish the first undergraduate and graduate programmes in Landscape architecture in Albania.

Petra Thorpert teaches garden design and landscape architecture at the Swedish University of Agricultural Sciences. As part of her artistic fine art searching process and along with her interest in green environments, she links fine art with landscape- and garden design. In landscape and garden design her interest is in aesthetics and colour aspects as new fields to explore. Over the past years she started to explore the colour and aesthetics effects of vegetation on humans through teaching and research. Combining fine arts and landscape architecture and research provides new inputs to her as a teacher.

Andrew Toland is a lecturer in landscape architecture at the University of Technology Sydney. He has also taught at the University of Hong Kong and the National University of Singapore. His research addresses the relationship between landscape and architectural design practices and infrastructural imaginaries and aesthetics, including technological infrastructures, as well as landscape regulation and technical performance metrics. His work has appeared in scholarly edited collections, as well as journals such as *Cabinet*, *Scapegoat*, and *Architecture Australia*.

Dora Tomic Reljic is a Postdoctoral researcher with special expertise in landscape planning, working at the University of Zagreb. She completed her PhD thesis entitled The Harmonization of Conservation and Development Requirements in Planning of Sustainable Spatial Development. At the University she works as assistant for modules regarding landscape and environmental planning and environmental and landscape protection. As associate, she participated in several professional and scientific projects. As an author and co-author she published papers and presented research at conferences relating to landscape planning, sustainable spatial development, landscape ecology, landscape perception and green infrastructure.

Attila Tóth is Chair of the LE:NOTRE Institute, Assistant Professor of Landscape Architecture and current ECLAS Representative at the Slovak University of Agriculture in Nitra. His main research focus is Green Infrastructure in urban and rural landscapes. He studied landscape architecture in Slovakia and Austria and conducted research scholarships in Germany, Austria, New Zealand and Spain. His main achievements include two ECLAS Awards and the Green Talents Award. He has authored over 130 publications, including 5 books and 20 journal papers. His works have been cited more than 100 times (40 in WoS/Scopus).

Marc Treib is Professor of Architecture Emeritus, University of California, Berkeley, and a historian and critic of landscape and architecture who has published widely on modern and historical subjects in the United States, Japan, and Scandinavia. Recent books include *Austere Gardens: Thoughts on Landscape, Restraint, and Attending* (ORO, 2016), *Pietro Porcinai and the Landscape of Modern Italy* (co-editor, Routledge, 2016), *John Yeon: Modern Architecture and Conservation in the Pacific Northwest* (ORO, 2016), and *Landscapes of Modern Architecture: Wright, Mies, Neutra, Aalto, Barragán* (Yale, 2017). Forthcoming are *The Landscapes of Georges Descombes: Doing Almost Nothing, and Serious Fun: The Landscapes of Claude Cormier* (co-author), both to be published by ORO Editions.

Maria Gabriella Trovato is Assistant Professor of Landscape Architecture at the LDEM - American University of Beirut. Prior to this position she lectured and served as a design critic internationally. Maria Gabriella has led several research projects and her work has been published in books and journals. She is co- founding member and Secretary of the Lebanese Landscape Association (LELA) affiliated to IFLA. Since 2017 Maria Gabriella has been the Chair of the Landscape Architecture Without Borders (LAWB) working groups of IFLA where she leads an active cooperation with national and international NGO's, and local government.

Roland Tusch is a senior scientist at the Institute of Landscape Architecture at the University of Natural Resources and Life Sciences, Vienna (BOKU). He was educated in architecture and gained a doctorate at TU Wien. Before coming to BOKU he worked as an assistant professor at the Institute for Architecture and Landscape at Graz University of Technology. He teaches and conducts research in the field of infrastructure in landscape and is on the team of the Archive of Austrian Landscape Architecture at BOKU.

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Aysel Uslu is Professor and a full time lecturer at the Department of Landscape Architecture, Faculty of Agriculture, Ankara University, Turkey. Her work focuses on cultural landscapes, urban regeneration, cemetery planning, urban greening. Her recent studies are based on development and enhancement of urban biodiversity in cities and accessible urban landscapes.

Osman Uzun graduated from Ankara University with a Bachelor's degree in Landscape Architecture in 1995. He received his Master's degree from Abant İzzet Baysal University in 1999 and PhD degree from Ankara University in 2003. He became an associate professor in 2012 and a full professor in 2017. He has been working in Düzce University since 1996. He published research papers in various academic journals on landscape planning, landscape ecology, landscape management and landscape restoration. He authored books on landscape planning and landscape restoration. He was involved in several projects for the Ministry of Forestry and Water Affairs. He teaches courses in Landscape Planning, Landscape Ecology, Landscape Restoration and Environmental Impact Assessment.

