Inclusions – Landscape Narratives for Enhancing Landscape Architecture Pedagogy

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Abstract: With the escalating challenges of the climate crisis, we are confronted with accelerated urbanisation and environmental degradation, there is an urgent need for the transformation of our landscape and urban systems. This transformation necessitates the creation of environments that are not only equitable and resilient but also adaptive, with the capability to mend and respond adeptly toward more equitable, resilient, and adaptive environments that imbue the capacity to repair and respond to indeterminate future crises. Landscape architecture as a discipline has a pivotal role in designing alternative landscapes that have the ability to innovatively endure the uncertainties and challenges of a complex, ever evolving polycrisis set in motion by the climate crisis. The application of sophisticated analytical design tools and data from related disciplines, have the capacity to significantly enhance landscape design methodologies. Despite this potential, the integration into landscape architectural education remains sporadically implemented. This inconsistency highlights the imperative for a paradigm shift in landscape architectural pedagogy, that transcends the traditional digital / analogue and computational distinctions. It advocates for a design thinking approach where techniques are critically evaluated, and innovation is deemed essential in addressing the climate crisis. A re-evaluation of landscape architectural design pedagogy is necessary. Building on the discussions on future pedagogical methods at the DLA 2023 conference, an international workshop was convened to further this dialogue focusing on 'inclusion', 'narratives', and 'co-design' amidst the complex global challenges posed by the climate crisis. This involved analysing practice projects and design studio pedagogies guided by the question how to achieve climate responsive designs. This analysis explored the diverse flow of ideas, dynamics and frictions that emerge from multiple viewpoints. These critical evaluations of current theoretical and practical underpinnings helped in outlining a methodological framework for landscape design. This framework is intended to foster the creation of new landscape narratives, incorporating digital design education guidelines that underscore the urgent need for innovation and diversification of approaches within the field of landscape architecture. This investigative process ultimately led to the development of a set of guidelines that advocate for a significant transformation of landscape architecture education.

Keywords: Climate crisis, landscape architecture design pedagogy, digital landscape architecture education, theory development, critical discussion frameworks, design techniques and tools, ecological systemic thinking

1 Introduction

How can we design the education of future practitioners in the realm of landscape architecture and planning? This question, posed by MONACELLA & KEANE (2023), comes at a time when society is confronted with heightened environmental, societal, and political challenges. Con-

currently, there is an unprecedented volume of detailed geodata from a diverse range of sources accessible, paralleled by the rapid evolution of ubiquitous information technology, particularly machine-based learning and generative Artificial Intelligence (AI). A climate change consciousness, including its inherent crisis of inequities, has gradually infiltrated curriculum in landscape architecture and planning academic programs (FRICKER et al. 2023). This 'consciousness' has catalysed a shift in the teaching and learning agendas, moving beyond merely contemplating the potential impact of the scientific facts of sea level rise and extreme weather events. This awareness has fostered a rethinking of design studio pedagogies to purposefully take responsibility for educating students on alternative approaches to future landscapes (FRICKER 2022, MONACELLA & KEANE 2023). These advances are valuable, they remain limited. A meaningful and forward-thinking transformation in computational design thinking, requiring the convergence of computation, design, and theory to address the complex challenges that confront pedagogical frameworks is needed. This paper seeks to contribute to this transformation by discussing pedagogical theories and foci for landscape architecture design education, and identifying entry points for advancing pedagogical approaches.

To initiate the discussion, a panel discussion entitled 'A fireside chat on a critical juncture' was organised at the DLA conference held from May 24 to 26, 2023 at Anhalt University in Dessau, Germany. The panel delineated a variety of digital design approaches in landscape architecture, serving as a departure point for ensuring the examination of current and future design approaches, tools, and techniques. A significant insight derived from this dialogue was the imperative need to forge novel narratives and to formulate alternative design frameworks for conceptualising landscape and its design approaches. The emphasis was on the importance on the cultivation of interrelations and interconnectedness amongst disparate landscape facets, locations, actors, temporalities, and incorporation of inclusivity principles for reimagining the concept of 'landscape' and the modalities within landscape architecture design (STREMKE et al. 2023). However, this endeavour necessitates a comprehensive exploration of the relevant issues, aiming to elucidate concrete insights, based on examination of pedagogical strategies, case studies, and practical dilemmas.

