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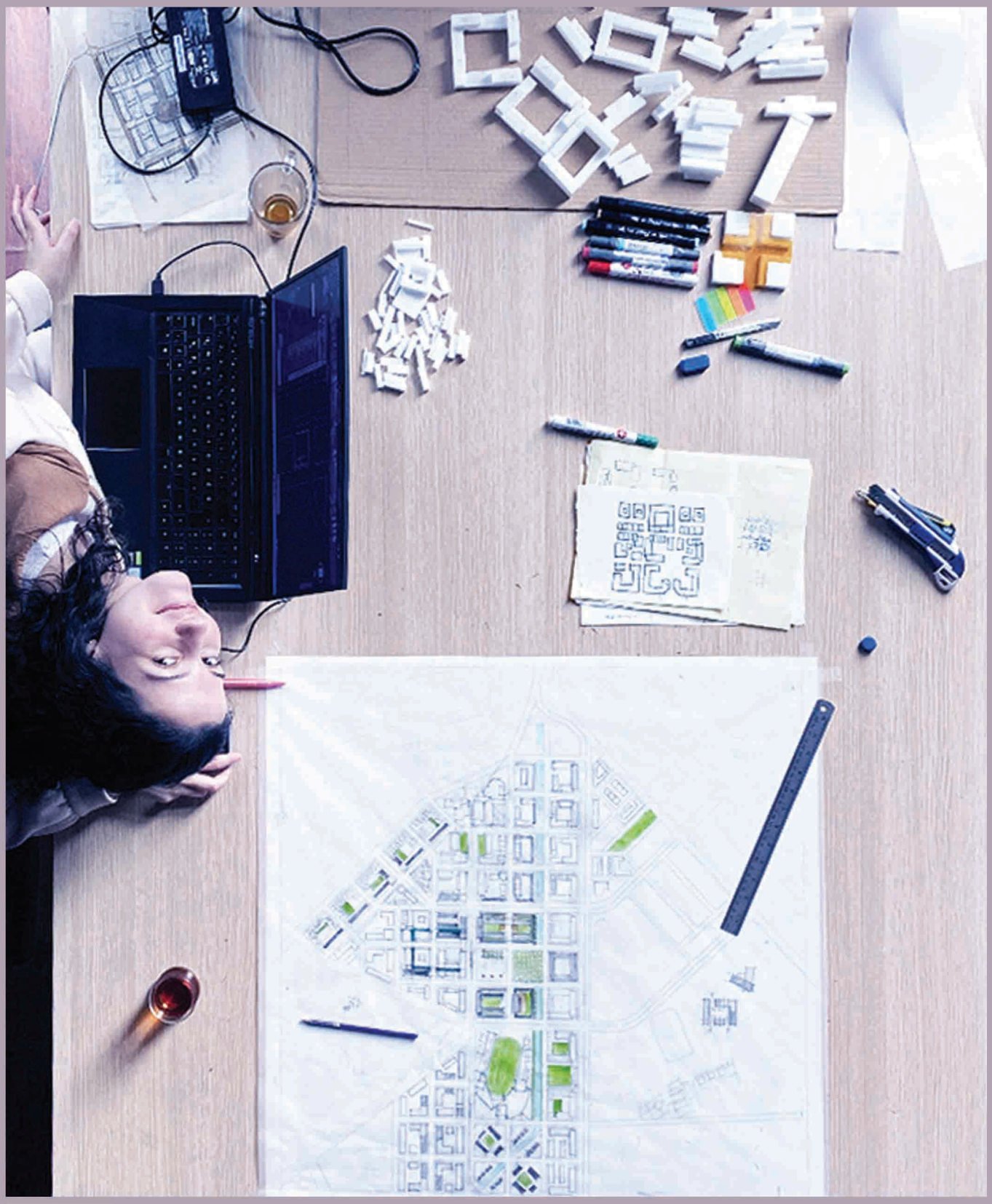

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Special Issue:

Pedagogies in urban design: Broadening the perspective

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Editorial

This editorial introduces a special issue that offers glimpses of formation, evolution and the current state of urban design education in the international scope. Bringing together Viewpoints, Research Articles and a Book Review from diverse geographical and institutional contexts, the issue traces multiple dimensions and pathways through which diverse pedagogies in urban design are formed, challenged, and reconfigured. The contributions reveal urban design pedagogies as contingent, adaptive, and shaped by shifting urban agendas, institutional organizations, agency of academic communities, and technological transformations. The synthesis foregrounds studio education as a key site where disciplinary foundations, core competencies and professional capacities, and working cultures are negotiated, and where enduring questions of legitimacy, specialization, professional recognition, technological mediation, and ethical formation concerning the future of urban design education are productively challenged.

Keywords: urban design, education, pedagogies

Framing the Special Issue

Amid attempts to define what urban design is and what it is not in terms of its disciplinary grounding, its theory and practice, the institutionalization of urban design education has persistently continued. Only recently have scholarly works, though still limited in number, revealed a diverse range of perspectives, experiences, and experiments in teaching urban design. Like any other field still in the process of becoming, the academic organization of urban design has not been without challenges. On the one hand, literature reflects a variety of voices yet lacks a coherent overarching framework within which different perspectives can be meaningfully situated.

On the other hand, a right pedagogy for urban design' has been debated or searched for to secure the legitimacy and creditability of the field. Nevertheless, despite these efforts, the existing body of literature *en masse* suggests that urban design education is emergent and evolving.

In assembling this special issue, we situate our work in dialogue with these earlier scholarly efforts that sought to grasp urban design education as an emergent and evolving field—most notably one of the earliest collections *Who Needs Educating in Urban Design* and *The Future of Urban Design Education: Bridging the Gaps* published in the Urban Design Quarterly in 1993, 1997, which were followed by *Education Reviewed* and *Urban Design Education* in 2009 and 2019 and among the recent ones *Emergent Pedagogy in Urban Design* published in the Journal of Urban Design in 2016. That collection foregrounded the unsettled nature of urban design pedagogy internationally, at a moment when the field was still negotiating its disciplinary boundaries and educational foundations. A decade later, the challenge persists. Furthermore, in an era of increasingly interconnected urban challenges, urban design education renews its call for critical engagement with its academic foundations.

However, the present issue takes that premise as its starting point rather than its conclusion. Accepting emergence and evolution as quintessential characteristics of urban design education (Cidre, 2016), we extend the conversation by shifting attention to *pedagogies*, by asking how these are formed, sustained, and transformed across different institutional, cultural and geographical contexts. We aim to foreground the dynamic

interplay of institutional, curricular and pedagogical structures and practices. It is, therefore a timely and necessary attempt to discuss **design "pedagogies" in urbanism** from a broader perspective to develop a collectively formulated response to the urgent challenges facing urban environments today.

In doing so, the special issue expands both the geographical reach and scope, bringing together experiences from diverse regions while examining the processes that shape pedagogical trajectories over time. Such an approach helps sustain international discourse that embraces the unique characteristics shaping urban design education through institutional and curricular formations, design studio pedagogies as well as normative grounds or thematic orientations that guide them. Moreover, identifying and examining the situated practices of academic communities in different regions can serve as key reference points in the institutionalization process, offering valuable insights for future research into the historical development of urban design education.

To that aim, the special issue of *Design for Resilience in Architecture & Planning* seeks to broaden the scope of graduate education in the field of urban design. As an academic endeavor, it aspires to lay the groundwork for holistic, systematic and robust research into urban design education within an international context. From a practical standpoint, the issue aims to inform educators, academics, students, practitioners, and decision-makers on how to collectively respond to both enduring and emerging challenges and opportunities on the urbanism agenda.

Within this framework, we invited contributors to reflect on their own experiences in urban design education through a specific lens, as exemplified by the thematic categories outlined below.

Institutional Structure

- What are the regulative, normative, or cultural pillars in the institutional organization of urban design graduate education?
- How have institutional identity of urban design programs formed, constructed, and negotiated?
- How does urban design education institutionally emerge, persist, or change over time?
- How does the institutionalization of urban design graduate education unfold in wider national or international higher education policy standards or frameworks?
- What are the modes of top-down institutional constitution and bottom-up construction, invention or negotiation?

Epistemological / Curricular Content

- What constitutes the knowledge domain of urban design education? What do urban design curricula entail? How has urban design as a field emerged and formulated through curricular organization?
- How were the curricula formed or structured in urban design programs? What are the dynamics of shaping urban design curricula?
- How have the curricula evolved in terms of disciplinary domains, specializations or certain themes?
- How are syllabi of urban design courses structured, communicated and executed? What are the ends and means of urban design courses?

Thematic / Discursive Orientation

- Are there certain thematic focuses that drive the (re-)formation of urban design programs?
- How are certain themes infiltrated in urban design education or how is urban design education coordinated around certain themes?
- How do thematic focuses of urban design programs relate to geographical contexts or local/global urbanism agenda?

Organization of Design Studio

- How are design studio courses organized in urban design education?
- What are the situated pedagogical practices in the urban design studio?
- How do urban design studio courses link with the profession, respond to real life and user needs, or local / global urbanism agenda?
- What are the distinguishing contextual and methodological frameworks in urban design studio education?
- Do urban design studio pedagogies evolve over time?

- What capacity does the design studio have to produce, reproduce, change or challenge the existing conditions?

Urban design pedagogies emerge through the careful curation of multiple, interrelated dimensions, and changes in any of these can trigger their evolution. Each contribution in this special issue engages with one or more of these dimensions, often in combination, revealing how pedagogies are assembled, challenged, and reworked across contexts.

In an effort to broaden the perspective globally, the special issue brings together contributions from diverse geographies, including the United States, the United Kingdom, Australia, the United Arab Emirates, and Türkiye. It also purposefully avoids privileging a single model of urban design education, instead juxtaposing a range of program types and degree structures—such as Master of Urban Design (MUD), Master of Science in Urban Design (MSc UD) Master of Urban Development and Design (MUDD), Master of Urban Design and Digital Environments (MUDDE), and Master of Science in Urban Design and International Planning (UDIP). Contributions include experiences from urban design education embedded within undergraduate architecture programs, specialized master's programs housed within planning departments, and stand-alone programs located in schools of design, as well as programs shaped by distinct historical trajectories, some evolving from concurrent and joint degrees to others established from the outset as specialized degrees.

The special issue is organized into three sections. The first section brings together Viewpoints, that engage critically and discursively with one or more pedagogical dimensions, foregrounding key debates, emerging questions, and conceptual provocations shaping urban design education. The second section comprises Research Articles that present empirically grounded and analytically rigorous investigations into institutional formations, curricular structures, and studio pedagogies across different contexts. The third section features a book review of *Urban Design Education: Designing a Pedagogy for an Evolving Field* by Hesam Kamalipour and Nastaran Peimani (2025), a timely contribution that resonates with the themes addressed throughout the special issue.

Finally, we gratefully acknowledge the reviewers whose careful and generous engagement has been instrumental in shaping the quality and coherence of this special issue: Açalya Alpan, Banu Aksel Gürün, Beyza Karadeniz, Binali Tercan, Cansu Canaran, Hatice Karaca, Mazyar Abaee, Nevter Zafer Cömert, Nihan Oya Memlük Çobanoğlu, Şebnem Hoşkara, Yiğit Acar, and Zeynep Eraydın. We also extend our appreciation to Editor-in-Chief Mehmet Topçu and the editorial team for their support in bringing this special issue to fruition.

Together, these contributions invite continued reflection on how urban design pedagogies can remain critical, adaptive, and responsive to the challenges. We hope this special issue serves not as a conclusion, but as an opening for further dialogue on the trajectories, tensions, and possibilities of urban design education.

Overview of Contributions

The collection of papers in the present issue opens with five viewpoints that offer the authors' original perspectives and insights, without necessarily being grounded in systematic empirical research. In this context, the first short contribution is by Peter Bosselmann, who has been a key figure in the long-established tradition of urban design education at the University of California, Berkeley since the mid-1970s. In his article, drawing on the long-standing experience of the Master of Urban Design program at UC Berkeley, **Bosselmann (2025)** shows how collaboration among architecture, planning, and landscape architecture is essential for understanding cities as complex socio-environmental systems. He argues that effective pedagogy combines design studios with systematic observation, measurement, and (social and environmental) policy awareness, enabling students to test assumptions about urban form rather than rely on unexamined dogma. Overall, it presents urban design as a 'social art' whose educational strength lies in pluralism, collaboration, and reflective engagement with real urban change.

Subsequently, we have another author who has a long teaching career in urban design in the North American context. In his viewpoint, **Graves (2025)** discusses how urban design is introduced at the undergraduate level within architectural education. Focusing on a long-running studio pedagogy developed at Kent State University, the author argues for the centrality of the teaching principles of Colin Rowe (such as figure–ground analysis, typology, collage, and contextualist thinking) in helping students understand site, urban form, and spatial relationships. Through a carefully sequenced set of studio exercises, the paper demonstrates how students progressively move from analysis to design, integrating historical precedent, morphology, and contextual urban space-making. Overall, the article claims that while tools and technologies evolve, Rowe-inspired analytical foundations remain a relevant and adaptable basis for (undergraduate) urban design education.

In the following viewpoint, **Martins (2025)** suggests a critical view of the implications of AI for urban design education. Here, the author argues that AI represents not just a new tool but a transformative force reshaping pedagogy, assessment, and professional practice. At this point, Martins (2025) discusses both the opportunities AI offers (i.e., enhanced design exploration and data-driven analyses) and the significant risks it poses to assessment validity, skill development, and ethical responsibility. Drawing on literature, practitioner interviews, and critical reflection, the author argues that urban design education must engage with AI in a cautious yet proactive manner rather than through denial or uncritical adoption. Eventually, the paper positions urban design education at a crossroads, where the field has to encounter some kind of uncertainties, whether AI strengthens or undermines the discipline's intellectual and ethical foundations.

Then, **Porta and Rofé (2025)** argues that amid the current historical transition, the future of urban design should be approached through a reconsideration of foundational assumptions. Drawing on the notion of deep sustainability and "radical" approaches to urban design—particularly Christoper Alexander's critique of mechanistic approaches and his call for an authentically sustained morphogenetic process—the paper revisits his Schumacher Lecture as a basis for responsible urban design pedagogy. It further advances this agenda by connecting Alexander's legacy to recent developments in urban morphometrics and urban evo-devo demonstrating how the integration of urban morphology and design can support an evolutionary, evidence-based pedagogical framework.

The first section of the issue (the viewpoints) is finalized with an updated discussion on the relationship between urban design academia and practice. At this point, **El Khafif and Larco (2025)** examine the evolving relationship between the two domains, drawing on interviews with practitioners conducted by the *Urban Design Academic Council* (UDAC) in the USA. The authors argue that while graduate programs provide strong technical and design foundations, gaps persist in strategic thinking, narrative communication, systems thinking, and real-world preparedness. More interestingly, practitioners emphasize emerging priorities such as climate resilience, equity, and adaptive reuse, which are considered academic research topics in many contexts. The paper contends that closer collaboration between academia and practice, especially through joint research, practitioner-led teaching, is essential to address these gaps while preparing graduates for complex professional realities.

Then, with the first research paper involved in the issue, **Shafiei and Chenaf (2025)** discussed the use of technology in contemporary urban design education. They basically argue that technology functions not merely as a toolset but as a pedagogical infrastructure that organizes inquiry, shapes design workflows, and guides modes of representation. Through a case study of the Master of Urban Design and Digital Environments (MUDDE) program in Dubai, UAE, the authors show how VR, AR, and AI are embedded within the curriculum as an integrated operating system rather than discrete skills. They argue that this integration shifts pedagogy from technical skill acquisition toward thematic interplay, where digital technologies actively structure how students think, design, and communicate urban futures. Empirical analysis of studios and workshops demonstrates that computational tools foster iterative reasoning, embodied spatial understanding, and collaborative knowledge production. Overall, the paper positions technology as an epistemic driver that extends the operational ground of urban design education.

In their article, **Black and Kerr (2025)** present the urban design studio at the University of Manchester, the UK, as the core pedagogical setting for applied urban design education, analysing how staff intentions and student experiences interact in practice. It argues that a studio-led approach is essential for translating theory into practice, developing technical competence, critical thinking, and professional qualification through hands-on, collaborative learning. Drawing on multi-year evaluations of staff and student feedback, the authors identify both the benefits of studio culture (i.e., collaboration, creativity, mentorship, and identity) and its risks (i.e., imbalanced power dynamics, stress, and inconsistent feedback). The paper emphasises the responsibility of educators to actively design and manage studio culture. Overall, it positions the urban design studio as a dynamic, evolving educational framework that must be continuously reflected upon and adapted to bridge education and professional practice through strong engagement and communication.

Thereafter, **Tümtürk et al. (2025)** document and critically reflect on a well-established graduate urban design program in Australia. Reflecting on their own pedagogical experience in the Master of Urban Design Program at the Melbourne School of Design (MSD), the authors argue for a "grounded projection" pedagogy that systematically integrates evidence-based understanding of the field through rigorous spatial analysis with speculative and future-oriented design thinking. The authors argue that confronting ecological crises, social inequities, and technological change requires urban design education to move beyond isolated studios toward a coherent, program-wide pedagogical structure. They demonstrate how a sequential studio framework, progressing from rule-based morphological analysis, to socially and politically engaged design, and finally to long-term ecological and technological futures, systematically builds students' both analytical and imaginative

capacities. Central to the argument is the claim that analytical rigour does not constrain creativity but enables credible speculation. Overall, the paper presents the program as a transferable model for rethinking urban design pedagogy in response to planetary-scale challenges.

In the fourth article within the volume, **Lawton and Judd (2025**) examine the 26-year experience of the Master of Urban Design and Development (MUDD) Program at the University of New South Wales (UNSW), which functioned as a role model to many emerging programs worldwide. Here, the authors present the interdisciplinary model of the program integrating urban design with real estate, public policy, and development practice. The authors argue that contemporary urban challenges require designers who can operate across institutional, economic, and regulatory frameworks, not solely within formal or spatial domains. Through the structure of the MUDD curriculum and studios, the paper shows how design is positioned as a strategic mediator between public and private interests. The authors argue that exposing students to negotiation, feasibility, and implementation strengthens design agency. Overall, the article presents MUDD as a pedagogical response to the growing complexity of urban development. In this context, the authors also highlight the need for pedagogical training for instructors to internalize and operationalize the interdisciplinary model of urban design education effectively.

Finally, **Yavuz Özgür and Çalışkan (2025)** critically examine the transformation of urban design pedagogies through a diachronic reading of the history of the METU Master of Urban Design (MUD) studios in Türkiye between 1996 and 2025. The authors argue that urban design pedagogy cannot be understood as a fixed typology but is historically constituted through the dynamic interplay of institutional frameworks, urban agendas, studio coordinators' agency, and pedagogical intentions. Building on the distinction between *pragmatic*, *normative*, and *exploratory* pedagogies, the authors show how METU MUD studios have continuously shifted among these orientations in response to real-world demands, crises, and evolving theoretical frameworks. The study demonstrates that studio education operates as an adaptive system rather than a stable model, capable of smooth transformation rather than pedagogical stuck. Overall, the paper positions urban design education as a reflective and context-sensitive field, shaped as much by external conditions as by internal pedagogical choices.

Emerging Insights and Key Takeaways

Beyond a Unified Trajectory: Multiple Pathways of Institutionalization

Urban design does not settle easily on a certain institutional basis. The writings in this special issue collectively reflect that its institutional identity appears as something formed, undone, and re-formed through higher education systems, disciplinary arrangements, pedagogical positions, and professional expectations. Not one pathway, but many.

Tracing the trajectory of one of the long-established programs in urban design, Bosselmann (2025) demonstrates that its institutionalization was never a purely academic undertaking but unfolded in broader urban and socio-political agendas and movements. Its formation responded to rising concerns about public space, governance, and environmental responsibility among citizens. Urban design's academic identity cannot be separated from its claim to relevance in addressing urban problems. Therefore, institutionalization appears not as a moment of disciplinary closure, but as an ongoing process continually shaped by external pressures, societal demands, and the shifting role assigned to planning and design practitioners in the city.

At another level, Lawton and Judd (2025) show how the legitimacy of the field is assembled through the academic community and related ideologies surrounding the program. Through the case of UNSW, they reflect on how the transdisciplinary organization of the program was realized through carefully curated bodies of knowledge based on spatial political economy, urban design theory and paradigms, and the conception of urban design as a public policy. Entry requirements, curriculum structure, credit systems, and studio sequencing have become instruments through which these frameworks have been firmly embedded, decisively anchoring urban design as a coherent educational project.

Elsewhere, there are examples where the legitimacy of the field is built immersed in other disciplines[1] mainly through regulating bodies, but co-dependent on the agency of the instructors. Graves' (2025) account situates urban design firmly within architecture, particularly at an undergraduate level, through the NAAB accreditation. However, regulation does not exhaust pedagogy. The article foregrounds the instructional agency, recalling long-

[1] Black (2019, p. 19) addresses urban design as a hidden specialism when it is immersed in architecture or planning degree pathways. For an account of integrating urban design as a foundation course in the Built Environment Faculty, as a course in undergraduate urban planning programs, or in postgraduate architecture program please see: Urban Design Quarterly, Issue 47, pp. 18-29 and Issue 64, pp. 18-21.

standing pedagogical traditions in which urban design sensibilities are shaped less by formal guidelines than by how design is taught, framed, and practiced.

The Relevance of 'Pedagogies' in Urban Design to Practice

While the legitimacy of the field and its education, through interdisciplinary, transdisciplinary, and immersed models, continues to be widely discussed within academic spheres, El Khafif and Larco (2025) turn their attention to professional practice. Their research makes one point particularly clear: the organization of the field in education is fragmented, so too are the professional realities and hiring landscape. While specialized degrees are welcomed, professional practice continues to prioritize portfolios, demonstrated competencies, and hybrid skill sets. Recruiters often extend beyond urban design credentials to expand the potential recruitment pool.

Practice-based surveys are vital in foregrounding the delivery aspect of education in terms of practice-readiness and applied competence. Two such surveys,[2] conducted in the UK, point to a significant shift in employability. Three decades ago, postgraduate specialist education in urban design was reported as a key qualification criterion for both private and public employers (Lloyd-Jones, 1997). Two decades later, however, a marked decline in in-house urban design capacity within the public sector was identified (Giordano, 2019). One could argue that urban design positions, especially in consultancy, are often treated as more dispensable in times of financial constraint, based on the assumption that their responsibilities can be absorbed by in-house architects or planners.[3] Loew (2009) also implies this tendency for the in-house urban design training positions that have been put into practice both in the public and private sectors (p. 25). Whether this trend signals a move toward urban design becoming a discretionary, if not ultimately obsolete, credential in the future remains a striking question.

This is also consequential: so long as urban design remains unrecognized as a distinct profession, such practices are likely to persist. In this context, the relevance of multiplicities in urban design pedagogy within higher education programs to increasingly internationalized practice and globalized job market becomes an ever more critical question for the field's *raison d'etre*. This underscores the significance of scrutinizing urban design pedagogies in tandem with a systematic, global assessment of the type of work, employment, and qualification and training preferences across different job markets globally

Studio Education and the Making of Urban Design as an Applied Discipline and a Specialized Profession

Across the contributions, studio education emerges as a central setting in which urban design is rendered applied, actionable, and professionally oriented.

Studio-based Education Model

Black (2025) shows different educational models are shaped not only by departmentalization[4], but also by how the studio is positioned within the core curriculum. He reveals through the UK context that theory-based and immersive specialist pathways, particularly those aligned with architectural education, coexist with more "bespoke" studio-oriented configurations that place tailored design inquiry at the center of learning. These arrangements are not neutral. They determine how professional identities begin to take shape.

Backbone of Disciplinary Foundations

It is within the studio that the epistemological, methodological, and cognitive foundations of urban design are most clearly established, and at times, transformed. Tümtürk et al. (2025) make this point explicit by proposing an integrative studio model that draws on analytical and speculative pedagogies. They articulate this process with utmost clarity by framing studio education as a staged formation of disciplinary thinking. Epistemologically, their model anchors urban design knowledge in a grounded understanding of urban form, regulation, and spatial systems. Methodologically, this grounding is progressively mobilized through structured design operations moving from rule-based reasoning to projective inquiry. Cognitively, the sequence cultivates a shift in how students think: from mastering analytical tools to extending design imagination across longer

[2] It should be acknowledged that these findings may be sensitive to geographical contexts, as El Khafif and Larco's (2025) research is situated in the United States, whereas Lloyd-Jones' (1997) study was conducted in the UK.
[3] This observation was raised during the Q&A session of the *Intertwinia in Design Education Conference 2025* by a UK-based participant, following the presentation of a paper on the shifting academic organization of urban design education in Türkiye by one of the co-editors.
[4] For an account of academic identity formation through departmentalization profiles of urban design education, please see: Carmona, M. (2016). Urban design, a call for inter-disciplinarity. *Journal of Urban Design*, *21*(5), 548–550. https://doi.org/10.1080/13574809.2016.1220160

temporal horizons. Studio education thus becomes the backbone through which the disciplinary foundations of urban design are claimed and practiced.

Shafiei and Chenaf (2025) adopt a similar foundational perspective, while shifting the focus to the transformative role of technology in reshaping these foundations. They frame technology not as an auxiliary tool but as a "conceptual operating system." They show how the adoption of computational and immersive technologies reorganizes epistemic inquiry itself, shifting studio objectives from problem-solving toward knowledge production, and from confirmation toward sustained questioning. Methodologically, design workflows are reconfigured: the pace of work accelerates, hierarchies flatten, and non-linear and iterative exploration replace sequential procedures. In terms of cognitive and communicative dimensions, technology introduces new modes of reasoning and representation: design thinking moves away from producing singular solutions toward learning how systems behave, as evaluation focuses less on outcomes and more on the performance of the processes that generate them. They reflect on how digitally immersive environments further translate complex spatial data into embodied experience, expanding how designers think, communicate, and reason through space. In this formulation, technologically assisted studio education transforms disciplinary foundations by recalibrating how knowledge is produced, methods are enacted, and urban futures are conceived within the studio.

Although not explicitly grounded in studio education, Porta and Rofé (2025) locate the disciplinary foundations of urban design in urban form, morphology, and its scientific analysis through urban morphometrics. By affirming urban form as an evolutionary system, they call for a paradigm shift in urban design education. Beyond its analytical capacity, urban morphometrics is also argued to signal a deeper disciplinary transformation, as the development of new instruments opens the possibility of a scalable numerical taxonomy of urban form and, ultimately, a science of urban form evolution.