Martin van den Toorn is a Dutch landscape architect who studied landscape architecture at Wageningen and Berkeley CA. In the 1990s he taught landscape architecture in Wageningen and started teaching in Delft in 2000. Since 2012 he is also a visiting professor at the Faculty of Landscape Architecture and Urbanism of St. István University in Budapest, where he is engaged both in teaching into the international master in landscape architecture and in research. His main research interests are theory and practice of landscape architecture, visual communication as part of the design process and the didactics of design education.

Wim van der Knaap studied Landscape Engineering at Wageningen University, the Netherlands, and is now an assistant professor in the University's Landscape Architecture and Spatial Planning Group, specialising in aspects of urban/rural fringe landscape developments. He thereby focusses on educational aspects related to landscape planning processes around contemporary issues such as the impacts of climate change, energy and water-related topics. His main interests are in the transdisciplinary participation processes related to technological developments and impacts related to these processes. He has participated in several projects across Europe to study rural/urban landscape developments and their accompanying issues.

Noël van Dooren is a Wageningen trained landscape architect. Today he holds the Sustainable Foodscapes in Urban Regions professorship at Van Hall Larenstein University of Applied Sciences. In 2017 he defended his PhD on the representation of time at the University of Amsterdam. From 2004 to 2009 he was head of the landscape architecture programme at the Academy of Architecture Amsterdam. From 1997 until today he operates as an independent advisor, researcher and writer. He started his career as a landscape designer at the H+N+S landscape architects office in 1992.

Rudi van Etteger graduated from Wageningen University in 1991 in landscape architecture and in philosophy from the University of Utrecht in 2008. In 2016 he earned his PhD on the aesthetics of designed landscapes at Wageningen University. After working in private and public practice as a landscape architect for 14 years, in 2005 he began an assistant professorship at Wageningen University, teaching design studios on sustainability and redevelopment and several theory courses. Most of his research has been related to the links between philosophy and landscape architecture with an emphasis on aesthetics. He has contributed to several ECLAS-conferences in reviewing and presenting papers as well as moderating sessions.

Frits van Loon BNT graduated in Landscape Architecture from the University of Wageningen in 1992. He worked as landscape designer at several offices until he joined HOSPER in 1997 a firm for urban and landscape design where has been a partner from 2001 until 2012, working on projects ranging from garden to regional design. In addition to practicing, he has tutored landscape architecture at different schools and levels. Since 2013 he has a permanent position at the TU Delft as the chair of Landscape architecture, teaching Landscape design to bachelor and master students on all levels.

Elzelina van Melle is a Landscape Architect educated at ENSP Versailles working as a lecturer, research assistant and bachelor coordinator at Copenhagen University. Since 2011, Elzelina has built her academic experience as co-teacher of the bachelor course 'Plan & Design' and with the development of colour theory and research-based colour-design methods. Beside her activity as an independent architect, Elzelina is now teaching the course 'Plants and Technology' and continues to work with transdisciplinary use of drawing, to bridge knowledge between landscape architecture and botanic, art and ecology, soil science and colour through workshops in the ecology course 'Natural Processes'.

Vera Vicenzotti is senior lecturer in Landscape Architecture in the Design Theory Group at the Department of Urban and Rural Development at the Swedish University of Agricultural Sciences, Uppsala. She holds a doctoral degree in landscape architecture from the Technical University of Munich, Germany. Her research interests are, broadly speaking, theory, history, and methodology of landscape architecture.

Sophie von Schwerin, Dr.-Ing. Landschaftsarchitektur, has been working as a research fellow at the Institute for Landscape and Open Space at the University of Applied Sciences in Rapperswil, Switzerland since 2012. In 2015 she became the curator of the Archives of Swiss Landscape Architecture. Sophie began her education with a two years training as perennial gardener at the botanical garden in Hamburg, followed by the study of landscape architecture at the Technische Universität Berlin. She earned her PhD from the Leibniz Universität Hannover with a thesis about the scientific relevance of the Berggarten botanic garden in Hannover Herrenhausen.

Peter Vrijlandt is a Dutch landscape architect who studied landscape architecture at Wageningen University. Before working as a researcher at the research institute 'De Dorschkamp', he worked at the Dutch State Forestry at the Department of Landscape architecture in Utrecht and after that at Wageningen University as associate professor at the Department of Landscape architecture. In his career — as researcher, practitioner and educator — he is one of the few who has always kept a key interest in the relation between theory and practice. Presently his focus in research is mainly on theory of landscape architecture.

Kristine Vugule, Mg. arch. Has been a lecturer at the Faculty of Environment and Civil Engineering, department of Landscape Architecture and Planning of Latvia University Life Sciences and Technologies since year 2000. She is a PhD candidate at the Latvia University of Agriculture since November 2012. The theme of her PhD theses is "Road landscape". Kristine teaches drawing, project graphics, composition, landscape analysis and management. She also has been teaching digital photography to landscape architecture students for the past 8 years and delivering lectures to Erasmus+ students and leading photography workshops in the international summer school organized by the university. Kristine was ECLAS Secretary General for two terms.