Predicated on conversations and workshops conducted in the years 2023 and early 2024, our objectives are to (1) address key questions previously outlined (2) identify crucial gaps, and (3) engage in the ideation of novel narratives that extend inclusivity beyond entrenched categorization. Our exploration encompasses potential approaches, techniques, and relationships within the context of landscape architecture across various spatial, temporal and functional scales. Furthermore, we articulate initial conclusions that inform pedagogical approaches, significantly contributing to critical theoretical discourse concerning the future pedagogical focus within landscape architecture education. This effort is structured to stimulate widespread involvement with the topic, facilitating ongoing dialogue to foster and sustain an active exchange among academic pedagogues, students, practitioners and decision-making bodies, with the ultimate goal of advancing landscape architecture design education.

Subsequently, we introduce the theoretical and practical underpinnings that were examined in an international workshop at ETH Zurich in February 2024. Additionally, we propose guidelines intended to transform landscape architecture education, steering it towards a more inclusive and holistic future.

2 Framing Landscape Architecture Education for Emerging and Future Challenges

In an era characterised by the confluence of climate change, environmental degradation, political instability, and societal shifts, landscape architecture emerges as a pivotal field with the potential to significantly benefit society and the environment beyond traditional, anthropocentric views. To meet these complex and dynamically developing challenges it is necessary to rethink reimagining of landscape architecture education, aimed at preparing future practitioners and researchers to creatively and effectively address these issues through innovative design and stewardship (DEMING & SWAFFIELD 2011). This transformation transcends mere incremental development, but, instead, represents a necessary reorientation of how landscape architecture of our era. As the impacts of the polycrisis on our landscapes become more apparent – extreme floodings, extreme heat waves, etc. – the importance of re-evaluating how we might respond from a landscape architecture perspective gains momentum.

Invoking in Bruno Latour's concept of 'becoming terrestrial' (LATOUR 2021), the proposed pedagogical shift advocates for a design approach acutely attuned to the Earth's critical zones – 'the heterogeneous, near surface environment in which complex interactions involving rock, soil, water, air and living organisms regulate the natural habitat and determine availability of life sustaining resources' (NRC 2001, 2). These zones, characterised by the rich interplay of different disciplinary knowledges necessitates an educational framework that transcends traditional boundaries capable of embracing multifaceted interactions with the physical, symbolic, and functional states of the environment. Latour's framework offers a theoretical backbone for examining the workshop's results, providing insights into how landscape architecture can weave these complex relationships into its pedagogy.

As we contemplate the evolution of landscape architecture education, it is imperative to critically examine current pedagogical frameworks and their capacity to prepare students for the rapid ecological, societal, and technological shifts projected. A key aspect of this exploration involves recognizing the interconnectedness of all actors, drawing from Latour's notion of Actor Network Theory (LATOUR 2005), centres the designer as one of the actors within the landscape. This premise provides a valuable framework for understanding complex networks, highlighting the reciprocal role of landscape architects among diverse actors, including ecological systems, human and more-than human communities, and emerging technologies such as artificial intelligence (AI).

3 Collaboration and Translation

In late February 2024, a workshop titled 'Digital Landscape Architecture Education – Critical Reflection on Current Theoretical and Practical Foundations' was held at ETH Zürich in Zurich, Switzerland. The workshop aimed to foster a robust exchange of ideas and experiences among ten selected educators and researchers in the fields of landscape architecture and planning. In preparation for the workshop, participants were invited to provide insights on one of the two main topics: 'projects' or 'courses / design studio pedagogy'. Specifically, they were asked to deliver a brief presentation on their own experiences and projects, addressing key questions such as:

1) Projects: What has been achieved for a climate proof design? What systems have been applied? Ranges of transformative impact?
2) Courses: What is Landscape? What theory and principles are taught? The digital is reframed as intelligence (GARDENER 2006). What intelligences inform design? Pedagogy – current modes, tools, and approaches? What Future pedagogical changes are needed?
3) Projects / Courses: Future proofness of the design – What is the evolution of the design after completion?

These questions were central to the discussion and analysis of the inputs, focusing on framing open-ended guiding principles for landscape design, fostering translation into climate narratives, and deducing guidelines for landscape architecture education. The contribution and insights derived from these discussions were captured through interactive collaboration.

The workshop sought to embrace multiple positions on the outlined topics and questions presented. The workshop methods followed five principles drawn from Latour (2005) for mapping and tracing different flows of ideas. Thereby, (1) equal weight was given to each idea and both human and more-than-human actors involved in the creation of recommendations for future landscape architecture education. The task was to identify (2) different kinds of knowledge, skills, materials, and technologies, etc. for each of the actors, (3) dynamic connections between actors, (4) each actor's contribution to changing outcomes, and (5) the actor's adaptability.