Looking ahead, these contributions point toward the need for a more explicit—and critical—engagement with how educational practices conceptualize the built environment, often as the outcome of discrete design interventions rather than as the emergent result of complex, self-organizing systems. Pursuing this line of inquiry offers a promising direction for future research and experimentation within urban design education.

Core Competencies and Professional Readiness

It is inherent across the contributions that studio education function as a central locus for developing core competencies and professional readiness in urban design. As staff and student bodies become increasingly international, and as practice itself grows more collaborative, and technologically mediated at the international context, the studio emerges as an ever more vital setting for learning how to operate across contexts, engage with multiple actors, and communicate expertise through design outputs. The topics in this section address

- the internationalization of practice and studio environments,
- partnerships with industry and stakeholders,
- the role of studio outputs in demonstrating competence,
- and the changing scope of program's learning outcomes.

What has become increasingly urgent is the call to foreground learning outcomes that extend beyond technical proficiency, emphasizing ethical responsibility and critical judgment as integral to professional formation.

Considering **internationalization practices,** Lawton and Judd (2025) foreground this shift through the case, where internationalization is embedded directly within curricular content, most notably through the International Design Studio. It also materializes through the physical reconfiguration of the studio environment. Overseas university campuses and short-term, intensive workshops are claimed to challenge familiar modes of learning and working. These settings compress decision-making, intensify collaboration, and expose students to alternative professional cultures. They reinforce studio education as a site to cultivate the capacity to operate across contexts to translate, adapt, and localize urban design knowledge and skills in diverse cultural, institutional, and spatial settings. Lawton and Judd (2025) demonstrate that tracking international operability lends itself to evaluation as a learning outcome through alumni tracking and feedback. Together, these approaches raise two broader questions: one concerns urban design as a globalized profession in 'culturally diverse international market' (Butina Watson, 1997), and the other addresses often overlooked circulation of urban design thought (Kossak, 2019)—whose values and concepts travel, how they travel, under what conditions they take root, and how they transform cities and urban spaces.

Several contributions position **industry and stakeholders within studio education,** at times assuming a leading or hosting role. Lawton and Judd (2025) note that, particularly through the International Design Studio, the involvement of industry professionals and visiting scholars keeps curricula responsive to evolving conditions and frames urban design as a component of urban development processes. Similarly, Tümtürk et al. (2025) report that industry partners are considered as an active component of studio sequencing—Urban Design Studio B, to expose students to real-world urban challenges, social and political processes, and stakeholder negotiation. However, they note that such engagements also surface enduring tensions between the methodological and learning expectations of industry with that of educational programs.

Other contributions foreground more collaborative and carefully mediated forms of engagement. Black and Kerr (2025) acknowledge the pedagogical value of hands-on studio work while noting critiques of its isolation from real-world complexity. Live projects, though promising as an increasingly globalized studio mode (Butina Watson, 2016), are shown to be difficult to sustain due to problems in consistency of commitment, alignment with educational frameworks, and engagement of students. At MUD-Lab, they addressed these through optional, extracurricular "live" projects that run alongside the core curriculum. The collaboration with a local planning authority illustrates how such arrangements can expose students to real policy impacts without compromising coherence, precisely because participation is voluntary and structured around academic timelines.

Our research similarly demonstrates that stakeholder partnership, rather than industry alone, is one of the constitutive conditions of studio education, extending across multiple scales and domains—from academy-sectoral stakeholders and academy-local government collaborations to engagements with cultural institutions and think tanks (Yavuz Özgür & Çalışkan, 2025). As echoed across the contributions, findings show that the interpretive agency of studio coordinators is key to shaping the pedagogical orientation and studio direction. Partnerships, for instance, produced pragmatic, outcome and implementation-driven studios in the earlier period, yet were later reframed as exploratory without real-world implications. Collaboration, therefore, does not automatically yield a pragmatic mode of education, it can equally be mobilized in support of exploratory design inquiry.

Perspectives from practice also necessitate the scrutiny of the significance of these arrangements from the other end of the pipeline. Interviews reported by El Khafif and Larco (2025) suggest that, in addition to enhancing students' capacity to navigate complex realities, practitioners also point to the benefits of shared resource infrastructures such as project archives and annotated case studies; immersive professional experiences including externships, shadow ships; and funding opportunities in travel-based learning, including site visits and international exchanges. Furthermore, they inform that these forms of engagement not only support professional readiness but also shape hiring practices, where informal networks and academic recommendations continue to play a significant role.

Altogether, the contributions suggest that industry and stakeholder partnerships are most effective not when they replicate practice, but when they are designed as reciprocal, pedagogically aligned, and institutionally supported forms of engagement.

Across the contributions, **studio outputs** emerge as a primary means. They are seen as instrumental in rendering competence, professional readiness, and disciplinary identity visible. Communication and visualization, across analogue and digital, individual and collective, static and immersive formats, are positioned as core capacities of urban design education. At the University of New South Wales, for instance, this emphasis is formalized through the introduction of communication-focused coursework aimed at strengthening graphic quality and representational clarity (Lawton & Judd, 2025).

At the University of Melbourne, Urban Design Studio A foregrounds multiplicity in design communication, dedicating the final weeks to the production of portfolios, posters, research booklets, short video narratives, digital and physical models, animations, and immersive VR experiences, culminating in a public exhibition that addresses diverse audiences from community stakeholders to policymakers (Tümtürk et al., 2025). Similarly, MUD-Lab frames dual-purpose in-studio outputs, serving both academic assessment and future employment, placing particular emphasis on portfolio development, supported through model-making workshops and structured portfolio feedback (Black & Kerr, 2025).

From the perspective of practice, portfolios remain the dominant evaluation tool in hiring, valued for their ability to demonstrate individual contribution, conceptual clarity, and graphic competence, especially in projects dealing with public space and streetscapes (El Khafif & Larco, 2025). These accounts underscore studio outputs

as a critical interface between pedagogy and profession, where learning is translated into legible, mobile, and professionally consequential forms.

Collectively, the articles emphasize that **learning outcomes** in urban design education are consistently framed as extending well beyond technical proficiency. What is foregrounded instead is *the cultivation of critical judgment, ethical responsibility, and an awareness of the value-laden nature* of design practice. Bosselmann (2025) articulates this position by suggesting that a measure of success in urban design education lies in reducing adherence to dogma, as much as possible within a practice shaped by competing ideologies. Critical thinking, in this sense, emerges not as an abstract skill but as a disciplinary disposition: the capacity to navigate complexity, contradiction, and uncertainty without retreating into rigid positions.

Within this broader framing, *technology* becomes a crucial—yet contested—dimension of learning outcomes rather than an end in itself. Digital capacity building appears across the contributions not as an optional enhancement, but as an increasingly unavoidable condition of contemporary urban design practice. From the perspective of practitioners, El Khafif and Larco (2025) report that digital tools, ranging from big data analytics to artificial intelligence and advanced computational methods, are reshaping how urban problems are analyzed, visualized, and negotiated. These tools expand the scope of design decision-making while also intensifying expectations of technical fluency, positioning digital competence as a part of professional credibility rather than a specialist add-on.

Shafiei and Chenaf (2025) elaborate on how this transformation is being absorbed into studio pedagogy. They frame technology as a formative force within the curriculum itself, as discussed in greater detail above. Digital tools are shown to enable new forms of interdisciplinary exchange, translating complex spatial data into legible and immersive representations that can circulate across disciplinary and institutional boundaries. In this sense, technology operates less as a discrete skill set and more as a shared language through which urban design engages with multiple actors. Whether these technologies amount to a genuine theoretical shift to experiential learning or "a change of standpoint"—one that reconciles the internal, lived experience of the user with the creative, external standpoint of the designer, as Owen (1993) and Stewart (1993) called for nearly three decades ago—remains an open and compelling question.

At the same time, the embrace of digital tools is not without tension. Several contributions caution against treating digital tools as neutral or purely instrumental additions to the learning environments. Martins (2025) introduces a critical perspective on the growing presence of AI in urban design education, cautioning against unreflective adoption, raising questions about authorship, judgment, and responsibility, and calling for critical AI literacy. Tümtürk et al. (2025) likewise underscore that the rapid evolution of digital tools demands continuous adaptation, ensuring that students develop a critical awareness of how technology actively shapes urban knowledge and urban futures, rather than merely serving them.

Shafiei and Chenaf (2025) similarly warn against technological determinism, both in design workflows and in modes of representation. Accelerated digital iteration, they argue, risks reducing design to optimization, privileging what is computationally efficient over what is substantially relevant and contextually meaningful. In response, they recalibrate studio pedagogy by reintroducing moments of reflection through slowing down workflows, punctuating speed with critique, and framing representation as an argument rather than an image. Immersive and visually persuasive tools are thus treated as sites of ethical and epistemic questioning, where students learn to articulate not only what their simulations reveal, but also what they are likely to obscure.

Together, these accounts resist a simple framing of technology as either a friend or foe. Instead, they position digital tools as pedagogical terrain, one that demands careful calibration, critical reflection, and an explicit alignment with the ethical and educational objectives of urban design.

Another learning outcome foregrounded across the issue is a shift in *the mode of inquiry* itself. Studio education increasingly moves beyond a narrow problem-solving orientation toward forms of knowledge production that integrate normative concerns, such as ecology, socio-political engagement, and climate responsibility, with speculative modes of design thinking and representation. This shift echoed from the perspective of practice. As El Khafif and Larco (2025) inform, professional competence today extends beyond technical capacity to include storytelling, argumentation, and the ability to construct and communicate design propositions through research, narrative, and collaborative reasoning. Their findings also point to persistent gaps: graduates often display limited narrative capacity, uneven conceptual rigor, and underdeveloped systems thinking, particularly in relation to ecological, social, and infrastructural interdependencies. Their insight

underscores speculative thinking not as an abstraction detached from practice, but as a critical learning outcome essential to contemporary urban design professionalism.

As both our research and Tümtürk et al. (2025) suggest, studio education can be deliberately structured around this shift. While less prevalent than pragmatic and normative models, exploratory pedagogy gains particular relevance under conditions of uncertainty, where urban societies and decision-makers increasingly rely on speculative, forward-looking design perspectives. Our findings show that such tendencies emerged as studios move away from problem-solving towards envisioning alternative urban futures (Yavuz Özgür & Çalışkan, 2025). In this mode, studios functioned less as simulations of professional practice and more as spaces of critical reflection and experimentation. Advanced Urban Design Studio C offers a parallel articulation of this logic, extending design inquiry across centennial horizons to foreground ecological futures and planetary conditions (Tümtürk et al., 2025). This way, they argue that the studio cultivates both systematic analytical rigor and imaginative capacity, preparing students for professional practice defined by long-term thinking, collaboration, and uncertainty.

A further learning outcome lies in strengthening students' collaboration and negotiation capacities, while simultaneously fostering individual mastery, through positioning the thesis itself as a studio-based mode of inquiry. Within that scope, Tümtürk et al. (2025) point to alternative modes of urban design research as the Urban Design Thesis operates as a capstone studio that integrates academic research methods with design-led inquiry. In doing so, it challenges the conventional view of the thesis as the outcome of isolated scholarship, instead of foregrounding collaboration, negotiation, and collective critique alongside individual skill-building. This approach resonates with Moudon's (2016) call to reconceptualize advanced urban design research as a pedagogical process embedded in a collective, interdisciplinary setting—albeit articulated as a "scientific model" and proposed at the doctoral level. These examples suggest that studio sequencing can be framed not merely as preparation for research, but as a primary site of research in urban design.

Collectively, the contributing authors within the current issue frame studio education as the central locus for developing both core competencies and professional readiness in urban design through engagement with real-world actors, international contexts, diverse modes of communication, emerging technologies, and shifting modes of inquiry.

Culture of Care

Black's (2025) discussion also situates studio education within a longer historical trajectory, but the primary premise lies elsewhere: in foregrounding studio culture, and more specifically, studio as a culture of care. He shows how such a culture does not emerge theoretically, but is actively produced through feedback- and assessment-based adaptations of studio education, reshaping how students engage with design, with others, and with themselves. Its significance lies in reflecting student narratives and agency, recognizing that how students negotiate expectations with supervisors is equally consequential (Kök Ayaz et al., 2025). Furthermore, this focus is particularly momentous at a time when calls for change in architecture and design education have become increasingly urgent, often exposing how educational environments normalize overwork, self-erasure, and endurance under the guise of rigor (Harriss, 2025). This signals a deeper continuity: the risk of rehearsing and normalizing the very extractive conditions that graduates would encounter in professional practice. Against this backdrop, foregrounding care in studio education could be seen as an attempt to unsettle this assumption. A culture of care, then, could be seen not only as a pedagogical adjustment but as a structural intervention–one capable of reshaping both studio education and the professional environments.

Urban Design Education in Transition: Directions and Drivers

Several contributions reveal urban design education has evolved through cycles of formation, consolidation, and in some cases, retreat, shaped by institutional arrangements, disciplinary reframing, and pedagogical priorities. Bosselmann's (2025) account traces this trajectory from early disciplinary separation to the establishment of the College of Environmental Design and the creation of joint and concurrent degree programs that positioned urban design as an interdisciplinary endeavor. The later formation of the Master of Urban Design sought to reconcile design, planning, and landscape architecture within a shared framework, only to face renewed pressure stemming from administrative complexity, financial constraints, and broader disciplinary retreat. Lawton and Judd (2025) describe a comparable recalibration at UNSW, where the Master of Urban Design and Development program was absorbed into a generalized planning master's degree. Read together, these accounts reveal retreat as an emerging symptom of institutional responses to uncertainty and shifting professional identities.

At the same time, studio education emerges as a more adaptive site of evolution. As demonstrated by Black and Kerr (2025), studios transform through internal dynamics—feedback loops, shifting studio cultures, and pedagogical orientations—while our research (Yavuz Özgür & Çalışkan, 2025) shows how both internal agency and external constitutive conditions—urban and national agenda, academy-stakeholder partnerships, global thematic influences, emergency and crises—shape pedagogies over time. Building on this, the study underscores that urban design pedagogy is neither fixed nor inherently resistant to change but evolves. Distinct modes of studio teaching emerge through the interplay of intrinsic and extrinsic factors.

In Lieu of Conclusion

The contributions to this special issue reaffirm urban design education as a field defined less by stable models than by ongoing negotiation—between disciplines, institutions, pedagogical orientations, and shifting urban agendas. Rather than converging toward a singular trajectory, urban design pedagogies emerge through multiple, context-sensitive configurations shaped by historical legacies, curricular structures, studio cultures, and the interpretive agency of educators. Instead of offering definitive models, the papers collectively surface new questions about how pedagogies form, how studios operate as sites of disciplinary foundation and professionalization, and how educational practices respond to shifting urban, technological, and socio-political conditions. In this sense, the special issue positions urban design pedagogies as open, generative, and contingent, unfolding prior to their possible consolidation.

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DRArch's objectives are:

- to question how future building technologies are revolutionizing architectural design, city planning, urban design, landscape design, industrial design, interior design and education,

- to catalyze the processes that lean on interdisciplinary and collaborative design thinking, creating a resilient thinking culture,

- to improve the quality of built environment through encouraging greater sharing of academicians, analysts and specialists to share their experience and answer for issues in various areas, which distributes top-level work,

- to discover role of the designers and design disciplines -architecture, city planning, urban design, landscape design, industrial design, interior design, education and art in creating building and urban resilience,

- to retrofit the existing urban fabric to produce resilience appears and to support making and using technology within the building arts,

- to discuss academic issue about the digital life and its built-up environments, internet of space, digital in architecture, digital data in design, digital fabrication, software development in architecture, photogrammetry software, information technology in architecture, Archi-Walks, virtual design, cyber space, experiences through simulations, 3D technology in design, robotic construction, digital fabrication, parametric design and architecture, Building Information Management (BIM), extraterrestrial architecture, , artificial intelligence (AI) systems, Energy efficiency in buildings, digitization of human, the digitization of the construction, manufacturing, collaborative design, design integration, the accessibility of mobile devices and sensors, augmented reality apps, and GPS, emerging materials, new constructions techniques,

-to express new technology in architecture and planning for parametric urban design, real estate development and design, parametric smart planning (PSP), more human-centered products, sustainable development, sustainable cities, smart cities, vertical cities, urban morphology, urban aesthetics and townscape, urban structure and form, urban transformation, local and regional identity, design control and guidance, property development, practice and implementation.

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Urban design pedagogy, an interdisciplinary approach

Peter C. Bosselmann*

Abstract

Among the many possible solutions to city form, urban designers are expected to create environments with some human purpose of a social, economic, aesthetic and technical merit. Education at a university graduate school should provide the necessary expertise. Questions like who to educate for a career in urban design and for what type of employment addresses the complex relationships designers navigate to build bridges between economic development, environmental quality and socio-political dynamics. Records show that applicants selecting a professional career in urban design are motivated to improve the prevailing physical, social equity and environmental conditions in cities. This article reports on the institutional prerequisites and pedagogy of an interdisciplinary urban design education sponsored jointly by the departments of City and Regional Planning, Architecture, Landscape Architecture and Environmental Planning in the College of Environmental Design at the University of California at Berkeley.

Keywords: interdisciplinary collaboration, environmental design research, professional silos

1. Cities Embody Both Change and Permanence. The Same Can Be Said About the Education of Those Who Decide to Enter a Career in Urban Design. Some Background.

Standing on the Rue Saint Antoine facing Place de la Bastille in Paris, not only can students of urban design observe the patterns in the pavement and recognize them as the outline of round towers from the historic Bastille fortress that once stood at this location. There are traces in many cities pointing to major or minor societal change. Their symbolic nature can be observed directly, and their clues can be reflected upon. Society might strive for social and physical equilibrium in cities, but such a balance is only temporary. Interpreting change to the form of cities is greatly enhanced when changes are observed and discussed among observers with interdisciplinary and cultural backgrounds.

Standing at Place de la Bastille, an observer might remember that the fortress there was demolished shortly after the events on July 14 in 1789, the date that marks the French Revolution. The observer will read the pattern in the pavement as symbols willfully made with the intent to convey social meaning. There are also plenty of other visual clues that reveal the former eastern wall and the Bastille Gate of Paris. The old moat, the Arsenal Basin, is in plain sight; the Canal San Martín, now under the pavement of the square, is still there, but hidden. The Bastille Opera House dominates the view. The symbolism of the building is hard to miss. The People's Opera, the result of a design competition, was authorized by President François Mitterrand as one of the first great public works after his election in 1980. The opera house, with its already turbulent artistic history, replaced another symbolic structure, the Gare de la Bastille, one of France's early railroad stations. Evidence of the former terminus is the elevated viaduct that still leads to Place de la Bastille. The Promenade Plantée inspired urban designers greatly with the opportunity to creatively reuse a structure from the early industrial age. New Yorkers walking on the former High Line have benefited from the Paris experience.

Urban design is about designing such places, but it is not only about large projects, publicly or privately financed. Students would be extremely fortunate to be assigned a project like the Promenade Plantée during their professional careers. More common in urban design is to work on

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adaptations at all scales, not only at the scale of single projects. Much has been built in cities that need to be reformed or transformed. Frequently, urban designers give new form to places that already exist, may it be a street, an urban district, the urban edge near a body of water, or a new community at the edge of a metropolitan region. Once built, all urban design will be perceived as social symbols, whether that was intended by the designer or not (Appleyard, 1998)[1].

2. The Institutional Requirements Needed for a Successful Urban Design Education

Academic programs at universities have their own histories. In the decades after WWII, the University of California at Berkeley transformed from its traditional emphasis on the humanities and on agricultural, mining, and engineering to become a comprehensive research university. The war efforts brought new industries to California in manufacturing, but also new strategic disciplines like computation and aerospace technologies. Inevitably, the population grew, and there would be more growth, but the question for the faculty in the design and planning fields was how to intelligently conceive responses to growth. After the years of economic depression in the United States and the destruction of cities in Europe and Asia, design and planning, quite optimistically, called for a holistic redesign.

The term 'Environmental Design came into use to simply mean "to design the world around us" with all its meaning, including the socio-political complexity of a growing region (Sachs, 2018). The call for multidisciplinary cooperation to improve system thinking in design and planning included the social sciences and knowledge of modern technologies. The term environment also includes what it currently means, the understanding of all things that support life as a system. Not squandering natural processes, like land, water, climate, and vegetation, became an important component of design thinking. Natural processes were, and still are, largely of exceptional quality in the San Francisco Bay Area, but they were vulnerable because the socio-political constructs of democratically governing a growing metropolitan region were weak. Little cooperation existed between the nine counties that make up the Bay Area with its one hundred cities and numerous unincorporated towns. For universities to educate students and address such vulnerability, professions tasked with shaping cities and the region received the mandate to innovate professional design and planning approaches.

Up to the 1960s the professional schools of Engineering, Architecture and Landscape Architecture at Berkeley were housed in different departments. Architecture with its home in the College of Arts, Letters and Science was still perceived primarily as an art form, simply because architecture was still the study and practice of eclectic design inspired by sources from antiquity. Already in the 1930s students started to question the relevance of assignments modeled after the Ecole des Beaux Arts tradition in France. Landscape Architecture was administered by the Department of Agriculture and Forestry; City and Regional Planning existed as its own academic discipline only since 1948. The governing body of the university approved a proposal in 1959 that had been made as early as 1943 (Montgomery, 2009)[2]: the creation of a new college to bring the departments of Architecture, Landscape Architecture and the new Department of City and Regional Planning together into one college, and five years later into one building, the nation's first College of Environmental Design.

Research and teaching design and planning of buildings, cities, and landscapes should be action-oriented to improve what society so casually calls 'urban' and 'nature stewardship.' But while the college organized itself by hiring new faculty members with expertise in the social sciences,

[1] At Berkeley, urban design education began with Donald Appleyard, Professor of Urban Design from 1968 to 1982. His death by accident cut short Appleyard's life at age 54, it also cut short the completion of his work not only in teaching urban design, but also on a book manuscript entitled: Identity, Power, and Place. A key message of the book was about the intentional or unintentional social symbols urban designers create.

[2] In a chapter on "A Century of Teaching Architecture at the University of California, Berkeley, 1903-2003", Roger Montgomery wrote about a 1943 letter written by William Wurster to the president of the University of California encouraging him to bring together into collaboration architecture, landscape architecture and planning. William Wurster at the time was Dean of Architecture at MIT. In the letter Wurster offered to lead the effort, which was to become the College of Environmental Design.

environmental assessment, law, political science, and system analysis with the aid of computation, the irony was that demolition of urban form was done in the San Francisco Bay Area and elsewhere, under the label of urban renewal. Federal and State funding became available to redevelop neighborhoods and commercial districts that were deemed to be undesirable (Hartman, 1974). In addition, making room for the federally funded freeway construction displaced even larger amounts of residents and would have displaced more, if all freeway construction had been realized according to plan. Imposing a greater new order on the urban structure did not involve much analytical thinking about its consequences. There was no evidence that a new spatial order alone produced good urban form.

Residents of local communities organized in protest, telling city council members not to expect reelection if they voted for the completion of the freeway grid. The famous freeway revolt, first in Berkeley, then in San Francisco was effective and spread to cities nationwide as well as internationally, like Toronto and Copenhagen. Similarly, the United States Army Corps of Engineers met forceful opposition when it proposed filling the Bay up to the line of the deep river channels. The army corps' proposal for additional land to build upon caused outrage. Three Berkeley women organized a movement—still in existence today—called "Save the Bay" (Walker, 2008). Later generations of San Francisco Bay Area residents would consequently label this type of activism as "Nimbyism". The generation of 1960 activists, however, saw their activities as local involvement against outside interference by the federal government. The large-scale land reclamation would lead to privatizing the waterfront around San Francisco Bay. In the mid-1970s, a broad coalition formed in San Francisco against the extensive growth of office development in its downtown area. International pension funds invested in real estate and created what many saw as a glut of office space. At local elections, proponents and opponents of development battled over public opinion by selectively using slogans like "killing the goose that laid the golden egg," versus "The Manhattanization of San Francisco."

3. Concurrent Degree Programs in Urban Design and Environmental Planning

Students and faculty at the new College of Environmental Design became involved in the local and regional discussions. The debate over the changing city and its landscape in the metropolitan context attracted the very best students to apply. For students interested in urban design, faculty at the college initially responded by creating joint degree programs ending in dual graduate degrees. Later, in the late 1980s, concurrent degree programs were established which further eased students' work by simultaneously studying towards two degrees at the same time and finishing with one thesis project (Southworth, 2014). For example, a successful applicant to a two-year Master of City and Regional Planning program could apply, while in the first year of residence, to the Landscape Architecture/ Environmental Planning department and would receive both degrees after an additional year of study in the department's two-year professional degree programs. Later, the concurrent degree program also became available for a Master of Architecture degree with Planning or Landscape Architecture. The advantage for the students was exposure to faculty from the three departments of the college. It attracted students, who went on to careers in government and consulting firms.

The concurrent degree students improved class sizes in the three departments without adding to the enrollment quota set for each department by the university administration. While study fees and tuition were relatively low, students interested in urban design eagerly enrolled in the three-year graduate program. But the low fee structure at Berkeley rose significantly during the 1990s. A three-year stay at Berkeley became a financial burden upon graduation when student loans were due and entry salaries at design firms remained low.

4. Master of Urban Design Degree Program

Reducing the financial burden on students was one of the reasons for starting a separate Master of Urban Design Program. But the guiding reason was to take full advantage of the college's

interdisciplinary potential. The program was started to give a group of students the opportunity to learn about urban design by working on singular problems together with faculty from the three departments. The result would be equally beneficial for faculty and students. Emphasis on design would make planners take a partial leave from abstractions and introduce them to the applied thinking of design. It would encourage designers to have a greater awareness of the social and environmental policy implications without doing harm to their creative thinking.

In the spring of 1995, "The Program in the Design of Urban Places" accepted the first applicants for a 12-month interdisciplinary program of advanced study for students with a prior professional degree and with some professional experience in design or planning offices. Faculty members from the three departments in the College formed a Graduate Group under the Dean of the Graduate Division and under the periodic supervision of the university's Graduate Council. Because the Master of Urban Design (MUD) degree remained a non-accredited degree, the Graduate Council's approval was preceded by a successful application to the State of California's Committee on Tertiary Education.