Anne Margrethe Wagner is an assistant professor at the Division of Landscape Architecture and Planning, Copenhagen University (UCPH). She holds a PhD from UCPH and a degree in architecture from the Royal Danish Academy of Fine Art School of Architecture. Anne's scholarly work is practice-based and focuses on urban transformation processes, public outdoor space and collaborative design and planning methods. Anne teaches several courses at Master and Bachelor levels, such as the first year studio 'Plan & Design', the Master course 'Urban Intervention Studio', performs individual supervision and is a frequent lecturer and examiner at UCPH and other institutions.

Ed Wall is Academic Leader Landscape at the University of Greenwich and a Visiting Professor at Politecnico di Milano. He trained in landscape architecture in Manchester (MMU) and urban design in New York (CCNY). He has a PhD from the Cities Programme at the London School of Economics. Ed has written several books, most recently he has co-edited, with Tim Waterman, *Landscape and Agency* (2017). In 2015 he founded, with Alex Malaescu, *Testing-Ground: The Journal of Landscapes, Cities and Territories*. Currently, Ed is guest editing a future landscape issue of *Architectural Design* (*AD*). Ed is the founding director of the award-winning design and research practice, Project Studio.

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Emilia Weckman is a landscape architect and Lecturer in landscape architecture, at the department of architecture, Aalto University. She is also Head of a new Urban Studies and Planning Programme for Landscape Architecture. Emilia has practiced as a designer, an entrepreneur and consultant throughout her own career at LOCI Landscape Architects Ltd until 2013, and now at WE3 Ltd. Emilia actively takes part in the development of the profession in many positions of responsibility. She has been the president of MARK, the Finnish Association for Landscape Architects between 2015-2017. Currently is Vice President of Education in IFLA Europe.

Andreas Wesener is a senior lecturer at the School of Landscape Architecture at Lincoln University, New Zealand. Having a professional background in architecture and urban design, Dr Wesener explores the manifold issues connected to transformative urban landscapes. His research analyses and assesses innovative approaches for more sustainable and resilient cities.

Gabriela Wiener is a Landscape Architect with a Master´s degree in Restoration (2002), from the National Autonomous University of Mexico (UNAM). She has been a full-time researcher at the Coordination of Research in Architecture, Urbanism and Landscape of the Faculty of Architecture (CIAUP), UNAM since 2001, and Professor in the Academic Unit of Landscape Architecture of the same institution, since 1995. Gabriela tutors in the Graduate Programme in Urbanism and is co-responsible for the Permanent Seminar on Landscape and Cultural Geography of the Institute of Geography, UNAM. Her areas of work include the cultural landscape, public space, theory, and design methodology. She has published on the subject of public spaces from the cultural perspective of spatial production and design.

Carola Wingren, PhD, holds an artistic professorship in Landscape Architecture since 2003, and is orientated towards Landscape Aesthetics. She investigates the act of design in relation to all kinds of landscapes, but has in the last years been especially interested in landscape changes caused by climate as well as cultural changes. Wingren's approach is situated in a transdisciplinary field between practice and research, involving both writing and visualizations. She is both involved in research projects and teaching, principally at master level and design studios.

Ulrike Wissen Hayek has been Senior Researcher and Lecturer at the Chair of Prof. Adrienne Grêt-Regamey, «Planning of Landscape and Urban Systems (PLUS)» at the ETH Zurich since 2008. Currently, Dr Wissen Hayek's research focuses on using audio-visual simulations based on 3D point clouds for investigating how people perceive the landscape and landscape changes due to renewable energy systems. In her teaching activities, she aims at training students in state-of-the-art 3D landscape visualization. Furthermore, she is directing, in strong collaboration with the Institute of Landscape Architecture, the chair's Landscape Visualization and Modeling Lab (LVML) including a sophisticated Audio-Visual Lab (AV Lab).

Magdalena Wojnowska-Heciak earned her first and second degrees from Warsaw University of Life Sciences, Poland (SGGW), Department of Horticulture and Landscape Architecture. In 2014 she accomplished post-graduate studies in Urban Design and Spatial Management at Warsaw University of Technology (WUT). In 2018 she defended her PhD thesis 'Development and management trends for the waterfronts located at the rivers in urban agglomerations'. She is currently an assistant at Department of Civil Engineering and Architecture at the Kielce University of Technology in Poland. She gained her professional experience in Warsaw landscape ateliers. She is currently leading her own architecture and landscape practice in Kielce and has won several prestigious architecture and landscape competitions in Poland.

Roland Wück is a senior lecturer at the Institute of Landscape Architecture at the University of Natural Resources and Life Sciences, Vienna (BOKU). He teaches landscape design and construction in studios at Bachelor and Master level, and has a focus on computing applications and other advanced technologies in computer aided design. He accompanies competitions for students within the curriculum but also beyond the university.

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Edvard Munch, 'Historien', 1911, Universitetet i Oslos aula (Photo: UiO / Terje Heiestad. Reproduced with permission from UiO)