The workshop briefly reviewed existing theories on design research with a focus on 'landscape narratives' and 'inclusive and co-design'. The discussion and analysis resulted in formulation of new landscape narratives and guidelines for advancing pedagogical methods for landscape architecture education.

4   Curriculum Narratives for Landscape Architecture in the Era of the Climate Crisis

According to the European Landscape Convention, 'landscape' is defined as 'an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors' (COUNCIL OF EUROPE 2000, 2). This definition underscores that landscape is not only a product of the interplay of natural processes and human action in space, but also of the inner representation of human perception (BACKHAUS 2011, KÖPSEL et al. 2017, GRÊT-REGAMEY & FAGERHOLM 2024). The influences lead to a multitude of different perspectives and converging landscape constructs (BACKHAUS 2011).

Narratives provide an interpretation of the perceived landscape based on normative values, beliefs, and meanings that legitimise or refuse actions leading to landscape changes (KOCH et al. 2023). For example, KÖPSEL et al. (2017) demonstrate that in the same region different narratives conceptualise the landscape as 'policy', 'natural', 'lived', or 'productive' landscape. These distinct landscape narratives, therefore, influence how actors behave and communicate to others. They play a crucial role for designs capable of evolving over time, they need to be laid open to enable negotiation of various perspectives and developing a common landscape narrative (GRÊT-REGAMEY & FAGERHOLM 2024, KOCH et al. 2023). In this way, narratives can be a means for inclusion of different forms of knowledge, whereby conflicting narratives can influence each other and lead to changes in the storylines (MELANIDIS &

HAGERMAN 2022). This was shown, e. g., for Nature-based Solution (NbS) narratives, where proponents stressed that NbS mean leveraging the power of nature, whereas opponents pointed out that NbS are a dangerous distraction from sustainable solution development. The critical narrative influenced in turn the other narrative so that a shift towards more critical reflection of NbS and a call for socio-environmental safeguards were integrated into the latter (MELANIDIS & HAGERMAN 2022).

Landscapes are highly complex, coupled social-ecological-technological systems, which are perpetually restructured through dynamic trans-scalar and trans-sector interactions, and are continuously reimagined by human agency (BACKHAUS 2011, KOCH et al. 2023, GRÊT-REGAMEY & FAGERHOLM 2024). Shared landscape narratives can act as a foundation for co-designing integrated, creative solutions that embrace adaptability and resilience rather than striving for an elusive 'future-proof' state (FRICKER 2022, KOCH et al. 2023). The critical inquiry then becomes: How can inclusive narratives be cultivated, and what does this approach mean for rethinking design education within the landscape architecture discipline?

Addressing the role of landscape narratives in shaping perceptions, actions, and ultimately, the landscapes themselves, underscores the need to question how such narratives can be effectively integrated into the realm of design education. Highlighting the need for pedagogical models that are as complex, adaptive, and inclusive as the systems they aim to influence.

The following addendum should be viewed as a complementary set of values that accompanies the current accreditation standards (AMERICAN SOCIETY OF LANDSCAPE ARCHITECTS 2021). The pursuit is not an exhaustive list, but rather the initial steps designed to provoke further dialogue and inquiry within the digital landscape architecture community.

5   Addendum for Landscape Architecture Accreditation Standards

The curriculum frameworks for Landscape Architecture within the context of a multifaceted Climate Polycrisis era encapsulate the fundamental tenets of **Design Process and Principles, Skills and Competencies, and the Mindset of Future-Orientated Pedagogies in Landscape Architecture** (NORTHEASTERN UNIVERSITY 2014). These pedagogical narratives envision learning as a lifelong pursuit, propelled by evolving research agendas. They acknowledge learners as unique individuals, each contributing a unique amalgamation of skills and epistemologies to the discipline, which are not only recognised but further cultivated (ADAMS 2015).

Through thoughtful dialogue and critical analysis of workshop outcomes, we identify key areas for improvement and innovation within the current curriculum. We outline below, a set of objectives, each designed to build upon and extend the foundational pedagogical narratives by integrating new insights and emerging priorities.

1. Knowledge

How can learners engage with various scales, layers, and systems to address both the local and planetary impacts of the climate polycrisis? Are there new forms of interconnectedness of intelligence and knowledge that are not infinitely scalable? Do these forms of interconnectedness allow for multiple stakeholder negotiations and multiple viewpoints?