The new program in urban design was built upon courses that had already been available under the existing graduate degree programs. The MUD program admitted the first group of students in the autumn of 1996. In 2025, after thirty years, the program endured structural changes discussed in more detail later. Core requirements included two design studios, the first offered exclusively for the group of urban design students. For the second studio during the following semester, urban design students had a choice between alternative studios with an urban design emphasis in Architecture, City and Regional Planning, or Landscape Architecture and Environmental Planning. Studio instructors offered design studios with an urban design focus in the three departments and were committed to integrating urban design students with graduate students in their departments. The same integration was available for a mandatory history and theory course.

Students in their first semester also took a design method course that introduced students to systematic observations and empirically testing assumptions about the design of urban form. This course included a wide range of student-selected activities, such as measuring microclimate conditions in the urban environment. Students measured wind speeds at street level between buildings, temperature, and humidity. They fed their data into a computer model that predicts physiological comfort levels of the human body's thermoregulatory system (Arens & Bosselmann, 1989). While student teams were measuring, team members simultaneously observed pedestrian activities. This allowed students to test causality between observations and measurements.

Other students measured residential densities, added counts of nonresidential uses, and mapped activity levels along sidewalks at different times of the day. The repetition of such measurements on different streets allowed them to establish threshold values of urbanity (Braudel, 1992, p. 484).[3] Other students observed how the design of urban space can influence people's sense of time (James, 1961, p. 150).[4] They compare the physical distance of a walk and compare the length of the walk to the perception of time by those who took the walk. In comparing a selection of five-minute walks, some walks appeared to take a shorter time if the person walking encountered human activities and visual interest in the surroundings, or longer if few or no people were present and the physical environment was uniform.

Yet other students compare different neighborhood streets by measuring traffic volumes, speed, and noise, and study the benefits of traffic calming by asking residents about their perception of livability in their neighborhood (Craik & Appleyard, 1980).

[3] The French historian, Fernand Braudel in his "Civilization and Capitalism", Volume I, chapter 8 coined the term 'threshold values of urbanity'. Braudel admits, not that there is agreement on where exactly to place such thresholds, but in relative terms, urbanity can be measured.

[4] In 1892 William James wrote, "A time filled with varied and interesting experiences seems short in passing but long as we look back. A track of time empty of experiences on the other hand seems long in passing, but in retrospect short.

The important lesson for the students was to learn about multiple variables that need to be considered when passing judgment about what is good or bad urban form. The list of authors is long who have voiced assumptions about what is good or bad urban form. But many assumptions have gone untested. Like a scientist when searching for facts, rather than opinions, students can make discoveries. Measurement can be taken for qualities for which no established scales exist, but in relative terms, students can learn to place the results of their measurements on a continuum: more here, less there, the worst imaginable, and the best measured. Students were encouraged to use secondary data on demographics, traffic, and economic activities, but found that the available data frequently referred to a larger context and was collected at a coarse-grained level, and rarely in a specific, comparable place.

During the early years of the program, students lacked knowledge in real estate economics, also knowledge of computer applications was lacking. The program added a module in real estate economics and, later, from 2005 onwards, a module in Geographic Information Systems (GIS). The modules could be waived if students had previous knowledge in any of the two subjects. Students' work required intensive advising by faculty members, who also steered students towards a topic that they would like to deepen in their final thesis. During the second semester, students formed a committee by choosing two members from the Graduate Group, plus one outside member, to guide them through thesis preparation. Thesis work consisted of a design component that students completed during the summer months under faculty supervision. Students presented their final work to the next incoming group of urban design students, faculty, and visitors at the end of the summer prior to the beginning of the next term.

5. Student Selection

The Urban Design Program at Berkeley had been approved by the university as a post-professional degree program. Applicants documented their previous degree, a portfolio, letters in support, and a personal statement of motivation. But admission required additional judgments about the choice of professional careers available upon graduation. There was a strong bias among the graduate group members towards educating urban designers who had previous design degrees in architecture or landscape architecture. Those applicants were expected to qualify for employment in urban design consulting firms, but some members of the group also opted to admit applicants with a background in physical planning. The expectation was that program graduates would strengthen planning departments at municipal and regional government entities (Jacobs, 2011).[5] In a typical cohort of 12 to 15 students, one or two should have a previous planning degree. Initially, the program attracted applicants from across the nation and a few international students. That started to change in later years; Students from 38 nations have completed the program. By the early 2000s, the program could have filled an entire class with qualified foreign applicants from India or China but admitted only up to two students from the same country. While the program enjoyed uniqueness in the 1990s, over time urban design programs emerged elsewhere in the United States and abroad.[6]

6. Conclusion

The success of the Berkeley urban design program can be measured in a number of ways. Judging from the student exit surveys, participation in the program has resulted in a professional identity shift; students with architectural design backgrounds saw a broader application for their creativity. Many learned that design as a decision-making tool had implications for public policy.

[5] Allan B. Jacobs led the faculty effort to start the Program in the Design of Urban Places together with Donlyn Lyndon and Richard Bender.
Roger Montgomery supported the new program as Dean of the College and asked Michael Southworth and Peter Bosselmann to co-direct student admissions and course sequence. Other founding members included Randolph Hester, Louise Mozingo, Walter Hood, Daniel Solomon and Nezar ALSayyad.

[6] Notably certificate programs at MIT, Harvard, U of Florida, at the ETH in Zurich, ULC in London. The European Master of Urban Design Program at Delft University of Technology in The Netherlands or at KU Leuven in Belgium, UPC Barcelona or IUAV in Venice, Italy where students start their studies at one of the above universities but are also free to study at a partner university during their second year.

Students who came with planning backgrounds generally felt liberated by design. For them, all knowledge domains came into play: science, art, and value.[7] Students with planning backgrounds learned how to draw; despite the hard work it was to develop designs that other students did with greater ease. Students with Landscape Architecture backgrounds tuned in quickly to changes in the urban environment. They more frequently came with knowledge about landform, geology, and hydrology. During the international workshops in places, individual students with backgrounds in landscape architecture gave strength to the discussion among team members. Regardless of where we worked, China, Vietnam, France, or the Bay Area: "You can't just fill a wetland, its biodiversity has great value, or you can't' just cap a polluted site, the groundwater remains contaminated." Regardless of background, students learned to solve issues through collaboration. Divergent ideas and tolerance helped solve wicked problems (Sachs, 2018, p. 1300).[8] Design is never apolitical. It was important for the instructor to emphasize that professional realities in future consulting firms, or in city government, might ignore the need for debate. An opinion might prevail, but what professionals hold to be true will suit everyone. But at the university, students absolutely need to discuss divergent ideas about what is good design.

All students learned the difficult lesson about anticipating concerns that might be voiced by those who will live with their designs once built. There will always be opponents and proponents to design interventions. Urban design proposals go through a public process, especially if land use changes or changes to the intensity of use are proposed. Such proposals are evaluated by elected or appointed officials who pass judgment about what should be allowed and what cannot be justified in the interest of the common good, a process that is hardly ever neutral or free of ideologies. It might be fair to say that a measure of success would be to say the educational program's intention was to reduce adherence to dogma, as much as that is possible in a society so divisive in its allegiances to ideologies. The more isms, the greater the schisms.[9]

Judgements university administrators made about the program were important for continued support. Faculty and administrators are subject to much pressure to operate with efficiency and fiduciary responsibility. After twenty years of the urban design program's existence, most founding members, one by one, reached retirement age. Nearly all founding members, one after the other, had served as department chairs in one or the other three home departments of the college. This allowed them to remind fellow chairs in the college to join in the resolve to support the interdisciplinary urban design program. Four different deans served their terms as hosts of a program that was not under their direct supervision, but under the supervision of a dean responsible for all graduate programs university-wide. However, the administrative complexity and rising financial constraints cannot be cited as the only reasons for retreat to distinct professional silos. But retreats need to be understood in a larger context. Not only at Berkeley, but members of the planning faculty retreated away from physical planning and from implementing policy about city form through the regulatory framework. Landscape architecture faculty also retreated out of fear that other design disciplines would take away what is unique to their qualifications, especially their knowledge of natural processes and how such processes act on city form. Very decisively, natural processes act on cities at an accelerated rate, at a greater magnitude of change, and not for more favorable human conditions. Retreat is symptomatic of society's escape from the complexity of change. With the rise of autocracy in government and the irrational disregard for science, the problems for cities and metropolitan regions call for collaboration in design and research. It was the complexity of solving wicked problems that led to collaboration between professions to intelligently conceive the future (Sachs, 2018, p. 134). Urban design education has evolved. The New Urbanism movement initiated urban design programs. Collaborations with business schools emerged in the starting urban design and real estate programs. Urban design, jointly with

[7] Stephen Jay Gould (1999), the Zoologist referred to the three knowledge domains in in *Rocks of the Ages, Science and Religion in the Fullness of Life* (Ballantine Books: New York)

[8] Avigail Sachs explained the wicket problem metaphor and traced the term to a publication (1973) and teaching at Berkeley by Mel Webber and Horst Rittel.

[9] Goldwag, Arthur (2007) cites Huston Smith "All isms end up in schisms."

geography, resulted in urban morphology programs. While change is inevitable, emphasis on pluralistic design remains unchanged. Urban design remains a social art.

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CRediT Authorship Contribution Statement

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Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data Availability

Data will be made available on request.

Ethics Committee Approval

Ethics committee permission is not required.

Resume

The author received degrees in architecture and urban design from the Technical University, Karlsruhe in Germany (1972) and the University of California, Los Angeles (1975). He joined the College of Environmental Design at the University of California, Berkeley in 1976, where he served as director of the Environmental Simulation Laboratory (IURD) from 1982 to 2017. His professional urban design practice includes work on the downtown plan for the City of San Francisco, the City of Toronto and cities in the Pearl River Delta, Guangdong Province, China. He is a faculty member in the Departments of City and Regional Planning, Architecture, Landscape Architecture and Environmental Planning. He served as Chair of Landscape Architecture and Co-Chair of the Master of Urban Design Program. During a sequence of sabbaticals, he was invited as an endowed professor to the Royal Academy of Art in Copenhagen, Tokyo University, the Polytechnic University in Milan, the Institute of Technology at Delft, and the South China University of Technology. He is currently a Professor of the Graduate School, UC Berkeley.

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An introduction to urban design at the undergraduate level

Charles P. Graves*

Abstract

This paper presents an undergraduate approach to introducing urban design within an architecture curriculum, responding to the National Architecture Accrediting Board (NAAB) requirement that all accredited programs incorporate foundational urban design knowledge. At Kent State University's College of Architecture & Environment Design, the third-year spring design studio was designated as the primary vehicle for meeting this requirement, with the author coordinating the semester based on his expertise in urban design. Drawing on the pedagogical principles of Colin Rowe, the studio framework integrates five core components: (1) analysis and diagramming, (2) collage and precedents, (3) urban and architectural typologies and morphologies, (4) the design of exterior urban space, and (5) structured readings. The paper outlines the exercises developed to operationalize these principles, each supported by lectures introducing key concepts and methods. Examples of student work accompany the exercises to demonstrate how these foundations collectively shape students' understanding of urban design at the undergraduate level.

Keywords: accreditation, architecture, Colin Rowe, curricula, education, pedagogies, studio, teaching, undergraduate, urban design

1. Introduction

In the education of an architect, the NAAB (the National Architecture Accrediting Board) requires that all architectural students be introduced to *urban design* at the undergraduate level, which is a part of the accreditation prerequisite. While the specifics of how this introduction is achieved can vary between curricula, NAAB accreditation mandates that architecture programs incorporate a range of design knowledge that includes urban design principles. This ensures that graduates are prepared to consider the broader context of their work and how it interacts with the built environment at a larger scale and requires architectural programs to introduce students to Urban Design as part of the accreditation requirement.

To accomplish this pre-requisite, the College of Architecture & Environment Design at Kent State University decided to use the spring semester 3rd year design studio as the UD platform, and since my Master of Architecture degree was in Urban Design, I was asked to coordinate the semester, which I first taught in the spring of 2009 until I retired in the spring of 2018.

My pedagogy for Urban Design is based on that of Colin Rowe, whom I studied with at Cornell University, and where I received my Master of Architecture degree in Urban Design in 1979. These teaching ideas were founded on a few basic principles or foundations.

1) Analysis & Diagramming
2) Collage & Precedents
3) Urban and Architectural Typologies & Morphologies
4) Designing Exterior Urban Space
5) Readings

At Cornell, Colin Rowe used some of the following methodologies for analysis and design.

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- **Figure-Ground Drawings:** Rowe popularized this analytical technique at Cornell to help students understand the urban fabric, or the pattern of solids (buildings) and voids (open spaces).
    - **Historical influence:** Rowe drew inspiration from Giambattista Nolli's 1748 map of Rome, which accurately rendered public spaces as voids in a solid built mass.
    - **Pedagogical impact:** By creating these black-and-white plans, Rowe forced students to recognize the importance of streets, squares, and other open spaces as positive, designed elements rather than just leftover areas between buildings.
- **Opposing Values and Dialectics:** Rowe's use of dialectics, often seen in his solid/void analysis, was a fundamental part of his theoretical work.
    - **Influence from his past:** Rowe's time at the Warburg Institute in London, studying Renaissance history under art historian Rudolf Wittkower, exposed him to traditions of formal analysis that valued historical precedent and abstract ideas.
    - **Modern vs. Traditional:** His application of opposing values often framed the debate between the Modernist vision of buildings as isolated objects in space versus the traditional city's continuous, street-based urban fabric.
- **Application of Analytical Cubism:** His comparison of Cubism to architectural theory is most explicitly detailed in the essay "*Transparency: Literal and Phenomenal*," which he co-authored with Robert Slutzky (Row & Slutzky, 1963).
    - **Cubist principles in architecture:** Rowe used concepts like the simultaneity of different views and the compression of deep space into shallow, layered compositions to analyze modern architecture, including works by Le Corbusier.
- **Privileging the Plan:** Rowe emphasized the plan as the most important element of an architectural idea, using it to analyze both individual buildings and entire cities.
    - **Analyzing historical typologies:** He taught students to analyze historical precedents through their plans, understanding the development and evolution of building types over time.
    - **The "Collage City" concept:** This approach directly fed into his *Collage City* concept, which proposed that a city should be a collection of urban "fragments" of different styles and eras, all organized through a larger formal structure that can be discerned through the plan(Row & Koetter, 1979).

Beyond the core analytical methods, Rowe's teaching at Cornell also emphasized:

- **Contextualism:** The idea that new buildings should respond to and fit within their existing historical and physical context, a philosophy that contrasted sharply with many Modernist principles.
- **History and design:** His curriculum stressed that architectural history should be taught as a crucial discipline in conjunction with design, providing a foundation of ideas for students.

2. The Exercises

The following are the studio exercises issued to accomplish the UD requirement. Each exercise is issued with a lecture on the process and pertinent subject matter.

The exercises are as follows,

- Analysis
    - 1a The regional scale
    - 1b The city scale
    - 1c The site scale

1d Precedent city

- Collage: 2D
  - 2a Collage City
- Collage: Into 3D
  - 3a Collage City into 3D
  - 3b Collage City into a 3D Site
  - 3c Analysis of Individual Designs
- Typology
  - 4a A Small Public Theater
  - 4b Row Housing
- Bay Design
  - 5a Facade Design – Process
  - 5b Insertion Into Main Square
- Final Product
  - 6 Final Presentation

What follows is a description of each exercise and examples of student work accompanying each exercise.

ANALYSIS

Exercise #1a

The Regional Scale

The students meet at the given site and begin to perform a walking survey. They then begin a self-guided tour of the city where the site is located. Once all the data is gathered the students then perform an analysis of the city in relation to the region, an analysis of the city to the surrounding context, and an analysis of the given site to the city. The images shown here represent the city of Shaker Heights in relation to Cleveland and its surrounding context.

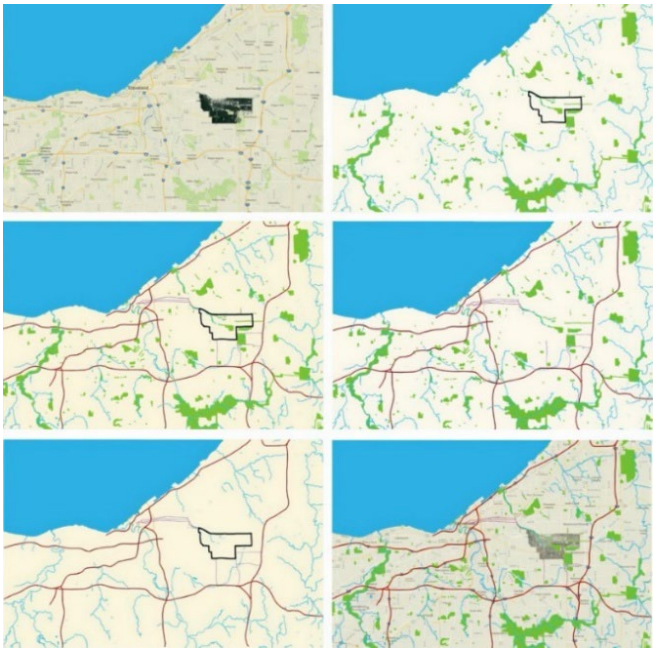

Figure 1 Analysis at the regional scale showing the city of Shaker Heights, OH in black (J. Penvose, Sp2015)

ANALYSIS

Exercise #1b

The City Scale

At the city scale investigation focuses on the fabric of building masses, street patterns, green space, water, and merchant centers as examples. The site is shown in the second and third diagram as a blue rectangle. Students also have access to GIS mapping of the region and the city of Shaker Heights online.

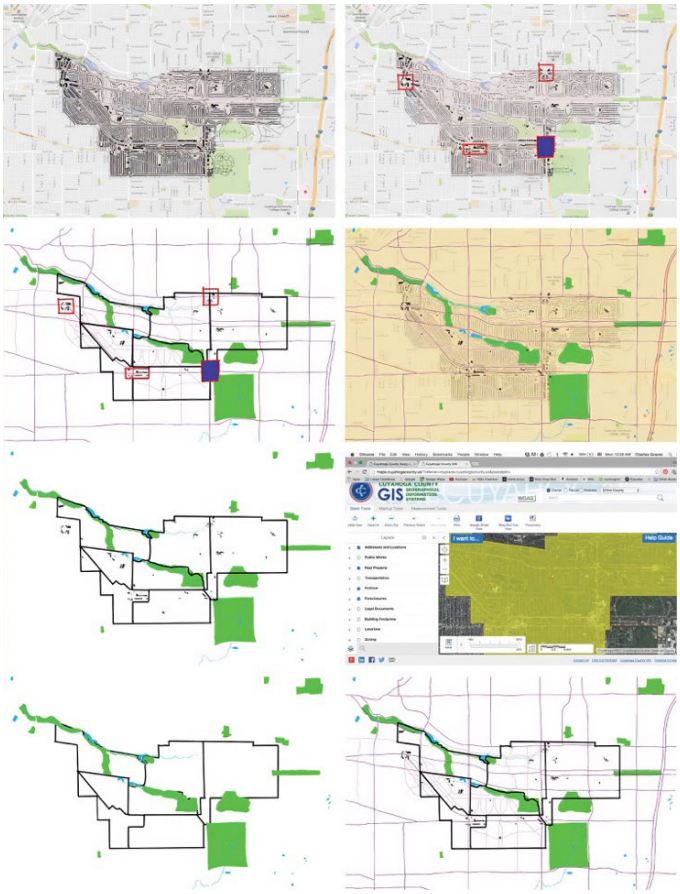

Figure 2a Analysis at the city scale (J. Penvose, Sp2015)

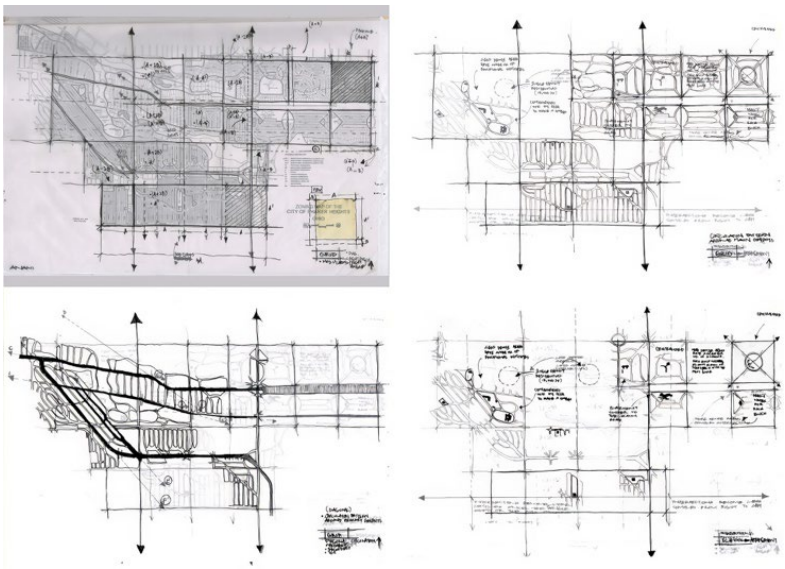

Figure 2b Analysis at the city scale (T. Anam, Sp2015)

ANALYSIS

Exercise #1c

The Site Scale

At the scale of the site, the students begin to investigate various existing programs, green space, buildable site, and road redirection.

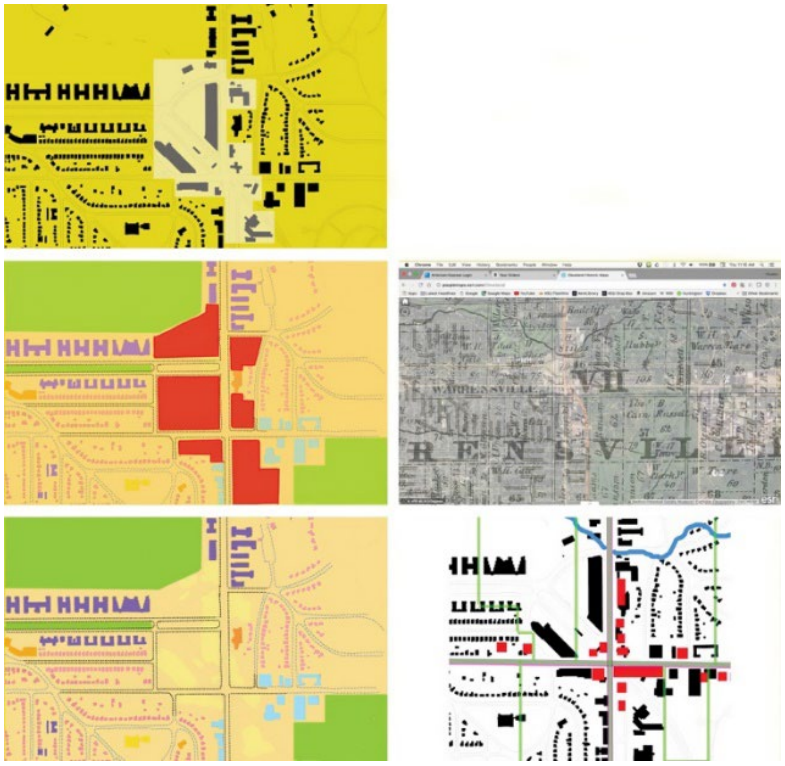

Figure 3 Analysis of the site (N. Yanxiong, Sp2015)

ANALYSIS

Exercise #1d

Precedent City

In this exercise, the students are given an existing city plan in figure-ground format. They then must translate the 2D image into 3D. The students begin by researching the site of the existing city and studying the massing in the surrounding context. Since the majority of the plans given to them are only conceptual, the area that was not built must be interpreted into 3D.

The example shown is a conceptual project designed by Steven Holl for the Parco Vittorio Formentano / Milano Porta Vittoria area. Using the given figure/ground drawing, the students are asked to analyze the plan by means of hand drawings on trace paper. Added to the 3D representation shown on the far right are the main roads as massing shown in brown.

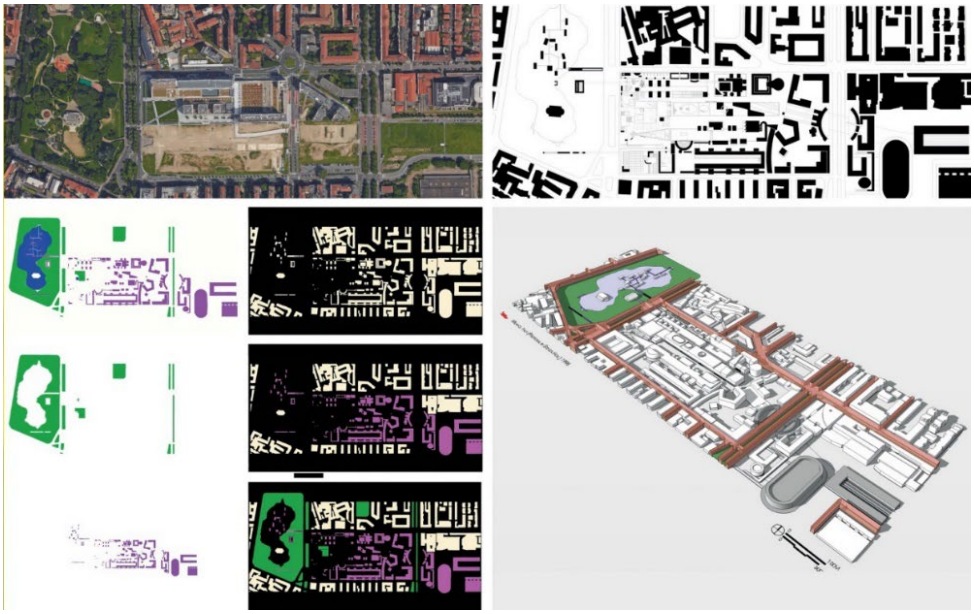

Figure 4 Student's 3D interpretation of a conceptual project originally designed by Steven Holl (C. Scaglione, Sp2013)

COLLAGE: 2D

Exercise #2a

Collage City

For this exercise the students are shown several cities drawn in figure/ground format. These city plans are taken from the text, The Genealogy of Cities (Graves 2009). It is then explained that using the existing plans the student must create a fictitious city made up from as many pieces they choose to use from the cities shown.