This is achieved through the following *Principles of Engagement*:
- Design Processes and Principles
- Extended Design Knowledges
- Adaptation of Design Practices
- Expansion of Landscape Architecture Profiles

Procedural Guidelines:

Introducing students to complex and wicked problems from the outset encourages a deep understanding of contemporary challenges, contextualization, and the acquisition of comprehensive design knowledge. This pedagogical stance, which prioritises immediate engagement with complex issues over the traditional, hierarchical learning models, challenges both existing educational norms and the conventional professional paradigms within landscape architecture.

To effectively address wicked problems, we advocate for a trans-scalar approach that transcends conventional divisions by scale, incorporating spatial, temporal, and functional dimensions. This approach aims to catalyse novel knowledge constellations and expert domains that would then be liberated from commonplace divisions along stratified scales. The objective of a trans-scalar approach aims to foster new inter- and trans-disciplinary collaborations for the landscape architecture discipline. Moreover, a trans-scalar design process and principles will include investigations on repetitive actions and the way these transgress critical limits and trigger effects that cascade upwards in scale.

The shift in scales requires a **rethinking of knowledge practices** (TSING 2019). However, it is important to note that while ideas may be transferable, they are not necessarily scalable.

2. Skills and Competences

How might technologies like Artificial Intelligence (AI) and other systems enhance the learners' ability to grasp complex interactions within a landscape design project, while ensuring these systems do not overshadow the creative design process? In what manner can learners navigate both local and planetary challenges evoked by the climate polycrisis through the integration of diverse skills, approaches, systems, and viewpoints? What are the pivotal design methods for creating outputs adaptable to the multifaceted challenges of our time? How can landscape architecture design pedagogy move beyond human-centric approaches to acknowledge and value the interconnectedness of all life forms within ecological systems?

This is achieved through the following *Principles of Engagement*:
- Design Methods
- Regimes for In-Formation (Input)
- Regimes for Out-Formation (Communication)
- In-Formation Imbued with Matter

Procedural Guidelines:

It is imperative for both educators and learners to elevate their comprehension of their instrumental role in delineating both the problem and solution spaces. The domains of design science and design theory offer robust theories to provide the guidance to address this challenge. From the perspective of **design methods**, the initial step in managing complexity involves the delineation of the system's characteristics. It is essential to comprehend the critical parameters and the conditions that emerge. This understanding facilitates the articulation of

solution domains and their respective spatial scales, indicating the necessity for uniquely creative solutions for localised issues that manifest globally. This necessitates cognisance of various solution domains (e. g., technological versus natural solutions) and their attendant elements (e. g., material, energy, space versus information, time, structure). Hence, the pedagogy of landscape architecture design education must extend to encompass systemic considerations and cross- and inter-disciplinary domains.

Integrating diverse perspectives is regarded as key, necessitating the integration into the design process from disparate actors and disciplines such as climate science, economics, politics, and governance. This task presents considerable challenges, stemming from the difficulty of sourcing pertinent information and translating it to specific local contexts (e. g., extrapolating from IPCC reports global scale effects to the local or regional sea level rise scenarios). Therefore, the delivery in an education model of information gathering (**In-Formation**) is a critical endeavour, requiring further instruction to facilitate critical insight in the visualisation of these inputs.

The next question is how to facilitate the **Out-Formation** to connect the design with aesthetic values and at the same time understand the needs and processes and the different regimes behind it. A focus needs to be set on the process of understanding how this information can be transformed into useful outputs for informing design. Technologies such as laser-scanning are revealing spatial and cultural dimensions and suggesting that solution spaces must be complex and tailored to local conditions. Point cloud 3D epistemic models, for example, enable exploring multiple solutions without a predefined goal, allowing for serendipitous discovery and iterative evaluation. Integrating experts from other disciplines into the pedagogical model is essential to this open design process. However, there is an increasing disconnect with how landscape architecture education is structured and the kind of interdisciplinary setup that is needed.

3. Mindset

How can landscape architecture education foster a mindset that extends the imperative for inclusive and co-design practices beyond traditional participatory methods? In what ways can we encourage a comprehensive engagement with both human and more-than-human actors across varying scales and systems? In what way can we integrate a wide spectrum of perspectives to ensure that design interventions are not only resilient and sustainable but just, equitable, and reflective of multi-species cohabitation?

This is achieved through the following *Principles of Engagement*:
- Criticality and Value Systems
- Empathy towards Human and more-than Human
- Forms of Inclusiveness and Collaboration
- Design Ethics & Equity – Causing no Future Harm

Procedural Guidelines:
What role does integrating the dynamics of social-ecological and technological systems play in guiding the co-design of sustainable and inclusive landscape development (GRÊT-REGAMEY & FAGERHOLM 2024)? **Criticality** in this process highlights the importance of recognising who is actively designing or influencing design decisions and in what manner, thereby clarifying and enhancing the role of landscape architecture. Factors such as economics, politics, policy, legislation, and design regimes (including responses to droughts and

floods), along with climate change, significantly shape our environment and require a conscious understanding of the value systems associated with each factor.