Figure 5 Figure-ground plans issued from "The Genealogy of Cities"[1]

[1] Ibid
Illustrations from left to right, top to bottom –
1) Almere NL (Rem Koolhaas) 1994
2) Berlin (Potsdam) DE (by Augusto Romanano Burelli) 1991
3) Frankfurt (Osthafen) DE_(David Chipperfield) 1994
4) London GB (Steven Fong) 1979
5) Milan IT (Steven Holl) 1995
6) Vienna AT (Ringstrasse) 1914

The fabric chosen does not have to be on the same scale, but once the collage is complete, a scale must be created for each solution. They are also able to add any figure-ground fabric themselves.

When presented...

1) The plan must look seamless. Meaning all the pieces should be woven together.
2) The pieces of existing fabric chosen should be shown on a separate page.
3) The areas where they added their own fabric should be shown in a separate drawing.

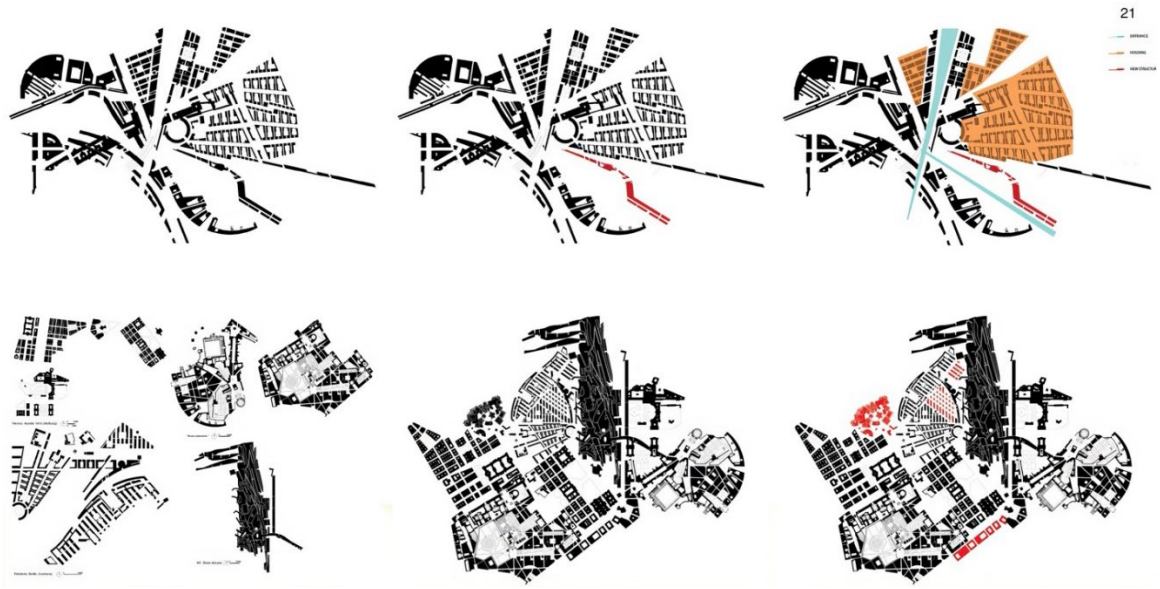

Figure 6 Two collages created from issued figure-grounds. The pieces chosen to create the collages are shown at the lower left. The areas drawn in color are pieces added by the student. (Z. Ye, Sp2014)

COLLAGE: Into 3D

Exercise #3a

Collage City into 3D

Using the collage exercise they just completed, the students are asked to begin to develop the plan into a 3D design. The plans are typically imported into a 3D computer program, scaled, and then extruded into massed buildings. The students are told they can use any 3D CAD program they choose, but that they will eventually be required to access some urban fabric through the CAD program SketchUp. It's also at this point that a list of possible urban programs is introduced. The students are required to denote where these programs might exist in their final 3D rendition. Typically, the original plan from exercise #2 are constantly revised from its original design. This may occur when the width of streets is scaled, or when some building mass is too small for any given program.

7) Roma Interrota (Colin Rowe) 1979
8) Luxembourg LU (Leon Krier) 1978
9) New York US (Thom Mayne) 1999

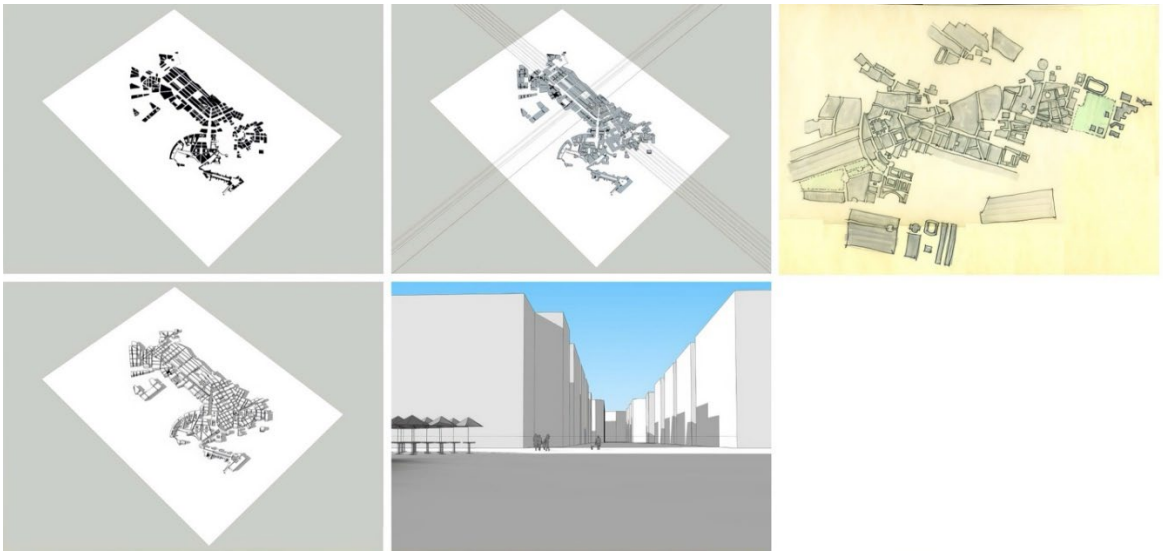

Figure 7 Fictional cities created by collaging are then developed into 3D schemes (Y. Zhang, Sp2018)

COLLAGE: Into 3D

Exercise #3b

Collage City into the 3D Site

Each student is presented with a 3D CAD file that has the existing site and the surrounding context, built in a SketchUp file. Using information and

schemes developed from the three previous exercises that students are asked to begin to develop a design. They are told to include the following.

1. Note the lanes of the existing roads. These must remain in some form in the final design.
2. There is an existing light rail system that terminates at your site. Provided a covered commuter station at the terminus.
3. A massing must be defined as the location for a small theater. This theater will show small productions, be used as a lecture hall, & show film. Since the theater will be showing staged productions, a Fly/Stage House, must be included in the massing.
4. A public square, or piazza. This space will have a hard surface and be defined primarily by building mass.
5. Mixed-use program. This could include shops, offices, housing, etc.
6. Areas that are defined as Row Housing.
7. To eliminate large parking lots, the students are told to locate parking structures.
8. All areas must be accessible to emergency vehicles. This exercise includes a lecture on Urban Typology. Once the designs are developed in 3D CAD, the students are required to build a small physical sketch model.

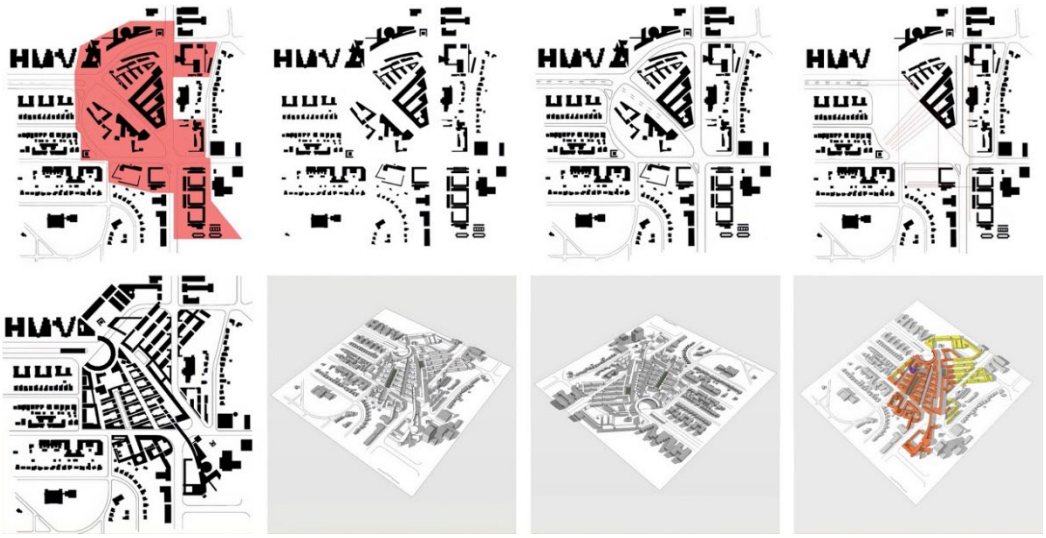

Figure 8 Using the two previous collage exercises, the students are then asked to collage and develop a 3D project into the given site, shown in red (A. Alahmadi, Sp2017)

COLLAGE: Into 3D

Exercise #3c

Analysis of Individual Designs

This exercise asks the student to investigate through analysis their own design process. At this point they must step back from the use of CAAD software and return to drawing by hand and building physically sketch models.

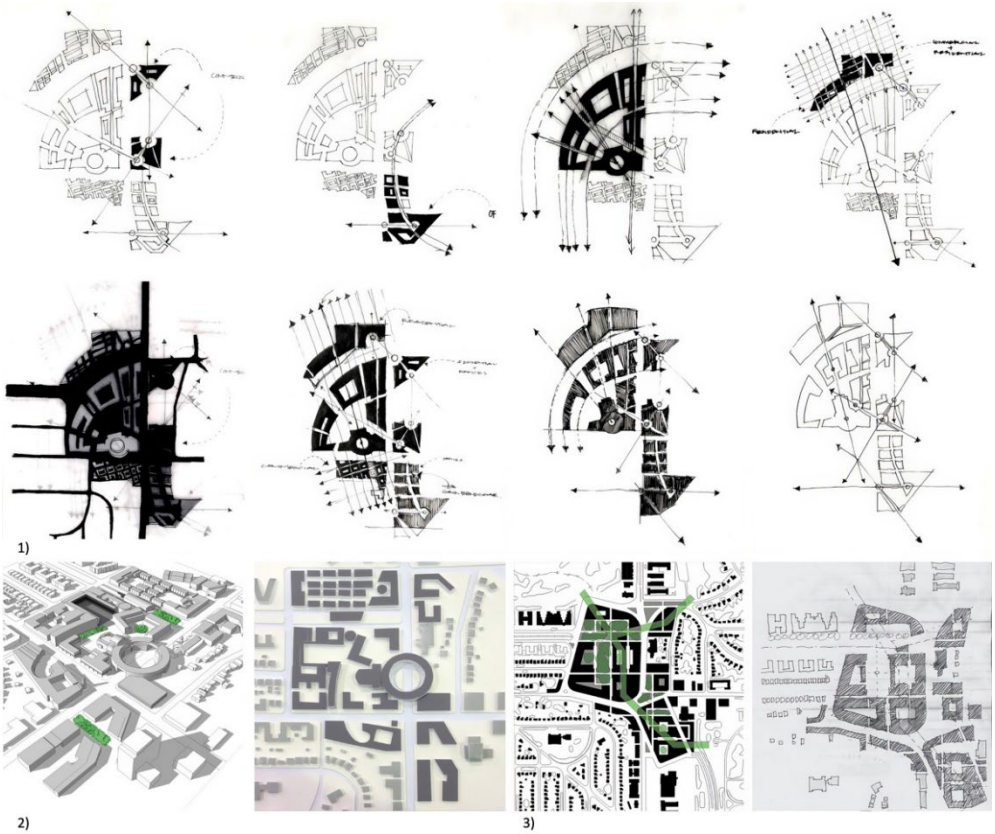

Figure 9 Once a project has been developed for the given site the students begin the analysis process, looking at circulation, how their projects relate to the surrounding context, and where various programs might be located (1- T. Anam, Sp2015) (2- C. Scaglione, Sp2013) (3- J. Gantz, Sp2009)

TYPOLOGY

Exercise #4a

A Small Public Theater

The exercise is presented with a lecture on the history of theaters and their typical siting. The exercise is not focused primarily on the theater program, but on the theater as a mass, and the various ways it may be designed into different urban contexts. Using SketchUp's 3D Warehouse and Google Earth, the students begin to locate existing theaters. They then begin to download these 3D drawn theaters into files for comparison. Since the exercise does not focus on materiality, all theaters are converted into a white format. The students then begin to import these chosen theaters into their own designs. Importing the chosen theaters into their previously designed schemes, the pupil begins testing the theaters in various locations for accessibility and connecting public spaces.

The example shown is *Teatro das Figuras* in Portugal. The *teatro* is designed by the architect Gonçalo Byrne, is a small civic theater seating only 762. Once the file is downloaded, they are then asked to simplify the project, deleting any extra site conditions or massing not needed.

Once this is completed, the model is further simplified by turning it white to match the other new context. The images illustrate how a theater appears in section, showing the 'fly/stage house.'

These images illustrate the sequence of downloading an existing theater, converting it to simplify, matching the existing context, and placing it into the new design.

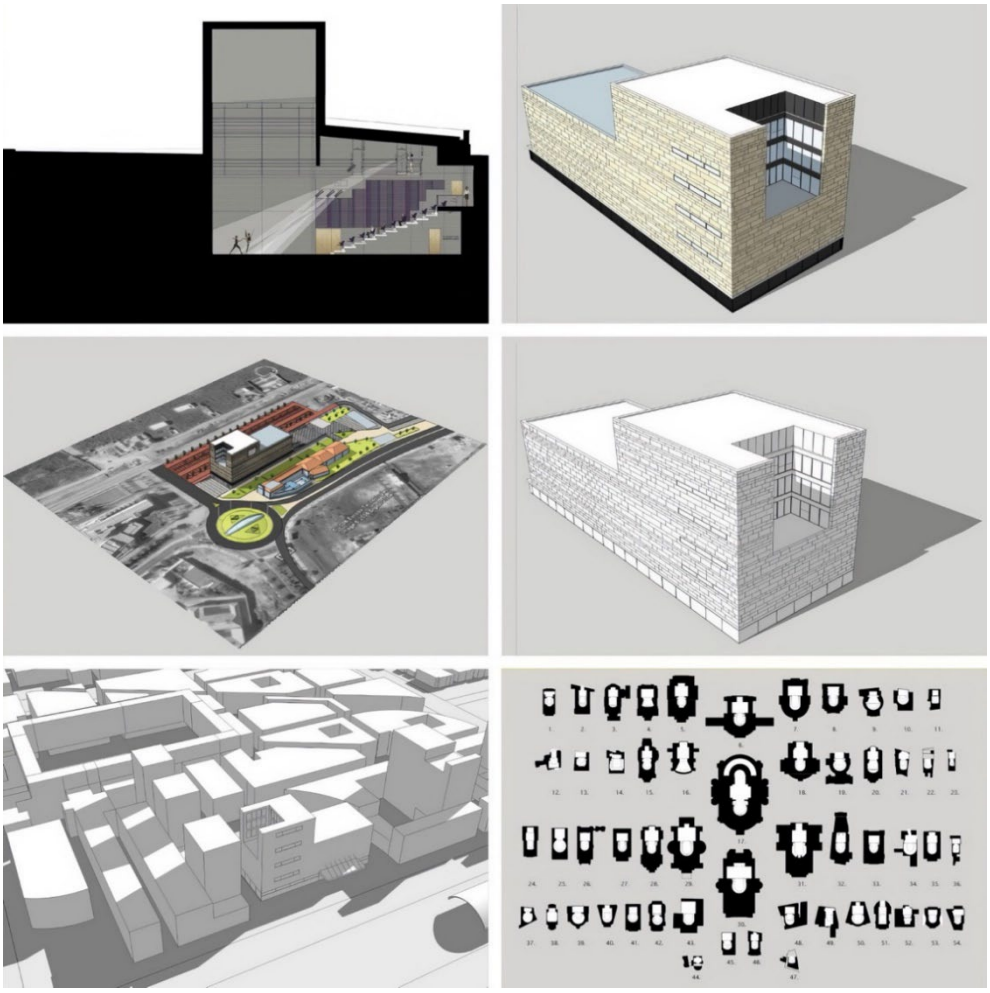

Figure 10 *Teatro das Figuras,* Faro, Portugal, was studied and compared to other existing theaters (Shown lower right) the theater is then scaled and placed near the public space (D. Fox, Sp2013)

TYPOLOGY

Exercise #4b

Row Housing

Like the previous problem, the exercise is presented with a lecture on row housing. Again, using SketchUp's 3D Warehouse, & Google Earth, the students begin to locate either existing row housing, or use an existing designed single unit that can be easily converted into town housing. Once the unit is chosen the students begin to study various ways the row housing can be arranged. This is done as a separate file, and includes various means of access, trees, and location of possible cars. Once they determine how they can possibly arrange the housing the students begin to import the housing mass into their existing designs, substituting the new massing into areas they previously determined row housing could be located. Each exercise requires the student to reinvestigate their overall designs and allows them to redevelop any area to make it work as a whole.

The top two illustrations are from the row house typology lecture. The first image depicts a typical Georgian six level unit found in London. The second image illustrates various configurations found worldwide.

The next three images depict a unit downloaded from 3D Warehouse, converted and simplified. At the next stage the students begin to investigate various types of combinations the units can be arranged, and their first attempts are made to insert the units into their master plans. At the final stage of the row house exercise the students become aware of the level of detail the units should have when displaying them at either a closeup view or zoomed out to view the complete master plan.

Below is an example of a students' row housing investigated and then inserted into their master plan. The final requirement is to illustrate the units at eye level.

Figure 11 Row house unites investigated as possible groupings and then inserted into their projects (A. Alahmadi, Sp2017)

BAY DESIGN

Exercise #5a

Facade Design-Process

In the initial stages of this exercise students begin to study other facades, and possible repetitive elements for potential bay elements.

To test the single bay the student is required to create a series of repetitive units that are connected. Forming two walls arranged 90° to each other allows for atypical investigation.

The student is also asked to design a portion of hard surface ground area, which allows the viewer to be visually grounded.

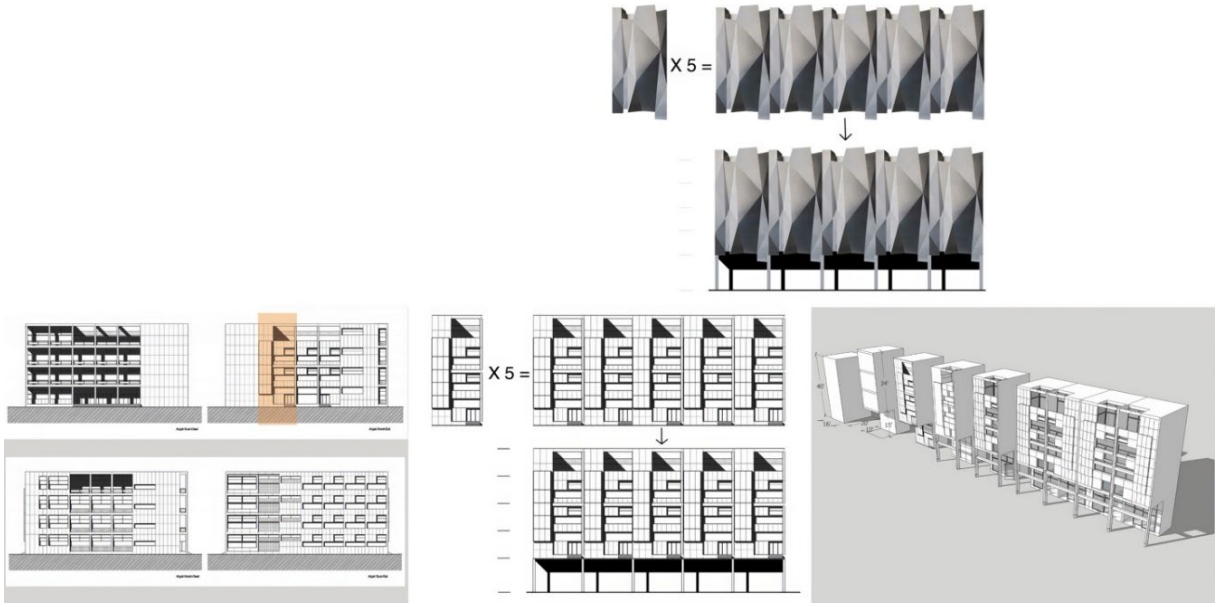

Figure 12a In the top image the student photographed a folded construct and then repeated the image. In the lower images a section of Casa del Fascio by Giuseppe Terragni is isolated and repeated, and the further developed in 3D. (S. Giuliano, Sp2017)

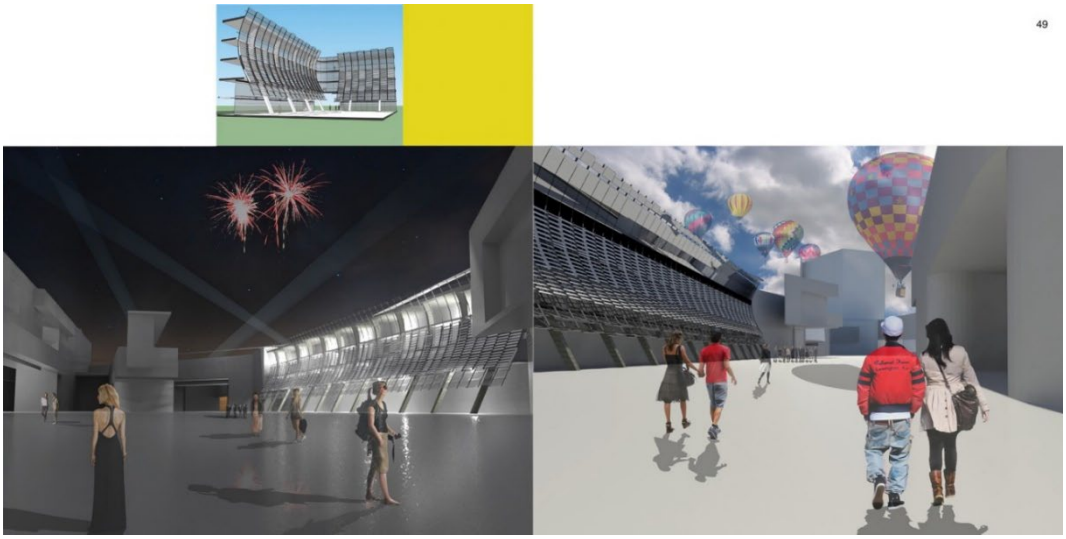

Figure 12b The bays investigated at a corner condition (Z. Ye, Sp2014)

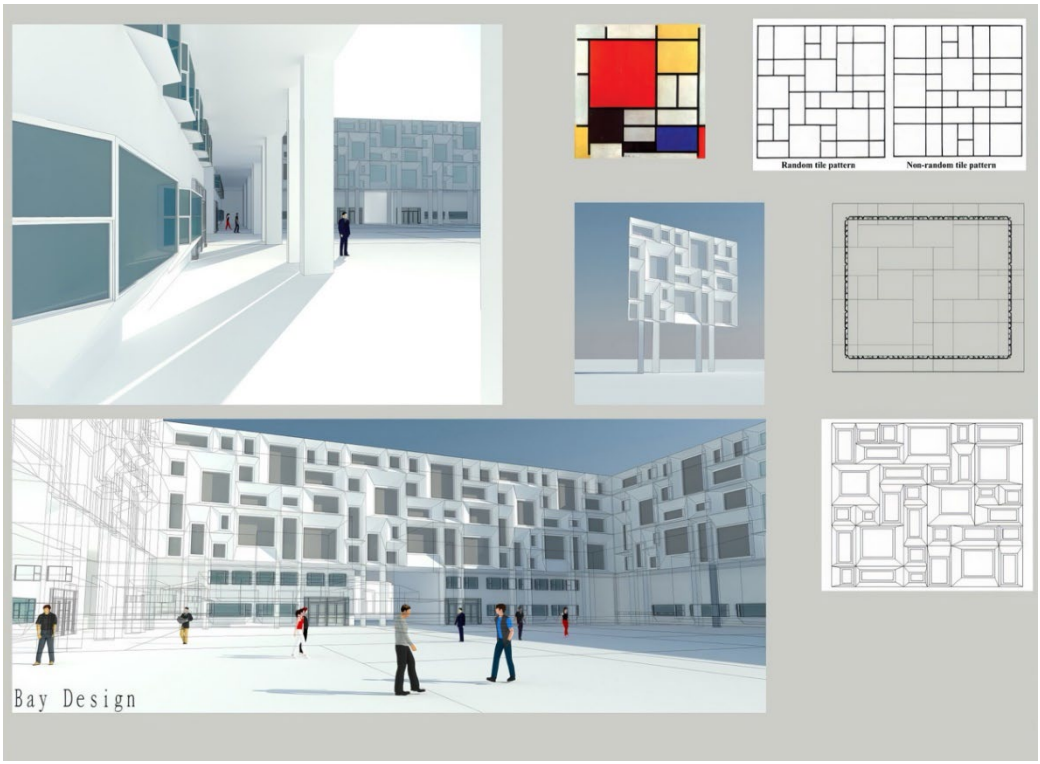

Figure 12c The student used Piet Mondrian's Composition with Red, Yellow, Blue, and Black (1921) as a base for their design (L. Ruoya, Sp2015)

BAY DESIGN

Exercise #5b

Insertion Into Main Square

The previously designed bay is now inserted into the student's main public space. Substituting their previous blank facades with the newly designed bay. These will have to be re-formed to work with their existing previous designs. Their spaces are tested to determine the proper height they should be for the proper enclosure and viewing. The bays are also corrected for the proper spacing and various entry points. All public spaces must also be designed with a covered loggia.