A shift in mindset, how landscape architects take responsibility is required, which focuses on revealing where interaction points are reasonable and where not. This means a reconfiguration of the understanding of the landscape architecture profession and of interaction fields. A shift in the way we have been conditioned to look at the world could also transform the methods, tools, value and knowledge systems we utilise. Consequently, a **critical examination** of the principles, ideas, and traditional approaches or design solutions that must be 'unlearned' is essential to this transformation.

Understanding of reasoning and inference is essential. Therefore, reasoning through **values** that one wants to accomplish should be implemented to overcome approaches leading to singular solutions for a problem, a limited design, which lacks efficacy in complex scenarios. **Empathy** extended not only to humans but also more-than-humans can steer design approaches and decisions affecting environmental processes in vulnerable circumstances. Thus, it is crucial to incorporate diverse worldviews for **inclusiveness**. This raises questions about **design ethics and equity**, focusing on the rights that are attributed to human and more-than-human beings.

This leads to the consideration of how relationships are formed within the network of actors and the establishment of collaboration among them. Understanding 'design' as an inquiry into a required set of actions (NELSON & STOLTERMAN 2012), the three facets – **designing collaborations**, **adopting a new mindset characterised by creating awareness and identifying the relevant issues**, and in turn designing solutions as a reaction to a problem – may frame landscape architecture education. To exchange ideas and co-design solutions, the 'synapses of connections' in the ways of thinking need to be found. This needs knowledge about negotiating with project opponents and considering conflict theories that regard discord in our society as unavoidable and a driving force for change (MOUFFE 2013).

6 Landscape Narratives for the Future

Key Conclusions:
1) The Shifting Role of the Designer to Co-Creator.
2) Foregrounding a Mindset of Ethics and Criticality.
3) Moving Beyond 'Positivist' Thinking.

In conclusion, as educators in the discipline of landscape architecture we are confronted with unprecedented global challenges. A radical shift is an essential – not merely in our approach or comprehension of design but in the very essence of our professional ethos. This change is deeply rooted in the dynamic interplay between co-creation, technological innovation, and ethical stewardship, demanding a re-evaluation of the designer's role from a solitary creator to a co-creator of complex, multi-dimensional design processes (PROMINSKI 2019).

Central to this evolution is the integration of AI, not as a mere tool, but as a co-designer that expands the creative and analytical capacities of the design team, enabling a deeper engagement with ecological, social, and technological complexities. The shift towards a future-oriented landscape architecture necessitates embracing AI and digital tools not for the sake of technological process alone but as a means to redefine problems and explore solutions within

and beyond human cognition. This entails a continuous learning process, where landscape architects navigate the ethical implications of their designs, considering the environmental impact of digital models and striving for solutions that respect planetary boundaries and social equity.

Pedagogically, this underscores the importance of preparing future landscape architects for a profession that is increasingly dynamic, interdisciplinary, and technology-driven, focusing on developing soft skills for critical evaluation, ethical reflection, and collaborative problem formulation. This includes understanding the multifaceted impacts of design decisions, from the micro-scale of, e. g., plant selection, to the macro-scale of climate adaptation strategies, emphasising the importance of precision, expert knowledge, and interdisciplinary collaboration. The pedagogical framework should foster an adaptive mindset capable of integrating diverse knowledge domains equipping professionals to make informed, responsible decisions in an ever-changing world.

Emerging from a series of workshops in relation to the DLA conference, this paper is an invitation to the extended landscape architecture community – peers, practitioners, students, and decision makers to respond, contribute, and expand upon the material and ideas presented herein. The choice of the term 'narratives' in this paper is deliberate, reflecting our intention to present these findings not as fixed solutions but as evolving trajectories of our profession's journey towards addressing these global challenges. 'Narratives' embody the fluidity and adaptability required in our approaches, encapsulating diverse experiences, methodologies, and visions for the future of landscape architecture education and serve as a critical lens for further examination. They invite a broad spectrum of interpretations and contributions, encouraging the discipline and its educators to continuously evolve through reflective practice and collaborative discourse. Through this process, we aspire to forge a shared narrative that is open to change, encourages innovation, and fosters a commitment to developing ethical and responsive design pedagogies throughout the discipline.

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