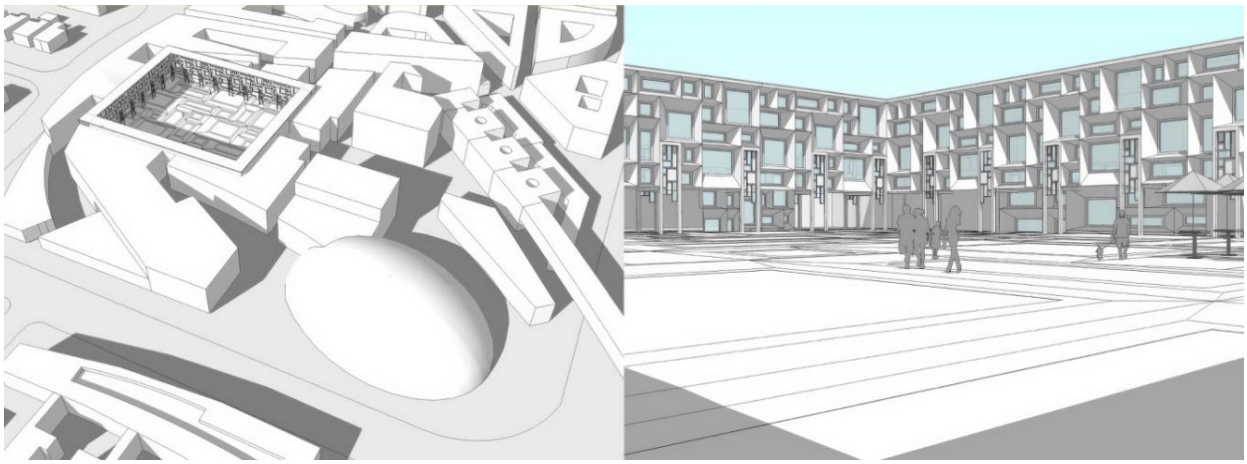

Figure 13 The public area with required loggia and designed surface (L. Ruoya, Sp2015)

FINAL PRODUCT

Exercise #6

Final Presentation

The final exercise allows the students to determine the proper design needed for their final presentations.

At this point, the pupil can go back and add any information or drawing they feel they might be missing. Process drawings and models must be included in the final presentations. This exercise also incorporates pinned mockups of their images placed into a determined-sized format and accompanied by text. Once the designs and standard formats for the class are decided, all the previous work is arranged using layout software such as InDesign. Final presentations must be written, practiced, and timed.

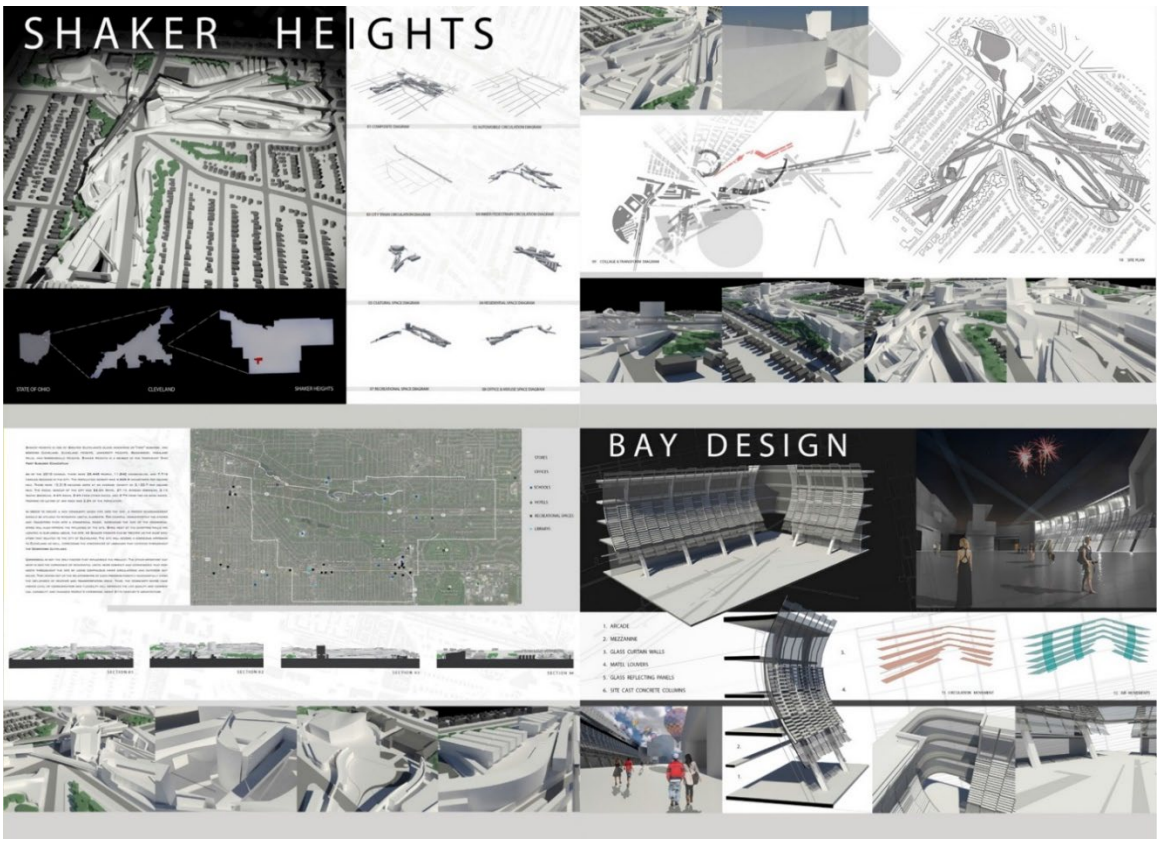

Figure 14 Final presentation (Z. Ye, Sp2014)

READING LIST

The readings were simplified over time and are issued throughout the semester as part of the individual exercises.

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3. Concluding Remarks

I will finalize this article by clarifying how this introduction to urban design changed over time. The initial program was very extensive, and during my very first implementation of the course, I quickly realized I had written the program for an audience of graduate students. It became apparent that the exercises needed to be shortened and ultimately greatly simplified. To achieve this, instead of issuing an exercise for a 2- or 3-week duration, I broke down the steps to be achieved from one studio period to the next. I also structured the exercises, so the student was constantly forced to always redesign the overall site as they added detail. Presently, the program still exists within Kent State's architecture college, but understandably has changed based on the pedagogy of who is presently teaching and coordinating.

I was recently asked if I felt Colin Rowe's theories were still pertinent in today's field of urban design. I believe so, but they don't stand alone as a single design process. Our world is ever-changing, and the process of urban design changes with it. The use of the computer for urban design started in the 1970s with Bill Hillier and his creation of *Space Syntax* and has been further developed with the introduction of *Parametric Urbanism*, which was formalized as a theory-driven movement in the early 2000s, with the term itself coined around 2008. Other examples are the use of Geographic Information Systems (GIS) and Visualization and Virtual Reality (VR).

Today, some form of AI is a common tool found in just about every piece of CAD software used by both students and professional architects, and with the introduction of AI, the process of urban design will be changing almost daily. It will be interesting to study the results of these newer methods of design combined with the theories of Colin Rowe. I look forward to viewing the solutions.

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CRediT Authorship Contribution Statement

Charles P. Graves: Conceptualization, Resources, Writing, Visualization.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data Availability

Data will be made available on request.

Ethics Committee Approval

Ethics committee permission is not required.

Resume

Graduated from the University of Kentucky with a Bachelor's in Architecture in 1975, and received a Master of Architecture with a focus in Urban Design from Cornell University in 1979. He then practiced architecture in New York City until 1985. In 1985, he began his teaching career in the architecture department at the Eidgenössische Technische Hochschule (ETH) in Zürich. In 1987, he became a faculty member in the College of Architecture & Environmental Design at Kent State University. During his tenure at Kent State, he served as the program director of KSU Italian from 1996-2012, and as the coordinator of the 3rd-year design studios from 2009-2018. In 2018, Graves retired from teaching at Kent State University and is presently Professor Emeritus. His publications include The Genealogy of Cities (2009), The Urban Design Legacy of Colin Rowe, Chapter titled Colin Rowe and the Legacy of the Figure Ground, (2025), L'Enfant's Plan for Washington D.C., & a Precedent: The Plan of Versailles, CLOG: National Mall (2012). He reviewed The Evolution of Urban Form: Typology for Planners and Architects, The Journal of Urban Morphology (2013). Graves has been the recipient of the Graham Foundation twice. Presently, during his retirement, Graves continues to write, travel and lecture.

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Beyond the hype: Reflections on the implications of AI for urban design education

Juliana Martins*

Abstract

The emergence of Generative Artificial Intelligence (GenAI) is reshaping Higher Education and professional practice, demanding critical reflection on its implications for Urban Design education. This viewpoint explores how AI challenges educational models and transforms design practice. In higher education, GenAI offers opportunities for personalized learning and innovative teaching, but raises enormous challenges regarding assessment validity, learners' intellectual development, and ethics. Within Urban Design, AI is already being used for tasks such as data analysis, image generation, design generation, and optimization. But AI development and adoption have the potential to further transform design, expanding automation and questioning the role of the designer. Drawing on literature, interviews with UK practitioners, and critical reflection, this viewpoint puts forward some reflections about ways in which urban design education may engage with and respond to the emergence of AI. First, institutions must adopt a critically engaged approach, balancing innovation with caution and ethical responsibility. Second, assessment practices require structural redesign to safeguard learning validity while embracing AI's potential productively. Third, curricula must be updated to integrate critical AI literacy while protecting fundamental design and spatial reasoning skills. Fourth, AI offers potential to enhance teaching and learning. As AI becomes integral to design practice, educators must reimagine pedagogies to ensure graduates are equipped to navigate and shape an AI-augmented urban future. Ultimately, urban design education stands at a crossroads - where the choices made today will determine whether AI enhances or undermines the intellectual and ethical foundations of the discipline.

Keywords: Artificial Intelligence (AI), urban design education, pedagogy, curricula, skills

1. Introduction

In a recent paper, Costa and Murphy (2025, p. 3) argue that "what format Gen-AI motivated changes will take is decisive for the future social role of education. Education can submit itself to technological domination, rationalizing AI skill development as the latest educational and ethical need, as suggested by the Russell group consortium, or instead channel energy into promoting students' intellectual agency." Indeed, Generative Artificial Intelligence (GenAI) presents profound implications for education, and how it responds will have lasting consequences. In the field of urban design, these challenges are intensified by the fact that AI also has the potential to reshape design practice and professional roles – thereby influencing the teaching of the discipline and the employability of its graduates.

This viewpoint briefly discusses the implications of AI for education and urban design practice and offers reflections on how urban design education can critically engage with and adapt to this evolving technological landscape.

2. AI in Education: A Revolution with Uncertain Outcomes

It is no exaggeration to say that AI is challenging the foundations of higher education. While the use of AI in education (AIEd), for instance, intelligent tutoring systems, has started about three decades ago (Ouyang & Jiao, 2021), the emergence of widely accessible and user-friendly

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Generative AI tools, that can generate text, images, videos, or code made this technology available to many and has much wider implications for teaching and learning.

There is an ongoing–and contested–debate about the impacts of GenAI for education, highlighting both opportunities and challenges. Bozkurt et al. (2024), in their critical manifesto, offer a comprehensive overview of these dynamics. Generative AI promises to increase efficiency, enable personalized learning, support innovative teaching practices, and foster inclusion. Key concerns include academic integrity, bias, inaccuracy and misinformation, impact on learning processes, and ethical issues. They stress that GenAI is *"is far from a neutral tool" and as its use "reshapes education, it risks eroding essential human elements - creativity, critical thinking, and empathy - and could displace meaningful human interactions with algorithmic solutions"* (Bozkurt et al., 2024, p. 488). Research is also investigating responses to AI, for example, regarding assessment design (Corbin, et al., 2025b) and guidelines on GenAI use (Ullah et al., 2024). While there is no consensus on these issues, Costa and Murphy (2025, p. 2) point out the rapid and acritical acceptance of GenAI by Higher Education institutions reflected in their commitment to the new technology and *"little to no resistance to its effects, as big tech companies start to insert Gen-AI into their search engines and tools*."

It is, however, crucial to reflect on the impacts of AI on urban design education. Two fundamental issues, in particular, deserve attention:

First, the validity of assessments and the integrity of degrees. GenAI tools challenge assessment validity because they enable students to complete tasks without having the knowledge or skills (Nikolic et al., 2024). Commonly used assessment types, such as essays or reports, are particularly vulnerable. A recent survey (Freeman, 2025) of UK undergraduate students found that 88% use GenAI tools such as ChatGPT, revealing a staggering adoption rate. In response, many institutions have attempted to limit the use of GenAI by defining and communicating how / to what extent it can be used. But Corbin et al. (2025b, p. 1) argue that these discursive approaches only create *"an illusion of assessment security"* and that it is necessary to make "*structural assessment redesign that builds validity into assessment architecture."* Moreover, GenAI is evolving rapidly, getting better at doing a range of tasks–including design and planning work–and overcoming some of its limitations, broadening the range of assessments that can be done with extensive support from (if not entirely by) these tools.

Second, the impact on student learning, particularly in undermining the acquisition of core competences. As Costa and Murphy (2025, p. 9) argue, Gen-AI in education "*can have serious consequences for the intellectual development of individuals*." In fact, reliance on GenAI may lead to bypassing of cognitive activities essential to develop creative and critical thinking, and problem-solving capacities. Moreover, it may hinder the development of critical skills such as writing, analysis, or drawing, and lead to surface–rather than deep–learning. Ultimately, "Gen-AI features may give the impression that understanding can happen without thinking, via the production of quick answers" (Costa & Murphy, 2025, p. 6).

But the impact of AI on pedagogy/education is broader as it is also necessary to consider how these technologies will be used by–and transform–different disciplines and professions.

3. AI in Urban Design Practice and Research

AI is having an impact across many sectors, including the design of the built environment (As et al., 2022). AI tools are already being incorporated in design practitioners' workflows for tasks such as data analysis, image generation, design optimization, and performance simulation (Chaillou, 2025). Scholarship further suggests that AI tools have significant potential to support, augment, or even automate tasks across all stages of urban design practice (El_Tantawy et al., 2024; Huang et al., 2026). Moreover, there is substantial potential for enhancing research, as a recent study on pedestrian behavior in public spaces illustrates (Salazar-Miranda et al., 2025), and supporting public engagement and co-design processes (Guridi et al., 2025).

While there is limited understanding of how practitioners are using AI, a recent survey by the Royal Institute of British Architects (RIBA, 2025) suggests increasing adoption of AI by architectural firms in the UK, with 59% of respondents reporting using AI in their work. However, only 5% of practices use AI on every project, suggesting that adoption is uneven and still emergent. AI is used for tasks related to both the design process and project management, albeit less in the latter. Importantly, the profession sees AI as potentially enhancing their practice, but there are significant concerns regarding future employment and ethical issues.

Although these tools have (for now) limited application and present a range of constraints for professional design practice (Schlickman & Magana-Leon, 2024), and their full impact on urban design remains uncertain, it seems undeniable that these technologies are here to stay and represent a new phase in the integration of digital technologies within the field.

But AI is not simply another digital tool. It encompasses multiple technologies, with applications ranging from design to project management. Moreover, technologies such as Machine Learning are capable of performing autonomous tasks–for instance, generating multiple design options–without being entirely programmed, further expanding design approaches beyond Design by Drawing and Design by Algorithm (parametric design) (Çalışkan et al., 2024) to more curatorial and co-creation forms of Design (Chaillou, 2025; Schlickman & Magana-Leon, 2024).

The integration of AI in urban design practice thus raises critical questions for urban design education, with implications for both pedagogy and curricula development. How is AI going to transform the discipline and the role of the designer? What knowledge and skills do future graduates need to practice in an AI-augmented future in an effective and ethical way? How can students contribute to harnessing the potential of AI for designing better cities and mitigating the risks brought about by this technology?

4. Reflections for Urban Design Education

Researchers are starting to investigate the impact of AI in architectural education (Fagan et al., 2025; Jin et al., 2024; Kee et al., 2024), but less attention has been paid to urban design and planning education (Siu et al., 2025). Drawing on interviews with UK urban design practitioners and desktop research, I offer some speculative and initial reflections on key opportunities, challenges, and possible directions for urban design education in the face of this emerging technology. A central premise here is that AI will, to some extent, become an integral component of urban design practice and of the way students work and engage with education.

4.1. Critical and Cautious Engagement with AI

There are risks in any approach to AI. Total bans or ignoring it risk becoming obsolete as AI becomes more ubiquitous in everyday life, digital tools, and professional practice. Excessive enthusiasm risks being misled by the hype of a–yet to be–transformative technology, the evolution of which is not entirely predetermined and understood. Given the significant risks that AI's development and use carry–for instance, around human agency, accountability, and democratic decision making–it is essential to critically reflect on the impact of these technologies and adopt a critical and cautious approach while engaging with AI.

4.2. Rethinking Assessment

As Fagan (2025, p. 6) explains, "*when tasked with responding to an architectural brief, students are now able to generate convincing images, models, diagrams, essays, and code using simple natural language prompts, without knowing or understanding the machination or logic of the process involved."* This shows the extent to which traditional assessment formats, including not just essays but also design projects, which are the backbone of urban design education, are increasingly challenged by the development of AI tools. Institutions need to reflect deeply on the competences that are essential outcomes of learning in urban design degrees, and change/adapt assessments accordingly. Doing nothing puts at risk the integrity and value of Higher Education degrees.

A major challenge is not just to design assessments that are AI secure and policing misuse but also *"navigating the tensions between supporting productive, ethical use and maintaining valid, meaningful assessment"* (Corbin et al., 2025a, p. 2). Indeed, Corbin et al. (2025a) argue that the GenAI-assessment challenge is a wicked problem. Although there are no easy solutions and all approaches also have downsizes, possible directions include moving from discursive changes to assessment (simply stating limits to the use of AI) to structural assessment redesign (Corbin et al., 2025b), defining a minimum amount of assessments that safeguard against the use of generative AI (see UCL Laws approach in Veale et al., 2025), and emphasize the assessment of the process, rather than outcome.

4.3. Safeguarding Skills Development

A major concern, as discussed above, is the potential negative impact of using AI in the development of key skills. In the context of urban design education, it is essential to further understand not just how it may affect critical thinking, reading, and writing skills, or thinking but also how students develop design thinking and skills. If they can bypass sketching to produce instant images or bypass design elaboration to develop feasible schemes, how will they have the opportunity to think–and learn–through drawing? Learning through designing is also crucial to develop spatial literacy and awareness of scale, and an understanding of what is relevant–or not–in different stages of the design process.

It can be argued that previous computation technologies have already disrupted the engagement of students with the act of drawing. But AI's capabilities promise to exponentially automate design tasks that are, today, critical for students' learning. Studio education plays an important role in supporting learners' engagement with an iterative design and creative process. But further research is needed to understand how AI may impact design skills development.

4.4. Updating Urban Design Curricula

Urban design curricula must inevitably adapt to prepare students to practice with AI in and effective and ethical way.

Embedding critical AI literacy is essential. This should include a basic understanding of how AI models work and are trained, the datasets underpinning these, and their many limitations (e.g. bias, inaccuracy, etc.). Ethical issues and wider societal and environmental impacts are also key. Finally, students should have the opportunity to develop practical (and critical) skills in using AI, including general text-generating tools and design-specific tools, such as image generation and eventually, more sophisticated design generation and evaluation.

Before moving into what other skills may be required, it is worth discussing the views of UK-based practitioners. When asked about the skills needed for future practice, several interviewees emphasized the importance of core design skills–particularly an understanding of what constitutes a good place, spatial awareness, and knowledge of key factors such as infrastructure and microclimate. In the words of an interviewee, firms still want a "designer who knows how to design something." These views underscore the need to think about curricula not only in terms of the AI-related skills required, but also in recognizing that fundamental design skills are still, if not more, relevant; it is thus crucial to keep teaching those, as discussed in the previous point. This will require considerations about ways to promote students' engagement with real places, drawing, design concepts, and rationale, etc.

Interviewees further highlighted the importance of knowing how to work with AI tools. But there is a sense that much of the technical knowledge can be learned on the job, and emphasis should be placed on students' understanding of which tools are available, how these can be applied to optimize design practice, and flexibility to adapt to new tools. Some specific skills for digital practice, namely prompting, coding/programming, and statistics, were also mentioned. Courses should thus create opportunities for students to test and explore AI tools in the context of their

design practice, spatial analysis, and research, with a focus on learning how to use AI tools to inform, not restrict their work.

The impact of AI is also visible in urban development, space, and management (e.g., autonomous vehicles). Awareness of these implications and future thinking about how urban environments will need to adapt is desirable.

Given that urban design curricula already include a range of topics (Yavuz Özgür & Çalışkan, 2025), it is challenging–in many programs– to add more content. As such, it is expected that AI will be another theme that will further specialize and diversify urban design education, as institutions choose whether to engage with it minimally or more extensively and experimentally.

4.5. Enhancing Pedagogical Practices

There is a wealth of literature investigating the potential of AI for enhancing teaching and learning (Ouyang & Jiao, 2021). Recent studies are exploring this issue in relation to architectural and urban design education, for example regarding the potential of image generators for enhancing teaching of history of architecture (Fareed et al., 2024), how GenAI may support development of digital literacy and holistic competences (Kee et al., 2024), and how AI can support urban design education, focusing on the various stages of the design process using scaffolding theory (Siu et al., 2025). Key opportunities for urban design education include using AI to further design explorations and creativity; developing competencies in data analysis and evidence-based design; and enhancing the ability of students without a design background to engage with design processes.

5. Conclusion

AI challenges established approaches to design education. Paraphrasing Fagan et al. (2025), while the integration of AI tools into urban design education is an inevitability, its form is not yet predetermined. Urban design schools and educators have a responsibility to engage with these debates and contribute to shaping the future of the field, seeking to strike a difficult balance between innovation and integrity, while maintaining the core mission of educating urban design professionals who are prepared to practice critically and ethically in an uncertain AI-augmented future. This viewpoint aimed to stimulate this debate, inviting readers to reflect on the challenges but also on how to harness AI's opportunities for education and design practice.

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Juliana Martins contributed to all aspects of the study, including conceptualization, methodology, investigation, analysis, and writing – original draft, review & editing.

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Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data Availability

Data will be made available on request.

Ethics Committee Approval

Ethics committee permission is not required.

Resume

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Morphogenesis in urban design: The path to sustainability is through a fundamental change to the way we build our world

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Abstract

Urban design is called upon to contribute to making the world more sustainable, resilient, and just. This aim is shared across urban design's many approaches and schools of thought. However, the response to the pressing contemporary problems of sustainability, resilience, and social justice routinely emphasizes the need to develop innovative tools and extend the reach of advanced technological solutions into increasingly larger domains of our lives and of the environments around us. This paper maintains that the future of urban design, particularly in the current historical transition beyond the Post-War world order, should be explored through a critical reconsideration of the root causes of the current unsustainable reality. We briefly present the disciplinary background of such an operation by recalling the concept of deep sustainability, and its various expressions in the urban design traditions, and highlighting the legacy of "radical" approaches to urban design. A particularly relevant critique of a reductionist, "mechanistic" approach to sustainability was presented by Christopher Alexander twenty years ago, in a memorable talk delivered at the Schumacher Lecture series in Bristol, UK. In his lecture, Alexander proposes the necessary departure from current building and development practices towards an "authentically sustainable" morphogenetic building process. We propose to re-examine Alexander's talk at the Schumacher Lecture as a fundamental contribution to framing a responsible pedagogy in urban design. We do so by critically summarizing its main conceptual achievements. We then highlight how Alexander's legacy, not limited to the Schumacher talk, frames the cosmological framework within which the evolutionary nature of the built environment can be recognized and elaborated. We then propose a way to elaborate on the concept of evolution in the domain of urban morphology analysis by introducing recent research in Urban MorphoMetrics and Urban Evo Devo. This forefront research explores the operationalization of Alexander's Wholeness seeking System A within an environment dominated by a mechanistic System B. We highlight its impact on urban design practice by the generation of evidence-based urban design coding. Thus, we show how the integration of urban morphology and design is a key move towards a new, evolutionary urban design pedagogy.

Keywords: Christopher Alexander, sustainability, morphology, evolution, morphometrics

1. Introduction: Urban Design Beyond Modernity?

Urban design is called upon to foster a sustainable urban future based on integrating the three "pillars" of economic development, social justice and environmental protection (World Commission on Environment and Development, 1987; Kates et al., 2005), in one unified process (Giddings et al., 2002). The mission is widely accepted across various approaches and schools of thought, an internal diversity that is particularly evident in urban design education (Yavuz Özgür & Çalışkan, 2025). However, this diversity primarily reflects differing methodologies (the "how") rather than the overarching goals (the "what"). Some view the fragmentation of urban design as a sign of vitality, while others consider it an obstacle to creating a coherent knowledge base for the discipline (Romice et al., 2022).

The disparity regarding the meaning and the value of this diversity arises from differing interpretations of sustainability amid the ongoing global transition out of the established post-war

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world order. Some scholars view this process as a challenge posited by forces that are external and antagonistic to modernity. Hence, the path to achieving sustainability would lie in more advanced technology, digitalization, and Artificial Intelligence, i.e., more modernity. This view emphasizes innovation of the instruments as a way to underpin the current social ecosystem in a new cycle of expanding opportunities, a perspective that would be positively signalled by the abundance of diversity in the urban design discipline.

Conversely, others argue that the current destabilization represents a departure from modernity itself, requiring and announcing a more profound transformation of society. This perspective calls for reevaluating the meaning of sustainability, on the basis of a reconsideration of social values, particularly the value of labour in a new economic system localized in place and proximity. They advocate a reassessment of existing social relationships in all their various forms and scales, including labour and value, class interests, and the redistributive role of education. These positions emphasize a more decentralized distribution of power to autonomous communities rooted in political traditions close to communitarianism and anarchism. In this context, the abundance of pedagogical diversity in urban design may signal an insufficient awareness of the level of the challenge, as well as the role that urban design can – and should – play in redefining its primary mission.

Along this latter line, the current tendency to focus on innovative tools and technological solutions as responses to pressing issues of sustainable urban development, climate change, for example, would only confirm a lack of critical awareness in the first place. This paper maintains that the future of urban design, particularly in the current historical transition, should be explored via a reconsideration of the root causes of the current unsustainable reality, and a reappraisal of the "radical" visions from which the ecological movement came in the first place, including in the design professions.

2. Designing the Living World

The origins of the hiatus between the two approaches to sustainability mentioned above can be traced to the early years of the environmental movement, often associated with Rachel Carson's The Silent Spring in 1962 (Carson, 1962). In its initial formulation, the ecological paradigm was closely aligned with broader countercultural efforts to reconfigure social and spatial relations. Awareness of systems' interdependence informed patterns of inhabitation and social organization, supporting alternative models grounded in ecological consciousness.

The work of Ernst Friedrich "Fritz" Schumacher, Sym Van Der Ryn, Ivan Illich, Murray Bookchin and Christopher Alexander, despite differences in disciplinary focus and political engagement, converged on a critique of sustainability approaches centred on technological optimization. Rather than treating sustainability as a problem of technical performance, these authors emphasized socio-cultural dynamics, economic conditions, and ecological constraints operating at the scale of local communities. Sustainability was thus framed as a socially embedded and spatially situated practice, directly implicating architectural and urban design.

Christopher Alexander's early work (Alexander, 1964, 1965; Alexander et al., 1977) articulates this position through a focus on morphogenesis, prioritizing process over product in the formation of places. He identifies non-hierarchical patterns of human inhabitation as universal principles inherent to the ecological systems and embedded in the historical evolution of settlements. Spatial form is understood as the outcome of adaptive processes unfolding over time rather than as the result of discrete design interventions.

Schumacher's Small Is Beautiful: A Study of Economics as if People Mattered (Schumacher, 1973) situates sustainability within the concept of appropriate technology. He defines such technologies as those arising from the cultural, economic, and material conditions of specific communities, in contrast to advanced technologies derived from centralized, surplus value–oriented industrial systems. Schumacher (1973) advocates a decentralized model of development aligned with human

scale and ecological sensibility, arguing that social welfare and environmental stewardship constitute two inextricably unified articulations of the same concept. This position challenges industrial paradigms that shape economic organization and the built environment, producing alienation and environmental degradation as structural outcomes.

Summarizing decades of experimental work conducted at the University of Berkeley, Sym Van Der Ryn extends this critique into architectural and urban practice (Van der Ryn & Calthorpe, 1986; Van der Ryn & Cowan, 1996; Van der Ryn & Peña, 2003). He proposes design methodologies that integrate ecological principles with community needs, emphasizing cultural and environmental context. Sym Van Der Ryn explicitly rejects "architectural knowledge as specialized technique or 'technê', particularly as architectural modernists had imagined this knowledge as an extension of rational-industrial society" (Raynsford, 2021), reframing design knowledge as contextual and relational.

By the mid-1970s, many of these ideas were increasingly absorbed and reconfigured by the industrial complex through their translation into globally standardized technological solutions. Ivan Illich articulated a sustained critique of this trajectory in a series of works published during the 1970s (Illich, 1971, 1973, 1974, 1976). Drawing on the ecological principle of bounded, interconnected systems, Ivan Illich argued that industrial production inherently leads to hyper-industrialization, wherein systems of provision become detrimental to the purposes they were intended to serve. He described this condition as "counterproductive, exposing education, healthcare, and urban planning systems that undermine learning, health, and energy, unbalanced urban functionality.

In opposition to hyper-industrialization, Illich (1973) advanced the concept of conviviality, stating: "We must come to admit that only within limits can machines take the place of slaves; beyond these limits they lead to a new kind of serfdom. Only within limits can education fit people into a man-made environment: beyond these limits lies the universal schoolhouse, hospital ward, or prison"(p. 12).

After his main work "The Ecology of Freedom" (Bookchin, 1982), Murray Bookchin addressed these same tensions in 1987 (Bookchin, 1987), criticizing mainstream environmentalism for its technocratic orientation, described as "simply trying to make a rotten society work by dressing it in green leaves and colourful flowers while ignoring the deep-seated roots of our ecological problems" (ibidem, p. 2). He instead called for an ecological movement capable of transforming market society into "a non-hierarchical cooperative society — a society that will live in harmony with nature because its members live in harmony with one another" (ibidem, 1).

Christopher Alexander's later contribution to articulate a theory of authentic ecological design culminates most clearly in his lecture Sustainability and Morphogenesis, delivered at the Schumacher Lecture Series in Bristol on October 30, 2004 (Alexander, 2004). The following section examines this work and articulates the historical imperative for design to reclaim its generative role in the evolution of living urban places.

3. Christopher Alexander and the Morphogenesis of a Living World

Building activities, in their broadest sense, form a huge part of the economy, alter the face of the earth, and are responsible for the majority of greenhouse gas emissions. Therefore, making them more environmentally sustainable has always been a major concentration of environmental thinkers, and a concern of urban and transportation planners, architects, and urban designers. However, Christopher Alexander's critique of urban planning and design, and architecture, did not stem from environmental concerns, but was a reaction to the evident failure of modernistic architecture and urban planning and design to provide a humane, physically and emotionally supportive, and beautiful built environment. His search for understanding the reasons for this prevalent failure led him to develop a theory of order, in which questions of value, coherence, life,

and beauty are understood as empirically verifiable and not based on ideology or opinion. The underlying assumption of his work is the reality and sharedness of human feeling in response to environmental conditions. While acknowledging individual and cultural idiosyncrasies, C. Alexander sees them as an overlay on more fundamental feelings and responses that are shared.

The central concept of his theory is “life”, which he sees as existing throughout the physical, inanimate, and animate world. Life is not a binary property but exists to a degree in any particular region of space, depending on the level of coherence, density, and strength of entities that C. Alexander calls “centres.” Centres are foci of attention and are defined recursively as made from other centres surrounding them. Thus, each centre arises in the context of a larger centre, supported by other centres of similar scale, and gives rise and is supported in turn by other smaller-scale centres, thus forming what is essentially a field of centres. Alexander discovered 15 properties that seem to exist in strong fields of centres, properties that can also be understood as the 15 different ways that centres can support each other in order to create a strong centre. He shows that strong fields of centres exist through natural phenomena, built environments, and cultural objects from throughout the world, but are rather rare in modern life, particularly in formal and industrial forms of development.

Having thus created an understanding of natural order that unites both the inanimate and animate world, as well as the natural and built environment. C. Alexander proceeds to ask how is life generated in the world. In the second book of his “magnum opus” The Nature of Order, entitled The Process for Creating Life (Alexander, 2003), he defines this process as a generative structure-preserving process. Thus, each successive structure transforms and enhances the existing structure with the aim of enhancing the unity and strength of the wholeness in which the process is evolving. This ‘morphogenetic’ process is shown to be at work in examples from the natural world, as well as in historical and recently built environments, where it was allowed to happen.

C. Alexander’s criticism of modern planning and building practices, and his reliance on traditional buildings as inspiration and example for living process, were not a call to return to past, but an attempt to create an understanding, within scientific culture, of the limits of seeing the world as a mere machine devoid of value, and reappraise it as living wholeness of which humans are an integral part. Understanding wholeness, wherever we operate, and doing our utmost to increase its life and beauty, are therefore the rightful aim of the built environment professions, and of ordinary people as they engage in activities that shape the environment. In his last published book (Alexander et al., 2012), he describes these two systems of viewing the world as System A (concerned with the wholeness of the world) and System B (concerned with efficiency and the accumulation of money and power). Alexander saw these systems as irreconcilable, and in his lecture to the Schumacher Society (Alexander, 2004), he insisted that system A thinking is necessary for true sustainability.

However, for system A to be prevalent, the whole world of development, from its financing to its regulatory structure, the way we design and build buildings, and the administrative structures needed to maintain, upkeep and renew them has to be changed. The role of architects and urban designers has to become completely different, as they have to take on a fuller responsibility for the process of making the world, beyond merely the design of the projects, leaving others to think about how to actually build, maintain, and evolve them in practice. This also means a much more local role for urban designers, as their involvement with projects continues along the life cycle of places. Perhaps it also means a new kind of institution, or function within municipalities, which serves as a guide and institutional memory of the local urban design culture as it develops. All this also means a different education for urban designers, as they learn to see themselves as the guardians of a community’s wholeness.

4. Urban Evo Devo: Operationalizing System A?

In a recent contribution (Porta et al., 2016), Porta, Rofé and Vidoli discuss the work of Christopher Alexander from the perspective of large-scale urban design. The problem is situated

within Alexander's aforementioned juxtaposition of System A and System B. Alexander's generative processes of living places proved successful at building scale yet failed to establish themselves as a new normal in Post WWII urbanization cycles. Instead, the hyper-industrial system of urban production, or "System B", demonstrated a far more advantageous standard of practice, resulting in widely successful patterns of urbanization, if utterly unsustainable.

From an urban morphology standpoint, Alexander's morphogenetic process can be interpreted as one way to access the "spontaneous consciousness" described by Caniggia and Maffei (Caniggia & Maffei, 2001). Here, "spontaneous consciousness" manifests as the outcome of largely non-theorized, tradition-based know-how, or a form of "collective wisdom" evolved across generations of imitation practices and embedded in historically and culturally specific urban fabrics. While Alexander's approach seeks to access this repository of collective wisdom by recreating its primary source—namely, the body-mind material of living individuals engaged in construction—the urban morphologist can only observe the urban fabrics in which such patterns are embedded. Rather than relying on personal feelings accessed through in-depth individual conversations and shared on-site construction experiences, the urban morphologist proceeds through the mapping of regularities observable in existing "morphological regions". The underlying material is the same, but the methods of description and capture differ.

Recent developments in urban morphology analysis offer new options that may be relevant to this exploration. Crucially, the innovation lies primarily in the instruments of the discipline, namely a formal language that System B is capable of understanding and processing. This new wave of studies has emerged over the past few years under the label of "urban morphometrics", cutting across computer science, geospatial analysis, and urban geography, and demonstrating the capacity to characterize very large geographical extents while maintaining richness and comprehensiveness of information (Oliveira & Porta, 2025). This combination of large spatial extent, granular informational scale, and comprehensive descriptors enables an unprecedented geography of "ordinary" urban fabrics, described through their embedded morphological patterns on a building-by-building basis across regions, nations, and continents. This opens the way to a sequence of questions: can we a) extract the collective wisdom embedded in existing ordinary urban places that have demonstrated adaptive living properties; b) translate that information into a language that System B can process; and c) embed that wisdom and language into large-scale design codes operating at System B's order of practice? At present, not only are the conceptual understanding and foundational knowledge available to pursue this agenda, but also the necessary technology, that is, the means to access the operating system of System B. Can we, in short, "outsmart" System B by reconfiguring it from within?

An additional, non-secondary aspect of the emergence of urban morphometrics is that, as frequently observed in the history of science, innovation in instruments may generate innovation in the science itself. From its earliest conceptual formulations, urban morphometrics has been driven by a broader vision: the development of a scalable numerical taxonomy of urban form, enabling the foundations of a new science of urban form evolution (Porta et al., 2011; Dibble et al., 2016, 2019). Within this framework, the inference of relationships of descent (phylogeny) among urban form types that exhibit observable and measurable relationships of similarity (phenetics) becomes possible. Urban morphometrics may thus play a role analogous to that of natural history, descriptive biology, and comparative anatomy in the emergence of evolutionary biology, which first enabled systematic description of phenetic similarity among living organisms (Fleischmann et al., 2022). An initial attempt in this direction is currently underway at the Konrad Lorenz Institute for Evolution and Cognition Research in Vienna (AT). Converged under the project "Urban Evo Devo", evolutionary developmental biologists ("evo devo") and urban morphologists from various European countries and China are engaged in the foundational transfer of knowledge between the two domains. The scientific aim of the project is to demonstrate the evolutionary nature of urban form mathematically, by processing the largest urban morphometric repository existing

(Fleischmann et al., 2025a; Fleischmann et al., 2025b). Strategically, the aim is to instruct a radical paradigm shift in the way the nature of urban form is generally perceived, by using a language, that of quantitative science, that System B can decode and process accordingly. Once the evolutionary nature of the form of cities is culturally absorbed as an undisputable truism, the adaptive process of urban morphogenesis can only follow as its inevitable operating system. Urban Design education and research are at the forefront of this strategic change.

5. Conclusion

This viewpoint calls for reassessing sustainability in urban design pedagogy, returning to its 1960s–70s countercultural origins that framed sustainability as the integrated pursuit of economic prosperity and social justice within environmental limits. Contemporary curricula largely adopt a technological paradigm that neglects social and political contexts. This critique echoes Christopher Alexander's 2004 Schumacher Lecture, defining sustainability as "the wholeness of the land, the extent to which we see our land (rural, urban, or wilderness) as sacred, and the extent to which we treat our interaction with the land as a sacrament" (Alexander, 2004, p. 5).

Urban morphometrics enables the development of a science of urban form evolution validated at a large scale, which can be processed by current System B. In turn, the affirmation of urban form as an evolutionary system would generate a paradigm shift in urban design education, making the morphogenetic process identified by Christopher Alexander an inevitable reality.

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Data Availability

Data will be made available on request.

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Ethics committee permission is not required.

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Bridging academia and practice: Evolving pedagogies in urban design education

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Abstract

Urban design education is confronting growing pressures to respond to increasingly complex urban, environmental, and socio-political challenges while remaining relevant to professional practice. This paper presents findings from a qualitative, interview-based study conducted by the Urban Design Academic Council (UDAC) between 2023 and 2025, drawing on semi-structured conversations with fourteen urban design practices operating across diverse institutional and geographic contexts in the United States. Rather than offering a comprehensive literature review of urban design pedagogy, the paper foregrounds practitioner perspectives as an empirical and practice-informed contribution to ongoing disciplinary discussions. The interviews examine professional expectations of urban design education, including desired skills, perceived gaps in graduate preparedness, emerging trends in practice, and opportunities for deeper collaboration between academia and the profession. Findings reveal consistent emphasis on strategic and systemic thinking, narrative and communicative competence, interdisciplinary fluency, and preparedness to engage climate resilience, equity, and infrastructural complexity at multiple scales. Practitioners also highlight the value of pedagogical models that integrate experiential learning, joint research initiatives, and sustained professional engagement within academic settings. By documenting and synthesizing practitioner insights, this study contributes a field-level snapshot of current professional priorities and challenges in urban design. The paper positions interview-based inquiry as both a research method and a pedagogical tool, offering an empirical foundation for future curriculum development, mixed-methods research, and cross-institutional collaboration aimed at strengthening the alignment between urban design education and contemporary practice.

Keywords: urban design pedagogy, urban design professional practice, urban design academic council, qualitative interviews, academia and practice

1. Introduction: Bridging Academia and Practice

Urban design occupies a distinctive position between the worlds of theory and practice, requiring continual negotiation between academic inquiry and the applied demands of the profession. Unlike fields with a more established disciplinary infrastructure, urban design has historically been situated at the margins of architecture, planning, and landscape architecture, often defined through its interstitial status rather than by a consolidated body of knowledge or a disciplinary container (Carmona, 2019). Frequently described as a "field" to which multiple disciplines contribute to shaping and constructing urban environments, this liminality creates both a challenge and an opportunity: the challenge lies in articulating urban design's disciplinary autonomy, while the opportunity lies in its potential to synthesize diverse perspectives into innovative approaches for addressing contemporary urban challenges.

The Urban Design Academic Council, founded in 2020 as a framework to bring together institutions in North America that offer urban design degrees, certificates, or host centers, has emerged as an important forum for advancing this mission. According to its statement of purpose, UDAC "supports educators, researchers, and professionals who advocate for the value of urban design in academia and practice," while also seeking to expand research, mentor the next

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generation of faculty, foster pedagogical innovation, and strengthen connections to the profession. By situating itself explicitly at the intersection of academia and practice, UDAC underscores that urban design must be understood not only as a site of intellectual production but also as a field inseparable from real-world application.

This paper builds on UDAC's mission by examining one of its core strategies: supporting the development and strengthening of the discipline through direct engagement with practitioners to better understand professional needs and expectations. The rationale for such engagement is multifold. First, it grounds theoretical frameworks developed in universities within the realities of practice, revealing how abstract models are adapted—or resisted—under conditions shaped by regulation, politics, and resource constraints. Second, it complements existing scholarship on urban design pedagogy that calls for closer alignment between academic frameworks and the diverse, often informal processes through which cities are produced. As Loukaitou-Sideris and Mukhija (2016) demonstrate through their analysis of studio pedagogy and the literature on informality, urban design education must critically engage real-world actors, power structures, and non-formal modes of urbanization to prepare students for contemporary practice. Practitioner interviews extend this pedagogical imperative by documenting pathways, challenges, and professional expectations that can better equip graduates to navigate both formal and informal dimensions of urban design work. Third, while all interviews were conducted with offices located in the United States, the study captures a range of perspectives across geographies, institutional settings, and modes of practice, thereby challenging narrow conceptions of urban design and contributing to a broader epistemological understanding of the field. Moreover, by drawing on practitioner insights, academic institutions are better positioned to reform curricula and research agendas in response to emerging challenges such as climate adaptation, equitable development, and resilience planning. This iterative process of feedback between practitioners and educators does more than update course content; it redefines the discipline itself, making urban design education more adaptable, responsive, and socially relevant.

This paper situates UDAC's initiative as part of a broader discourse on how to align the discipline's academic foundations with the complex demands of practice. By analyzing the role of professional interviews as a pedagogical and research method, the paper argues that closer integration of practice-based knowledge is essential for urban design's maturation as a field. In doing so, it contributes to the ongoing project of consolidating urban design as both an intellectual and professional endeavor, committed to shaping democratic, just, livable, and sustainable cities.

2. Methodology: Practitioner Interviews as Pedagogical and Research Inquiry

Between November 2023 and January 2025, the authors, who are also members of the Urban Design Academic Council, conducted a series of practitioner interviews designed to explore the relationship between urban design education and professional practice. A total of 14 offices were interviewed, each representing firms with dedicated urban design departments or offices engaged in urban design projects. These practices were selected because of their strong ties to academia: they regularly participate in final reviews, collaborate through sponsored studios, or actively seek out academic networks when recruiting emerging professionals. This purposive sampling reflects UDAC's mission to strengthen the bridge between academic and professional spheres. Geographically, most of the interviewed practices were located along the East and West Coasts of the United States, with a few offices in the Midwest and two offices originally based in Europe. While their physical headquarters varied, many of these practices conduct work both throughout the United States and internationally, reflecting the increasingly global scope of urban design (Carmona, 2019). Each interview was structured as a one-hour, semi-structured conversation. Semi-structured interviews are widely recognized in design-related fields for balancing consistency and flexibility: researchers use a set of guiding questions to ensure comparability while allowing space for new themes to emerge (Groat & Wang, 2013). In this study, all conversations followed six core questions:

1. What skills are you looking for in urban design hires?
2. What do you think is lacking or could be improved in the current graduates you are seeing?
3. Where are your urban design hires coming from (disciplines, schools, or prior experience)?
4. What do you see as the most critical emerging trends or directions in urban design practice?
5. What would you like to see as productive synergies between the urban design profession and academia?
6. How are you seeking out urban design expertise through job advertisements, and what professional degree qualifications do you require?

The interviews were recorded, and responses were simultaneously summarized into bullet-point notes during the sessions. Data were then anonymized and collectively synthesized to highlight emerging themes rather than privileging individual voices. At this stage, no weighting of responses has been applied; findings should be understood as preliminary and subject to refinement in future iterations. This approach is consistent with interpretive traditions in urban design research, which emphasize pattern recognition and thematic synthesis over statistical generalizability (Groat & Wang, 2013).

By structuring the inquiry around these six guiding questions, the project directly engages with ongoing debates about the skills, knowledge, and capacities required for urban design practice in the 21st century. The process of interviewing also embodies UDAC's broader pedagogical goals by facilitating dialogue between academia and professional practice. "Integrating practitioner insights into academic frameworks allows urban design education to remain responsive to rapidly evolving societal challenges such as climate change, equity, and resilience (Carmona, 2019; Salama, 2015)."

In this sense, the interview process serves not only as a research method but also as a pedagogical intervention, aligning with UDAC's commitment to prepare students for professional trajectories that are adaptable, interdisciplinary, and socially engaged.

3. Interview Findings

In the following abstract, we summarize the answers to the questions listed above. To avoid the advertisement of specific academic institutions and urban design programs, question 3: Where are your urban design hires coming from (disciplines, schools, or prior experience)? was excluded from this summary chapter.

Question 1: What skills are you looking for in urban design hires?

Urban design candidates are expected to possess a strong foundation in design, combining technical proficiency with conceptual clarity. This was consistently reported as a fundamental skill with interviewees putting high value on a strong portfolio demonstrating design excellence and experience in streetscape and public space projects. Essential skills also included expertise in design software such as Rhino, Revit, SketchUp, CAD, GIS, and Adobe Suite, alongside traditional hand-sketching abilities.

Further, critical thinking and problem-solving were also central, with designers expected to question assumptions, develop clear concepts, and address societal challenges, including climate resilience and social equity. Effective communication, both written and verbal, was crucial for reporting, presenting, and engaging with clients, consultants, and the public. The ability to craft compelling narratives that convey the experience and vision of a design was also emphasized.

Collaboration was a key requirement; candidates should demonstrate teamwork experience and capacity, interdisciplinary fluency across architecture, landscape architecture, and planning, and the capacity to navigate projects that involve multiple stakeholders. Urban designers must be versatile, adaptable to new technologies, capable of learning quickly, and able to handle responsibility in fast-paced environments. An understanding of scale, system thinking, and the

functioning of urban environments—including cultural, economic, and environmental dynamics—was further essential. Familiarity with resilience science, policy, finance, and regulatory frameworks added further value. Soft skills, such as empathy, leadership, and cross-disciplinary collaboration, were critical for sustaining professional relationships and advancing project goals.

Finally, passion for the field, curiosity about urban issues, and engagement with current events were seen as distinguishing traits, reflecting a broader generalist mindset that combines design excellence, practical experience, and societal awareness to create meaningful urban interventions.

Question 2: What do you think is lacking or could be improved in the current graduates?

This question was meant to identify key gaps in the preparedness of current urban design graduates, based on qualitative insights from professional practitioners. One of the most frequently cited deficiencies was in strategic and holistic thinking; graduates often remain anchored in specialized or technical perspectives and require guidance to approach design with a broader, integrative mindset. Closely related was the need for deeper real-world understanding, encompassing professional practice, the drivers of urban projects, and the consequences of high-level decisions.

Graduates were also found to demonstrate limited capacity for storytelling and argumentation, with room to strengthen their ability to communicate design ideas through research, narrative, and collaborative reasoning. Formal design skills and spatial awareness remained inconsistent, with some graduates lacking both conceptual rigor and sensitivity to human experience within urban contexts. Similarly, systems thinking—considering ecological, social, and infrastructural networks beyond human-centric concerns—emerged as an area for growth. While technical proficiency in software such as Revit, Rhino, and CAD was expected, interview responses emphasize that general design thinking, versatility across scales, and problem-solving confidence are more critical. Effective communication through diagrams, presentations, and concise reporting was frequently noted as underdeveloped, alongside the need for stronger time management, independent workflow, and initiative in complex projects.

Finally, engagement with multidisciplinary teams was highlighted as essential; graduates must navigate governance, finance, and regulatory frameworks while collaborating across architecture, planning, and landscape disciplines. Overall, the findings suggest that bridging technical skills with strategic, communicative, and integrative capacities is central to advancing the professional readiness of urban design graduates, fostering designers who are adaptable, confident, and capable of generating impactful, socially responsive urban interventions.

Question 4: What do you see as the most critical emerging trends or directions in urban design practice?

Central among emerging trends reported by interviewees was an urgent focus on climate resilience and sustainability, with urban design increasingly seen as critical to addressing sea level rise, extreme weather events, and broader strategies for climate change mitigation. Relatedly, concerns with equity and social justice were also prominent, as designers seek to create inclusive, equitable neighborhoods and public spaces. Similarly, sustainability and resilience were reported as being reframed at the urban scale, moving beyond individual buildings to systemic approaches that tackle affordability, housing, and spatial equity.

Additionally, interviewees also reported that knowledge about the adaptation and reuse of existing structures and infrastructures—such as shopping malls, office parks, and other underutilized spaces—responding to pressures of land scarcity, urban sprawl, and shifting economic patterns was important. The integration of infrastructure and urban design also gained prominence, with practitioners emphasizing the need for holistic approaches that consider transportation, water, energy, and waste systems as integral to shaping urban environments.

A holistic and interdisciplinary problem-solving orientation was viewed as essential, requiring collaboration across planning, architecture, landscape architecture, economics, and governance.

Mobility and public realm design—ranging from complete streets and "middle housing" to zoning and regulatory frameworks—remain central to shaping livable and accessible cities. At the same time, measurable frameworks such as Environmental, Social, and Governance (ESG) metrics were reported as increasingly guiding project evaluation and accountability.

Finally, technology and digital tools were reported as transforming practice, with the use of big data, artificial intelligence, and advanced computational methods supporting analysis, visualization, and decision-making. Together, these trends highlighted an urban design field that is adapting to climate challenges, prioritizing equity, leveraging interdisciplinary collaboration, and embracing digital innovation to produce resilient and socially responsive urban futures.

Question 5: What would you like to see as productive synergies between the urban design profession and academia?

The relationship between urban design academia and professional practice is increasingly recognized as a site of generative exchange. Interviewees reported that joint research initiatives offer a compelling model for collaboration, where academic institutions contribute theoretical depth and methodological rigor, while practitioners bring contextual knowledge and operational insight. These partnerships can produce innovative responses to complex urban challenges and foster a shared culture of inquiry. Similarly, the integration of professionals into academic teaching—whether through studio instruction, seminars, or critique—grounds pedagogy in real-world conditions and enhances students' capacity to navigate the multifaceted realities of urban design.

Interviewees also reported strong interest in a shared infrastructure of resources—such as project archives, annotated case studies, and/or white papers—that could serve both academic and professional communities, enabling comparative analysis and pedagogical experimentation. The appointment of practitioners as visiting faculty or fellows could strengthen this bridge, allowing for sustained engagement with evolving industry practices. These roles not only enrich the curriculum but also recalibrate institutional priorities to reflect contemporary urban issues. Experiential learning models, including community-engaged studios and pro bono collaborations, were of interest as they immerse students in the socio-political dimensions of urban design, foregrounding ethical reasoning, stakeholder negotiation, and adaptive problem-solving.

Professionals were also interested in external research opportunities—such as externships and shadow ships—that offer students short-term immersion in professional environments, complementing academic learning with direct exposure to project delivery, client interaction, and institutional dynamics. These experiences foster professional readiness and deepen students' understanding of the field's operational contours.

Interviewees reported a strong interest in travel-based learning, including site visits and international exchanges, which cultivates spatial literacy and cultural sensitivity, exposing students to diverse urban contexts and design paradigms. A coordinated network of academic institutions and professional offices was suggested as a means of facilitating such initiatives, potentially supported by targeted fundraising efforts. Urban design fellowships for faculty and students, inter-school partnerships, and collaborative staffing models were noted as other ways to reinforce a more integrated and responsive urban design education ecosystem.

Question 6: How are you seeking out urban design expertise through job advertisements, and what professional degree qualifications do you require?

While many firms explicitly post positions for "urban designers," the qualifications sought varied widely, ranging from advanced degrees in urban design or planning to combinations of architecture and landscape architecture. Some firms prioritize candidates with dual degrees—such as architecture and urban design—recognizing the value of interdisciplinary fluency and the ability to operate across scales and densities.

The role of applicants having Urban Design credentials in hiring decisions was nuanced. While some firms explicitly seek candidates with Master of Urban Design (MUD) degrees, others are more flexible, accepting applicants with undergraduate design degrees supplemented by coursework or experience in urban design. Portfolios remain a critical evaluative tool, with emphasis placed on clarity of individual contributions within group projects and the demonstration of graphic and conceptual abilities. Firms also express appreciation for candidates who can "wear both hats"—combining design sensibility with planning acumen—particularly in contexts that span suburban and urban scales. Some professionals said they may not actively seek UD credentials due to the lack of potential applicants with these credentials. This variability underscores the lack of a standardized pathway into the profession, a limited supply of credentialed professionals, and reflects broader questions about the definition and boundaries of urban design as a distinct field.

Despite the presence of formal job postings, many firms rely heavily on informal networks and word-of-mouth referrals to identify qualified candidates. Connections to academic institutions play a significant role, with professors often recommending graduates directly to firms. This informal recruitment process places a premium on soft skills—such as collaboration, communication, and systems thinking—which are often evaluated through interviews and portfolio reviews. However, practitioners noted that these competencies are unevenly distributed, with only a fraction of technically proficient candidates demonstrating the interpersonal and integrative abilities required for urban design work.

Overall, there is a growing recognition within practice of the need for a more clearly defined and dedicated urban design profession. Practitioners acknowledged the importance of academic programs in carving out space for UD as a distinct discipline and welcomed the emergence of specialized degrees. Yet, the hiring landscape remains fragmented, shaped by firm-specific priorities, project demands, and the evolving nature of urban design itself. This tension between formal qualifications and practical adaptability highlights the ongoing negotiation between academia and practice in shaping the future of the field.

4. Next Steps: Bridging Qualitative and Quantitative Insights

Interviews with practitioners have long been recognized as a valuable tool in urban research, providing insights into the lived realities of design and planning work that may not be captured through theoretical or documentary analysis alone. In the context of urban design education, they serve not only as a research method but also as a pedagogical strategy that connects students and faculty with the professional environment they seek to influence. By eliciting reflections from practitioners on their challenges, strategies, and innovations, interviews allow academic inquiry to be grounded in the complexities of practice (Salama, 2015).

The findings from the initial UDAC interviews indicate that urban design firms seek candidates with strong design skills, a holistic understanding of urban systems, and collaborative competencies, reflecting broader findings on essential urban design skills in contemporary practice (Carmona et al., 2008). But most importantly, the interviews revealed that the profession values the growing presence and confirms the importance of urban design. Practitioners further highlighted the need for future urban designers to engage directly with pressing global challenges—most notably climate change adaptation, the integration of emerging technologies, and the navigation of increasing political and economic uncertainty. These demands align with recent scholarship arguing that urban design must continually evolve to remain responsive to dynamic environmental and social conditions but also benefits from learning through professional practice (Carmona, 2019; Savage, 2005).

While the first phase of interviews provides critical insights, the project is explicitly framed as a work in progress. UDAC intends to expand the scope of inquiry by conducting additional semi-structured interviews with practices across a broader geographic spectrum in the United States, including regions beyond the coasts, to capture a wider diversity of voices and contexts. In addition, future iterations will include a stronger emphasis on public-sector perspectives, such as planning

departments, to explore how administrative frameworks both support and constrain urban design practice. Parallel to expanding the qualitative component, UDAC is preparing a quantitative phase through large-scale data collection. Specifically, an online survey will be distributed to a wide range of practices—including boutique design firms, large corporate offices, planning agencies, and interdisciplinary firms in adjacent fields such as engineering—to capture more representative patterns across the profession. The upcoming quantitative survey will complement qualitative interviews, enabling a mixed-methods approach to better understand skill priorities across diverse practices (Creswell & Plano Clark, 2018) and providing a statistically informed basis for curriculum recommendations. As Groat and Wang (2013) argue, the combination of qualitative and quantitative methods offers a more robust and triangulated understanding of design practice. By moving toward this mixed-methods approach and contextualizing this work in a more comprehensive literature review in the future, UDAC seeks to establish a richer empirical basis for reforming urban design curricula and advancing its mission of bridging academia and practice.

Ultimately, the next steps in this research aim to consolidate insights from both qualitative dialogues and quantitative patterns, producing actionable knowledge that can inform both pedagogy and professional development, and ensuring that the discipline continues to equip students with the skills and capacities needed to design democratic, resilient, and sustainable cities.

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CRediT Authorship Contribution Statement

Mona El Khafif: Research and Writing – interviewing, writing & editing, Research – conduction of original interviews, analysis and editing, Writing – original draft, Introduction, Methodology, Findings, and Next Steps. Nico Larco: Research and Writing – interviewing, writing & editing, Research – conduction of original interviews, initial analysis of finding and editing – Writing – edited draft of all sections.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data Availability

Data will be made available on request.

Ethics Committee Approval

Ethics committee permission is not required.

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Coding the urban curriculum: Technology as thematic infrastructure in urban design education

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Abstract

As debates continue over how to articulate the disciplinary scope of urban design education, several researchers examined how pedagogical models are shaped by specific thematic priorities, particularly ecological, socio-political, or technological. As graduate programs navigate the tension between disciplinarity and interdisciplinarity, themes like resilience, climate adaptation, spatial equity, and digital urbanism have begun to function not merely as curricular content, but as structuring frameworks that govern how urban design is taught and practiced. This paper addresses the question of how certain themes infiltrate or govern urban design education by examining the Master of Urban Design and Digital Environments (MUDDE) program. In MUDDE, foreground technological tools, in particular virtual reality (VR), augmented reality (AR), and artificial intelligence (AI), are employed not as discrete subjects, but as a pedagogical infrastructure through which students interrogate, simulate, and communicate complex urban conditions. Using a qualitative case study, the research analyzes curricular documents, classroom observations, student projects, and survey responses to understand how these tools influence inquiry, design workflows, and representation. Through analysis of two courses in particular, findings indicate that the MUDDE curriculum moves beyond skill acquisition toward thematic mediation, where technology becomes a method for exploring and constructing urban narratives. These tools support design process at multiple stages. They inform data-rich site analysis, allow producing multiple design outcomes through generative and parametric workflows, and expand the communicative potential of student projects by offering immersive and interactive visualizations for engaging with diverse stakeholders. In this way, themes in MUDDE operate not as isolated topics, but as conceptual operating systems, organizing inquiry, shaping design workflows, and guiding modes of representation. This pedagogical approach aligns with an international shift toward reflexive, exploratory, and projective models of urban design education, where the governance of themes is enacted through the integration of method, technology, and class culture. The study contributes to debates on the future of urban design pedagogy by demonstrating how technology can reorganize learning environments and extend the epistemic foundations of the field.

Keywords: MUDDE, pedagogy, technology, urban design

1. Introduction: Urban Design Pedagogy Between Ambiguity and Plurality

Urban design field has long been a contested ground between architecture, planning, landscape, and civil engineering (Lang, 2017). Its hybridity enriches the field, and thus its pedagogy, but leaves it with a transient theoretical core. This in-betweenness is often considered as a source of richness, but it has also led to what Lang (1994) once called an unresolved identity problem. Students trained in urban design are expected to master spatial composition, socio-economic analysis, and political negotiation all at once, yet often existing frameworks do not organize these competencies. Madanipour (2006) captures this condition as both an asset and a liability: the flexibility to draw from multiple traditions, coupled with the risk of intellectual fragmentation. Çalışkan (2012) argues that this ambiguity persists because programs often borrow heavily from their parent disciplines without articulating distinct epistemological foundations.

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Since the 1960s, attempts to resolve this ambiguity, which was common across design disciplines of the built environment, seem to have taken two directions. First approach sought to impose rational procedures to the design process (Jones, 1970), however, these models often ignored the situated, iterative nature of practice. Second, the reflective approach, led by Schön (1983) and later advanced by Lawson (2004) and Cross (2006), reframed design as an abductive, experimental activity. In this way, studios became sites of reflection-in-action, where knowledge is produced through cycles of doing and thinking. Urban design pedagogy, however, has remained uneven in absorbing this perspective. This reflective turn gave urban design educators a vocabulary to describe tacit knowledge, iterative reasoning, and abductive leaps. By the way, as Çalışkan (2012) states, urban design pedagogy has not fully absorbed this epistemology; instead, it has remained caught between inherited proceduralism and fragmentary appropriations of reflective practice.

This absence of disciplinary closure together with the challenges of rapid urbanization (such as environmental concerns) and ongoing technological advancements, led many urban design programs to organize their curricula around thematic priorities (Yavuz Özgür & Çalışkan, 2025). Among many, three themes of environmental sustainability, socio-political engagement, and technology seem to stand out internationally.

The ecological turn in urban design is perhaps the most visible thematic reorientation of the past two decades. Confronted with climate change, biodiversity loss, and resource scarcity, design schools have reframed their mission around resilience and adaptation. Mostafavi and Doherty's Ecological Urbanism (2010) articulated a vision where ecological thinking is not an add-on but the very substrate of design pedagogy. The implication of this theory for curricula is profound as the studios then regularly incorporate environmental modeling, climate scenario planning, and landscape ecology. Beatley (2010) extends this argument by advocating biophilic cities, in which urban designers must learn to work with natural systems as co-producers of urban form. For students, this thematic emphasis cultivates multi-scalar reasoning, forcing them to situate small-scale interventions within long-term ecological dynamics.

Running alongside ecological concerns is a second thematic orientation: socio-political engagement. Sanoff (1999) and Fainstein (2010) remind us that design is always a political act, shaping who benefits, who is excluded, and how public space mediates social relations. As a result, more community-based studios and participatory projects have emerged in teaching and practice. Here, students learn to treat local knowledge and stakeholder perspectives not as external constraints but as generative inputs. Healey's (1997) framework of collaborative planning resonates in this context, as it frames design not as the imposition of form but as the co-construction of visions for shared space. In practice, this thematic emphasis has produced graduates skilled in negotiation, facilitation, and collective authorship, competencies once considered marginal to design but increasingly central to professional legitimacy.

The third thematic strand, and the one most relevant for this study, is the integration of digital technology. Whereas ecological and socio-political priorities are largely thematic in content, technology functions at once as a theme and as a structuring method. Digital tools have redefined how students analyze sites, generate alternatives, and communicate proposals. Batty (2018) describes this shift as a new epistemology of urbanism, one grounded in data, simulation, and systemic modeling. The rapid uptake of GIS, 3D visualization, VR, AR, and AI reflects more than a change in representational media; it signals a deeper restructuring of design cognition. Recent research in design-related education reinforces this trajectory. For instance, Afacan (2016, 2018) shows that digitally mediated and blended learning environments enhance students' reflective practices and support more iterative, feedback-driven studio cultures. Studies in urban pedagogy have expanded this perspective. For example, Meshkani (2024) shows how machine learning can be embedded in studio workflows to shape urban problem, framing and scenario development, while Palazzo and Shirleyana (2022) highlight how digital and transdisciplinary tools can support adaptive and experiential learning in urban design studios. Taken together, these emerging directions suggest that digital technology in design education increasingly operates not just as

representational enhancement, but as an epistemic driver that reorganizes how students think, inquire, and act within complex urban conditions.

Al-Kodmany's (2002) work on visualization for participatory planning demonstrates that the tools themselves alter the dynamics of engagement in a way that immersive or interactive media can flatten hierarchies, making complex projects legible to non-experts. Similarly, studies on the application of VR and AR in design pedagogy highlight that immersion is not limited to representational upgrade, but perhaps equally important, it is also a cognitive extension, allowing students to reason spatially in ways that drawings or static models cannot (Whyte, 2002). Machine learning and AI introduce another dimension by augmenting generative and evaluative tasks, enabling students to test hundreds of scenarios, recognize hidden patterns, and explore probabilistic outcomes (Mitchell, 2017).

To understand technology's role in urban design education, it is useful to look at it not simply as a collection of tools but as an epistemic infrastructure that could potentially reshape the thinking process and thought. Several studies and theories addressed this matter or can support its role in pedagogy. For example, Schön's (1983) idea of reflection-in-action finds a clear analogue in VR. When students step into immersive environments, they are able to interrogate spatial decisions in real-time, revising and rehearsing alternatives as if in conversation with the space itself. This medium of design facilitates an iterative process and associated reflection at a scale and immediacy unavailable in conventional drawings. To take another example, theories of embodied cognition (for example see Clark, 1997; Gallagher, 2005) suggest that thinking is distributed across brain, body, and environment. AR exemplifies this principle by embedding digital overlays into physical sites. Students using AR are not simply visualizing data; they are reasoning through bodily interaction with layered realities. The pedagogical effect is to tether abstract analysis to lived, situated experience. In another case, AI extends cognitive capacity by generating and evaluating options beyond human scale in terms of prototyping, process, and time. Far from being a neutral assistant, algorithms could shape the design space itself through foregrounding certain logics while marginalizing others.

The above-mentioned themes, though, function as more than curricular topics. They operate as frameworks that organize inquiry and pedagogy. Environmental and social agendas reshape problem definition and evaluation, while digital technologies restructure design workflows, collaboration, and presentation. Within this purview, and along with third thematic cluster described above, this paper examines that proposition through a case study of the Master of Urban Design and Digital Environments (MUDDE) program. By analyzing how emerging technologies are embedded across MUDDE curriculum, the paper argues that the MUDDE program demonstrates a shift from mere skill acquisition to thematic mediation, where technology acts as a conceptual operating system that organizes inquiry, shapes design workflows, and guides modes of representation in urban design education (triadic aspects). The aim is to identify the cognitive, procedural, and experiential outcomes of technology-mediated pedagogy and to assess how these outcomes contribute to cultivating resilient, adaptive, and future-oriented approaches to urban design.

The next section of the paper illustrates the methodology for analyzing this argument. It then continues with an analysis of MUDDE curricula with examples from three courses, highlighting how technology has been used in selected courses and how their application supports triadic aspects mentioned above.

2. Methodology

This research employs the case study method to investigate how emerging digital technologies could potentially function as a conceptual operating system within urban design pedagogy. Case study method is well suited to contexts where the object of inquiry is complex, situated, and evolving, and where the goal is to generate analytical insight rather than universal law. The Master

of Urban Design and Digital Environments (MUDDE) program was selected precisely because it positions digital technology not as an ancillary subject but as a foundation of its pedagogical strategy. MUDDE is a two-year program within the School of Architecture, Art, and Design at American University in Dubai (AUD). It prepares students to confront today's complex urban challenges by combining cutting-edge technologies with forward-thinking design practices. This study focuses specifically on two courses within the program including 'Digital Techniques for Urban Design' and 'Urban Design Studio II' in order to examine in depth how VR, AR, and AI function as pedagogical infrastructure in distinct modes of analysis, design development, and representation.

The program's recent curricular transformation and systematic integration of VR, AR, and AI make it a fertile site for exploring how tools reorganize design thinking and studio practice. The program consists of ten courses in total: nine core courses and one elective. The core curriculum encompasses three thematic studios that address infill development, master planning for new neighborhoods, and future urbanism. It also includes three workshop courses emphasizing the use of GIS, AI, parametric and generative design tools, and VR/AR technologies, as well as one research-oriented course focused on sustainable infrastructure. The program features a two-semester thesis sequence: the first semester centers on research, while the second emphasizes design. The table below outlines the various emerging tools employed across these courses.

Table 1 The Use of Selected Emerging Tools in MUDDE Courses (Note: Normative 3D spatial modelling, rendering and visualization tools are excluded)

Course type	Digital tools
Studio	VR, AI
Workshop courses	GIS, AI, VR, AR
Research (including thesis research)	GIS
Elective	Depends on the offered course

Table 2 Pedagogical Roles of Technology in MUDDE Courses

	Course	Role of Technology	Explanation
Year I	Urban Design Studio I Urban Design Studio II Sustainable Infrastructure	Amplifier	Enhances spatial comprehension and feedback but does not define pedagogy
	Digital Techniques for Urban Design Geographic Information System	Infrastructure	Tools support reasoning, simulation, and iterative analysis
	Artificial Intelligence in Urban Design	Driver	Frames spatial exploration and evaluation
Year II	Urban Design Studio III	Driver	Frames spatial exploration and evaluation
	Thesis Research	Infrastructure	Tools support reasoning, simulation, and iterative analysis
	Thesis Studio Elective (workshop/research)	Driver / Infrastructure	Depends on topic direction

As outlined in Table 1 and 2, these tools are embedded across the curriculum with varying levels of pedagogical intensity. The subsequent analysis draws specifically on two mentioned courses supported by observations, course materials, and student survey responses, which collectively inform the study's examination of how technology operates as a conceptual pedagogical infrastructure.

According to Tables 1 and 2, the program's courses collectively equip students with the skills to integrate emerging technologies into various stages of urban analysis, design, and visualization. While digital tools are integrated in almost all courses to varying degrees, their pedagogical roles differ in both depth and intent. In certain courses, emerging tools form the core pedagogical framework, as pedagogical infrastructure and driver. For instance, in Artificial Intelligence in Urban Design, AI serves as an analytical and generative partner in design process, used in all tasks of the course. Students use AI to simulate urban scenarios, extract spatial patterns from large datasets,

and generate design alternatives, thus engaging critically with the implications of algorithmic decision-making in urban contexts. So, AI is a tool that all course content, assignments, and deliverables are developed around it. Similarly, in the Future Urbanism Studio, VR plays a direct pedagogical role by immersing students in all stages of design and visualization, enabling them to experience and evaluate spatial futures. Through VR-based design exploration, students interrogate how emerging technologies can redefine perception, scale, and the experiential dimensions of future cities, such as vertical or gravity-defying urban forms.

In contrast, in several other courses, these emerging tools function as a pedagogical infrastructure or amplifier rather than pedagogical drivers. They enhance analytical precision, visualization, and communication but do not fundamentally shape the course's epistemological or methodological foundation. For example, parametric modeling or VR may be integrated to strengthen spatial analysis or design efficiency, however, the core learning outcomes remain centered on critical urban theory or design synthesis rather than on technological innovation itself. This distinction underscores a spectrum within the curriculum, from technology-centered learning to technology-assisted learning, reflecting a balanced pedagogical approach that situates emerging tools both as enablers and subjects of critical inquiry in urban pedagogy.

The analysis in this paper focuses on two courses in which emerging tools function as pedagogical infrastructure, amplifier and assistive rather than core pedagogical driver. The first, Digital Techniques for Urban Design, introduces students to generative design processes, immersive visualization, and augmented reality methods through a series of intensive workshops. Here, technology serves as a means of exploration, enhancing students' technical fluency and expanding their capacity to experiment with form, data, and perception within urban contexts. The second, Urban Design Studio II, focuses on the principles of master planning addressing local regulatory frameworks, while incorporating virtual reality as a medium for site analysis, spatial testing, and final visualization. In this course, VR acts as a pedagogical amplifier, supporting iterative feedback, participatory engagement, and spatial understanding rather than defining the studio's epistemological core.

Together, these courses exemplify the dual pedagogical approach of the program: combining technical literacy in emerging tools with critical application in complex design problems. The analysis employed a qualitative approach combining content analysis of syllabi and project briefs, interpretation of classroom observations, and coding of student survey responses. Data were collected across the 2024–2025 academic years and include two iterations of the relevant courses, with sustained observations in two studios and two workshops. The survey responses were collected from eleven students in Urban Design Studio II. Recurring patterns related to inquiry, workflow, and representation were identified through open coding, allowing the study to connect empirical findings to the broader conceptual proposition of technology functioning as a pedagogical operating system.

3. Analysis of Two Courses

The pedagogical practices of the two MUDDE courses, Digital Techniques for Urban Design and Urban Design Studio II: Neighborhood Masterplan, reveal how emerging technologies operate as epistemic environments that shape reasoning, the organization of design practice, and representation. The analysis presented below draws from classroom observation, student projects, and survey data. Together, they suggest that within the MUDDE program, analyzed emerging digital tools serve as the infrastructure through which students learn to question, think, visualize, and act spatially.

3.1. Digital Techniques for Urban Design

This course introduces students to data-driven and generative modes of design inquiry. It begins with the construction of a mini static digital twin, where urban datasets such as topography, spatial layers (roads, pathways, building outlines, 3D model of buildings, land-use, etc. are layered to

expose spatial dependencies. Similar to the cognitive-mapping exercises described by Batty (2018), this process externalizes reasoning: students learn to read the city as a system of parameters rather than a fixed morphology. Using Grasshopper scripting, they then run a series of simulations such as visibility, Isovist, shadow and radiation analysis to deepen their site analysis. The act of scripting relationships between variables moves the site analysis from descriptive to operational, enabling students to think through code. In this respect, the course re-stages Schön's (1983) reflection-in-action within a computational medium, where adjustment of parameters becomes a dialogue between designer and algorithm.

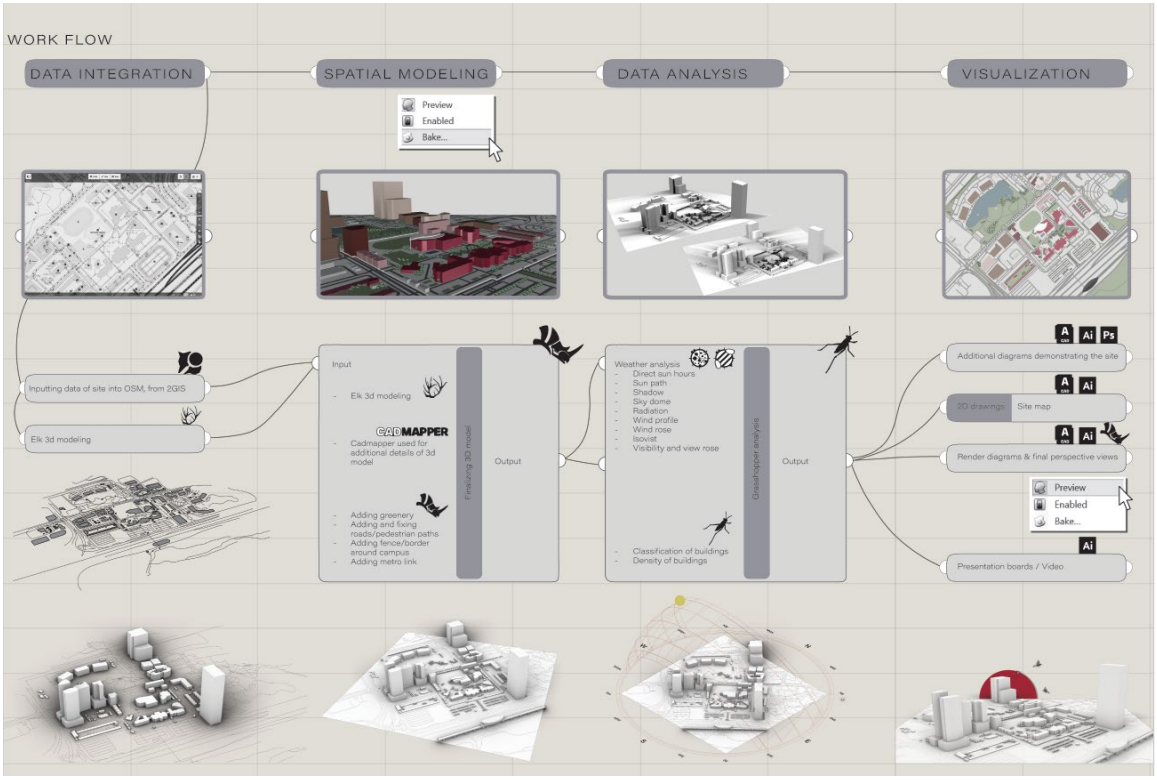

Figure 1 Workflow for developing a mini-twin for the studied site and example of simulations, produced by students (Source: Safi et. al, 2024)

As students progress to generative modeling, the iterative logic of parametric design expands from producing forms to constructing hypotheses. Put another way, they do not use tools merely to generate forms, but each iteration becomes an experiment, perhaps mirroring what Cross (2006) calls designerly ways of knowing: a cyclical reasoning process that oscillates between conjecture and evaluation. Students' observations show that the speed and reversibility of generative coding fostered a new form of attentiveness: students evaluated not single outcomes but the 'behavior' of the system producing them. Such responsiveness constitutes a subtle cognitive shift from solution-making to system-learning, aligning with emerging theories of design cognition in digital pedagogy (for example see Oxman 2017).

The third module of the course, designing parametric urban furniture, extends this logic into embodied experimentation through Augmented Reality (AR). Students transferred their coded geometries into AR environments and examined them live in full-scale spatial setting. The pedagogical benefit of such exercises extends beyond the visualization of form; it lies in the way AR unsettles and reorganizes spatial comprehension by merging perception with direct manipulation. When digital designs were observed and adjusted in the actual site, students' sense of proportion, form, and materiality evolved through bodily movement, negotiation with the physical surroundings, and the shared discussions as part of their teamwork. This interplay of computational reasoning and embodied appraisal softened the separation between abstract modelling and lived spatial experience. During review and critique sessions, the instructor and peers could enter these virtual environments together, providing feedback that are no longer just verbal commentary, but

is act of collective spatial negotiation. In this mode, learning dispersed across instruments, bodies, and communicative exchange, an ecology of practice resonant with theories of embodied cognition (Clark, 1997; Gallagher, 2005).

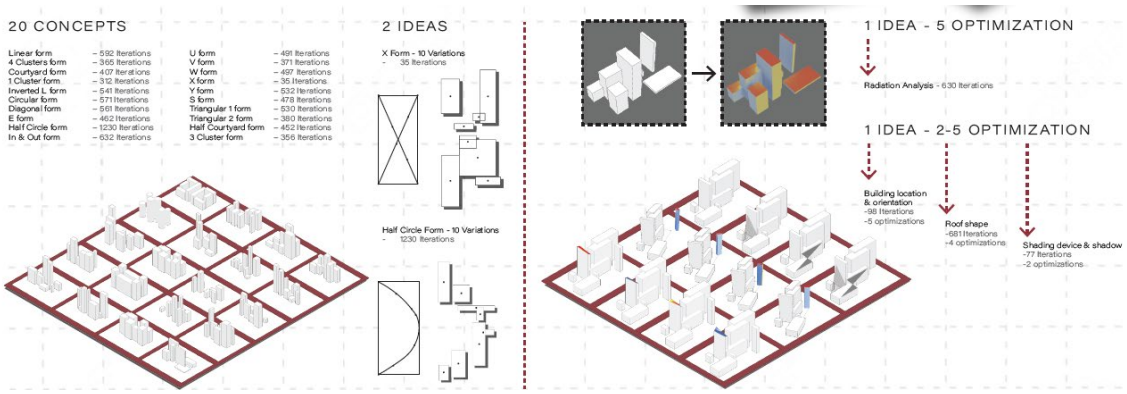

Figure 2 Example of students works using generative design for designing and optimizing building compounds (Source: Safi et al., 2024)

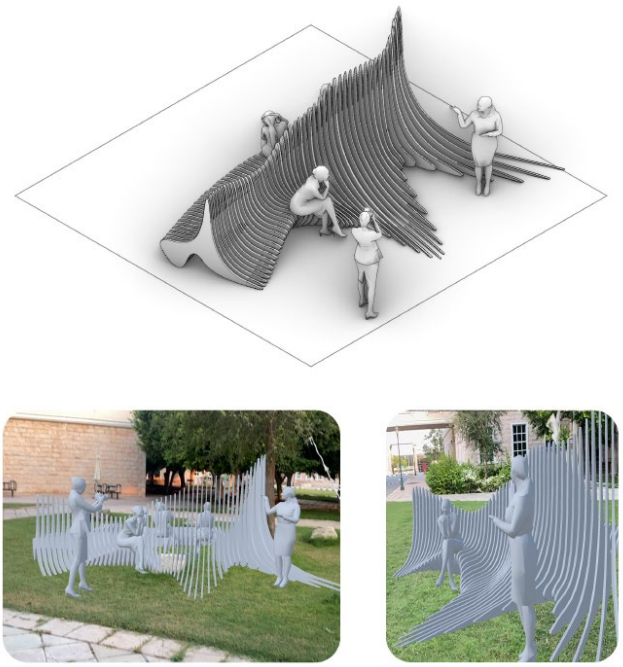

Figure 3 Example of students works using augmented reality for design and visualization (Source: Shakir & Almusalam, 2024)

Observation of students as well as analysis of their project outcomes provides evidence that application of technology as pedagogical infrastructure at urban level could create a design and analytical environment for in-depth reasoning as much as for representation. The projects indicated that digital tools revealed new patterns, exposed hidden relationships, and accelerated spatial discovery. The course thereby positioned computation as a medium for inquiry, not a skill to master. Within the program's broader trajectory, Digital Techniques for Urban Design course cultivated a mindset of adaptive experimentation that would later inform the immersive design thinking of the subsequent master planning studio.

These observations clarify how the two courses operationalize the central proposition that emerging digital technologies function as a conceptual operating system within the MUDDE curriculum. In the course Digital Techniques for Urban Design, computational tools structure the logic of inquiry by externalizing reasoning, transforming datasets into operational parameters, and enabling iterative hypothesis-testing. In the second course, Urban Design Studio II, immersive VR reshapes knowledge production through embodied evaluation, real-time spatial negotiation, and

collaborative feedback loops. Across both cases, technology mediates not just representation as used to be in the past but also the organization of design cognition and the relational dynamics of studio practice. These findings therefore demonstrate how tools and technologies actively configure the epistemic, procedural, and communicative dimensions of urban design learning.

3.2. Urban Design Studio: Neighborhood Masterplan

This studio course translated digital sensibilities to the scale of the city through purposeful use of virtual reality. Students developed masterplans for a neighborhood in Dubai and used VR in three sequential phases: site exploration, iterative design testing, and project presentation. A survey questionnaire was conducted with eleven students that provided empirical insight into how immersive technologies restructured their design learning.

Figure 4 Student using VR to explore spatial qualities in her design (left) and instructor using VR to provide feedback to student (right) (Source: Authors)

Across the responses, students consistently reported that VR provided a “much clearer understanding of spatial conditions” and “significantly influenced mass–void decisions.” Nearly all participants described a risen awareness of human scale and spatial sequence. These findings resonate with recent research showing that immersive simulation fosters situated design reasoning by coupling perception with decision-making (Portman et al., 2015). Instead of evaluating drawings from distance, which is common in the normative design process, students situated themselves in the evolving project, assessing visibility, pathway hierarchy, circulation, spatial organizations, enclosures, and scale as lived phenomena. The process demonstrates how immersion converts analysis into experience, effectively merging cognitive evaluation with spatial embodiment.

The representational consequences were equally significant. When asked to compare VR presentations with traditional methods, 90.9% of respondents found the experience “much more immersive and engaging,” and same percentage rated the realism achieved as “very high”. During critiques, instructors noted that discussions became grounded in spatial experience. The comments shifted from abstract notions of proportion to concrete experiential feedback such as “the pathway corridor feels compressed” or “the courtyard scale works.” Representation thus evolved from static illustration to dialogic environment; an arena for negotiation among students, tutors, and space itself.

Procedurally, VR altered collaboration and feedback loops. According to survey responses, 81.8% said that VR “enhanced the ability to receive and apply feedback” in the studio. It could be said that the immediacy of reviews shortened the distance between critique and revision, embedding responsiveness directly into the design workflow. While 18.1% of respondents found

the use of VR technology "significantly challenging," the majority of them described it as manageable and expressed strong intent to continue using VR in future projects. Every participant recommended its incorporation in subsequent studios, perhaps an indication that the technology has been normalized within their design cognition. When they asked for areas of further improvement in integration of VR with curriculum, students pointed to aspirations for "enhancing realism and details," "integration advanced features like simulation," and "improved accessibility," reflecting an emergent critical literacy: students were no longer fascinated by novelty but by precision and methodological potential. In this sense, technological engagement matured into reflective practice.

Taken together, the empirical and observational evidence show that VR in Urban Design Studio II served simultaneously as an instrument of inquiry, a medium of communication, and a platform for collaborative process. Immersion fostered situated reasoning; visualization expanded communicative reach; and real-time interaction restructured procedural feedback. Through these interrelated functions, this studio showcases how digital environments can mediate the intellectual, visual, and organizational dimensions of design pedagogy.

The combined outcomes of the two courses confirm that within MUDDE, emerging technologies have become the operative framework through which learning itself occurs. In the Digital Techniques for Urban Design course, students learned to reason parametrically and perceive data as design material. In Urban Design Studio, they learned to inhabit, critique, and iterate spatial propositions through immersion. Across both courses, the digital medium shaped how students think, see, and act, transforming technology from an accessory to pedagogical infrastructure.

Table 3 The Comparative Pedagogical Functions of Two Analyzed Courses

Pedagogical Dimension	Digital Techniques for Urban Design	Urban Design Studio II
Primary Focus	Analytical exploration through parametric and generative modeling, simulation, and computational reasoning	spatial synthesis and experiential evaluation at the scale of the neighborhood
Role of Technology	Pedagogical infrastructure enabling data-driven inquiry, system-based reasoning, and generative experimentation	Pedagogical amplifier supporting spatial understanding, iterative refinement, and collaborative immersion
Dominant Representational Mode	Parametric workflows, coded iterations, AR-based full-scale testing	VR walkthroughs, embodied evaluation, immersive scenario testing
Learning Outcomes	Ability to translate datasets into design logic; strengthened computational literacy; iterative hypothesis testing	Enhanced spatial judgment, human-scale evaluation, reflective decision-making, and clearer communication of design intent

4. Discussion

The analysis of MUDDE curriculum, particularly two focused courses, provides evidence that the role of technology in urban design education has evolved from tool into an operational medium and then an epistemic infrastructure that structures how learning itself occurs. In this sense, technology functions less as an add-on and more as a conceptual operating system. Put another way, it has become a pedagogical matrix that organizes inquiry, shapes urban design workflows, and guides representation at larger urban scale. These dimensions are not discrete; they overlap and reinforce one another, generating a condition where knowledge production and design action are co-dependent. What follows unpacks each of these three aspects, situating them within broader debates in urban design pedagogy.

4.1. Organizing Inquiry

In most traditional design curricula, inquiry was guided by precedent, typology, or design intuition. Our analysis shows that the emergence of advanced digital tools allows redefining this

condition by opening access to large datasets, simulation environments, and algorithmic reasoning that make inquiry itself more exploratory, relational, and speculative. As Batty (2018) note, the datafication of cities has to some degree transformed the nature of urban design problems, requiring students to navigate between qualitative and quantitative domains. Within MUDDE, this shift is evident in how students initiate design exploration through the construction of overlayed datasets, sometimes in parametric ways, rather than through formal sketches. Inquiry thus begins with information organization before moving toward form generation.

In recent years, the accessibility of real-time data and its integration with generative platforms have encouraged a culture of questioning rather than confirmation. Digital tools act as suggestive agents that not only visualize known conditions but also projecting multiple 'what if' scenarios that invite reinterpretation. Moving from representation to simulation, the tools do not depict reality but generate new versions of it. In this context, the abundance of data is both an opportunity and a challenge. As some scholars have argued (Townsend, 2013), more data does not necessarily produce more insight; in fact, it can obscure decision-making if left unfiltered. It was the same within the pedagogical space of MUDDE, where sometimes the abundance of data became an occasion for critical reflection, and on other occasions created confusion. Guided by instructors, students were encouraged to interrogate what kind of knowledge data actually represents, whose priorities it encodes, and what forms of urban futures it privileges.

The reorganization of inquiry through digital technology also changes the scale and temporality of design thinking. Historically, urban design operated at the macro level: slow, infrastructural, and plan based. Computational processing allows students to oscillate between micro and macro scales, testing smaller, adaptive interventions with long-term implications. This resonates with the notion of spatial agency, discussed by Awan et al. (2011), strongly implies a shift away from static master plans towards more ongoing, socially embedded, incremental processes of spatial production. By structuring inquiries around information, simulation, and feedback, MUDDE seeks to cultivate a capacity to move between abstraction and precision, between data and narrative throughout the design thinking process. In this way, technology does not only assist inquiry; it becomes the method of inquiry itself. The studio shifts from being a site of problem-solving to a site of knowledge production, where design emerges through exploration of variables rather than confirmation of hypotheses.

4.2. Shaping Design Workflows

The second aspect of the argument concerns the reconfiguration of design workflows. Urban design has traditionally followed a sequential logic of analysis, concept, development, representation, where often each stage informed the next. Our experiment using emerging tools in urban design shows these platforms could dissolve this linearity, allowing students to move fluidly across phases. In the MUDDE studio, for example, analysis is not something that precedes design but co-evolves with it through generative feedback. This is another evidence that computation could potentially transform design into an iterative ecology, where ideas are tested, simulated, and reconfigured continuously (also see Whyte, 2002 and Oxman, 2017).

The implications of this shift are methodological as well as cultural. First, the pace of design has accelerated. Tools such as machine learning and AI-assisted generation, parametric scripting, or immersive testing allow students to iterate faster than traditional analog processes would permit. Speed, however, is not merely a question of efficiency; it changes the rhythm of thought. When design and evaluation occur almost simultaneously, reflection becomes embedded within action. Going beyond Schön's (1983) reflection-in-action, now the reflection occurs within the feedback loops of software, simulation, and visualization.

Second, our analysis shows that using emerging digital tools in urban analysis and design, which often involves handling multiple parameters, allows workflows to become more non-hierarchical. In conventional pedagogy, design decisions often follow a top-down sequence: analysis by experts, interpretation by designers, and critique by instructors. In contrast, the integration of VR and AR

platforms in MUDDE flattened this structure in a way that instructors and students could inhabit the same model, make adjustments, and test implications in real time. The result may not just be greater collaboration but potentially a redistribution of authorship; a co-design process closer to what Healey (1997) described as collaborative rationality.

This non-linear, collaborative workflow also enables a new kind of temporal awareness. Students can test short-term scenarios (e.g., adaptive reuse, flood mitigation, shadow analysis, mobility interventions) alongside long-term urban transformations. Such simultaneity is central to contemporary discourses of resilience and adaptation (Mostafavi & Doherty, 2010). In this sense, digital workflows bring ecological thinking into the heart of the design process. They enable the continuous calibration of environmental, social, and economic parameters, embedding adaptability within the procedural logic of studio practice.

Yet, this acceleration and fluidity also introduce challenges. The immediacy of digital iteration risks turning design into optimization, privileging what is computationally efficient over what is contextually meaningful. The culture of urban design education must remain critical of technological determinism. Within MUDDE, reflective critique sessions deliberately punctuated the speed of workflow, creating more space for discussion, hesitation, revisions and ethical judgment.

4.3. Guiding Modes of Representation

The analysis of cases studied in this paper shows how representation in MUDDE is not treated as a terminal act of visualization but as an active mode of inquiry. Technologies such as VR and AR alter the epistemology of seeing, vis-à-vis students no longer look at the city but move through it. This immersive condition redefines how design knowledge is communicated, both within the studio and to external audiences. As Al-Kodmany (2002) shows, immersive environments democratize spatial comprehension by translating complex spatial data into embodied experience.

Within the MUDDE studios, as studied cases show, representation became a medium for dialogue rather than a vehicle of persuasion. When students showcased their projects in virtual reality, critiques became spatial dialogues: discussions about light, proportion, scale, connectivity, or accessibility were situated within the very environments being discussed. This aspect of representation could potentially be linked to Lefebvre's (1991) concept of the production of space, in which space is not an object to depict but a condition to be enacted. Representation, therefore, becomes pedagogically productive as it teaches by allowing both designer and audience to inhabit the consequences of design decisions. At the same time, the shift toward immersive representation reconnects technology with the socio-political dimension of urban design. By making space more accessible and legible to non-experts, these modes of representation support inclusive engagement. They allow multiple stakeholders, juries, or even publics to participate in shaping urban imaginaries, transforming representation from an end-stage deliverable into a tool of shared authorship.

However, immersive representation also raises questions of realism and ethics. The persuasive power of visual fidelity can conceal uncertainty or bias. The danger of technological spectacle is that it may displace critical debate with affective immediacy. The pedagogy attempts could mitigate this risk by framing representation as an argument, not an image, in a way that students can discuss what their simulations exclude as much as what they reveal. In this way, representation becomes not just an outcome but a pedagogical act of reflexivity, guiding how designers construct, perceive, and communicate urban knowledge.

Across these three aspects, MUDDE demonstrates a paradigmatic shift from instrumental teaching to epistemic mediation. Technology allows organizing inquiry by reframing what can be known, shapes workflows by redefining how design unfolds, and guides representation by transforming how knowledge is shared. Together, these dynamics suggest that the technological turn in urban design education could not be interpreted as a departure from ecological or socio-political priorities. It is suggested to interpret them as their necessary extension, providing the

infrastructure through which complexity, inclusion, and adaptability can be enacted in design pedagogy.

It is important to note that the three analytical dimensions—organizing inquiry, shaping workflows, and guiding representation—were conceptually established in advance based on the emerging theoretical literature on digital design cognition, but subsequently refined through patterns observed in the empirical data. The course observations, student reflections, and survey results helped nuance and validate these dimensions, confirming their relevance within the MUDDE context. At the same time, several limitations should be acknowledged. The study focuses on a single academic institution and examines only two courses in depth, which may limit the broader generalizability of the findings. The sample size for survey data is relatively small, and some insights rely on self-reported reflections that may carry inherent bias. These contextual boundaries do not diminish the value of the results but indicate the need for future research spanning multiple institutions, larger cohorts, and longitudinal evaluation of digital pedagogical practices.

5. Conclusion

The analysis of two courses within the MUDDE program reveals that digital technologies have moved beyond the status of auxiliary instruments and now function as a conceptual infrastructure for urban design pedagogy. By examining how VR, AR, and AI allow organizing the inquiry, shaping workflows, and guiding modes of representation, this study has highlighted a shift from a model of urban design education centered on technical proficiency to one oriented around thematic mediation. The consequence is not only a change in the kinds of skills students acquire but also a reconfiguration of how knowledge in urban design is generated, tested, and shared.

At the level of inquiry, the integration of immersive and data-rich tools broadens the horizon of what can be asked within the studio. Students no longer rely just on traditional forms of site analysis or deductive problem solving; instead, they operate within an environment where data, simulation, and embodiment continually reshape the very questions under investigation. In workflow, the adoption of digital infrastructures disrupts the linear trajectory that has long structured design education. The iterative loops observed in studied cases here illustrate a pedagogical culture in which analysis, generation, and evaluation are inseparably intertwined. Representation, in turn, becomes less about producing polished outputs and more about constructing shared environments of negotiation between students and instructors, but also between designers and stakeholders.

These transformations carry both promise and risk. On the one side, digital mediation enhances cognitive reach, accelerates iteration, and enables more transparent engagement. On the flip side, it risks privileging what is most easily simulated, potentially narrowing rather than expanding critical judgment. A reliance on algorithmic suggestion may dilute the role of intuition, just as the allure of immersive representation may reduce critique to spectacle if not carefully framed. The challenge for pedagogy, therefore, lies in cultivating discernment: preparing students to navigate abundance, to balance tacit and computational modes of reasoning, and to deploy technologies as instruments of inquiry rather than ends in themselves.

What emerges from the studied case is a model of urban design education that reconciles disciplinarity and interdisciplinarity through technology. By serving as a shared platform across diverse student backgrounds, digital tools foster collaborative experimentation and collective authorship. The synergies among VR, AR, and AI could form a cognitive ecosystem that equips graduates to grapple with the layered complexity of urban transformation. In this sense, technology becomes not simply a theme, means of representation, or tools for efficiency but a medium for epistemological experimentation; one through which the future of urban design pedagogy may be reimagined.

Looking ahead, the triadic framework proposed in this study including organizing inquiry, shaping workflows, and guiding representation, offers a transferable structure for rethinking urban design curricula beyond the MUDDE program. The framework can support curriculum development

in other institutions seeking to integrate immersive and computational tools. It also provides a basis for cross-institutional comparison, enabling educators and researchers to examine how different programs embed technological mediation within their studios and workshops. Future research could extend this work by applying the framework to diverse courses, incorporating larger sample sizes, and conducting longitudinal studies that assess how digital pedagogies evolve over time. Such directions would broaden the applicability of the model and situate digital mediation as a shared, adaptable foundation for contemporary urban design education.

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CRediT Authorship Contribution Statement

Maryam Shafiei: Writing – review & editing, Writing – original draft, Methodology, Investigation, Analysis, Data curation, Conceptualization, Data visualization. M. Nabyl Chenaf: Writing – review & editing, Writing – original draft, Methodology, Investigation, Analysis, Conceptualization.

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Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data Availability

Data will be made available on request.

Ethics Committee Approval

For this survey, American University in Dubai does not an ethical report.

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The urban design studio: Staff intentions, student experiences, and lessons learned from Manchester Urban Design Lab, University of Manchester, UK

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Rachel Kerr**

Abstract

The design studio is the cornerstone of technical applied urban design education – both as a physical space for students to learn within, and pedagogical philosophy for developing and delivering curriculum in higher education settings. A studio-based approach to urban design teaching must reflect the multi-faceted nature of the discipline - a challenge when the current field lacks a consolidated mandate – simulating real-world challenges and contexts and preparing students for the demands of practice. This article explores the pivotal role of the design studio at the University of Manchester (UoM) in shaping future urban designers - emphasizing its contribution to pedagogy, skill development, and nurturing a collaborative and supportive design culture that can extend beyond higher education into professional practice. The studio acts as an interactive and practical laboratory where theoretical knowledge is translated into practical application, where students can experiment, refine ideas, collaborate with peers and tutors, and learn to effectively communicate design visually and orally. The studio-based approach aims to develop technical competencies, cultivate critical thinking, and promote processes that deliver more contextually responsive, people-centered, high quality urban design solutions. The article considers how students (both UK based and international) within the Manchester Urban Design LAB at UoM perceive, and respond to, the studio-based approach during their 1-year dedicated MSc Urban Design program – highlighting their perspective that it instils a positive culture – shaped through the promotion of open dialogue, peer-critique, collective learning, and formative and summative design crits. It is however imperative that these spaces avoid several negative issues that have plagued studio approaches in fields such as architecture in recent years. This brings into focus the role of the academic/tutor in delivering studio that seeks to encourage creativity - where failure is framed as a learning opportunity with a culture of constructive feedback and mentorship at the heart of developing resilience and adaptability in students – as well as developing an appropriate curriculum that maximizes the studio environment. At MUD-Lab/UoM the design studio approach directly shaped, and currently supports, our bespoke framework for practicing urban design (Black et al., 2024) and sits at the very heart of our approach to education.

Keywords: urban, design, education, studio, applied design, urban designer

1. Introduction: Urban Design and Education

Urban design is not easily defined as a field or discipline; it lacks a consolidated mandate. It is both conceptual and spatial – which presents a challenge for urban design educators and university programs (Black et al., 2025). The lack of definitive narrative is evident when one considers the diverse ways in which urban design courses have evolved and the resultant variation in how universities deal with this emerging field (Black & Mell, 2024). Cidre (2016) considered the variance visible in contemporary urban design pedagogies – demonstrating the array of thinking on what urban design should be influencing and how it can be taught – with climate change, housing, public space, food production, health, ageing, sustainability, and design quality all considered as components within the remit of an urban design agenda (Romice et al., 2022). This fragmentation

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of education in urban design (*see* Cuthbert, 2007) can mean that what a student will learn will very much depend on the university chosen and the emphasis of the program itself (UDG, 2022).

It also means that the role of the design studio in urban design education can greatly vary from institution to institution, depending on the academic and professional approach of the staff who establish and teach a course (Boling et al., 2016). With no process for accrediting teaching of urban design in the UK (Rudlin & Montague, 2019) the core skills, knowledge, and competencies required are unclear – leading to diverse learning outcomes across courses and subsequent impacts on the value of the design studio as an appropriate and effective environment for learning. Many universities in UK, for example, focus heavily on theory (such as the University of Cardiff, Glasgow University, and University of Newcastle (Black & Mell, 2024)) where the use of dedicated studio-led approaches and spaces is less required or utilized. Other universities deliver urban design as a specialist pathway set within an architecture structure (Palazzo, 2014) – leaning heavily on the traditional architecture studio-model (such as Manchester Metropolitan University and University of Reading). A smaller number of universities provide programs which are more technically focused, integrating bespoke urban design studio-learning approaches that are stand-alone, beyond the traditions of more established disciplines such as planning or architecture (UCL, University of Strathclyde, and University of Manchester) (*see* Romice et al., 2022). It is this final approach to teaching and learning, which emphasizes the importance of the bespoke urban design studio, which is reviewed in this study – given its novelty in sitting outside of the more established lecture theatre or architecture studio environments and their historical embedded expectations and challenges.

2. The Studio in Design Education

The studio-based model for education in design fields can be traced back to the Ecole des Beaux-Arts in the mid 1600's, where master-apprentice relationships dominated training and learning models (Cuff, 1992). The Bauhaus movement and school later redefined the notion of a studio-based environment for learning as a more collaborative, experimental space (Gropius, 1965). Popularized in the more traditional and historic field of architecture as a core component for design development and creative expression – the studio took on popularity in urban design within the UK in the 1960's, as cities rapidly expanded post-war and educators and researchers sought out ways to better explore and test new approaches to placemaking and delivering higher quality civic projects (Madanipour, 2006). The notion of a studio as a forum for education in design aligns with constructivist pedagogy – focused on the notion of teachers as facilitators of learning, with an emphasis on students' active construction of knowledge and skills through student-centred learning. This constructivist studio approach provides students with the opportunity to engage with authentic practical projects, and are guided through a process of problem solving, having to respond to spatial context and adapt to design challenges which they might experience in professional practice (Fleischmann & Daniel, 2010).

The studio can be defined traditionally as a physical space, normally dedicated to a particular program or design module, that students can access to work on their projects and assignments both within scheduled teaching timetables and beyond the structured lessons for independent or team-focused work. Contemporary urban design studios may offer a broader experience to include digital spaces (Oh & Zurlo, 2021) where new technologies and software can be integrated and explored (such as VR, AI, and smart tech).

The design studio has historically been subject to robust critique – and recent research, focusing on predominantly architecture-based studios in higher education, uncovered a myriad of concerns directly related to their usage. These include evidence of gender and racial biases in feedback and treatment of students by tutors/staff (Deamer, 2022); systemic issues of student pressures resulting in anxiety, stress, and exhaustion; and imbalanced power dynamics identified between staff and students, including toxic cultures with bullying and misconduct exposed (The Guardian, 2021). Many schools now enforce policies specifically designed to overcome some of these issues (RIBA, 2021) – with The Bartlett at University College London going as far as to employ external

consultants to drive change as a direct result of historic shortcomings within their studio culture and approach (Brown, 2022).

3. Urban Design Education at University of Manchester

The authors are based within the Manchester Urban Design LAB (MUD-Lab) at the University of Manchester – where they teach a 1-year specialist MSc Urban Design program that is centered around a studio-led approach to teaching and learning. The MUD-Lab approaches urban design as a technical product and applied discipline that focuses on people, experience, and context (Black et al., 2025). Much of the work undertaken by the MUD-Lab is influenced by the thinking on urban design from the turn of the 21st Century with guidance such as By Design (DETR & CABE, 2000) and The Urban Design Compendium (Llewelyn-Davies, 2000). To achieve this the MUD-Lab advocates a studio-based approach, teaching practical design skills across multiple scales. The MUD-Lab's territory is dealing with the physical forces of the city, representing the local and enhancing life and urbanism through comprehensive analysis and logical process. From this premise the Applied Urban Design Framework (Black et al., 2025) was developed, building on previous urban design process development (Black & Sonbli, 2019) – and it is this framework for urban design practice that shapes the use of the studio as a pedagogical tool.

The MUD-Lab structures teaching within a bespoke design studio (Figure 1), a facility located on the university campus which provides a physical learning environment for practical problem-based teaching and learning. The studio is equipped with physical and digital resources to support learning and teacher-to-student and student-to-student collaborations. The facility sits alongside a 3D model workshop space (Figure 2) that allows students to develop physical models to test context, design concepts, and detail.

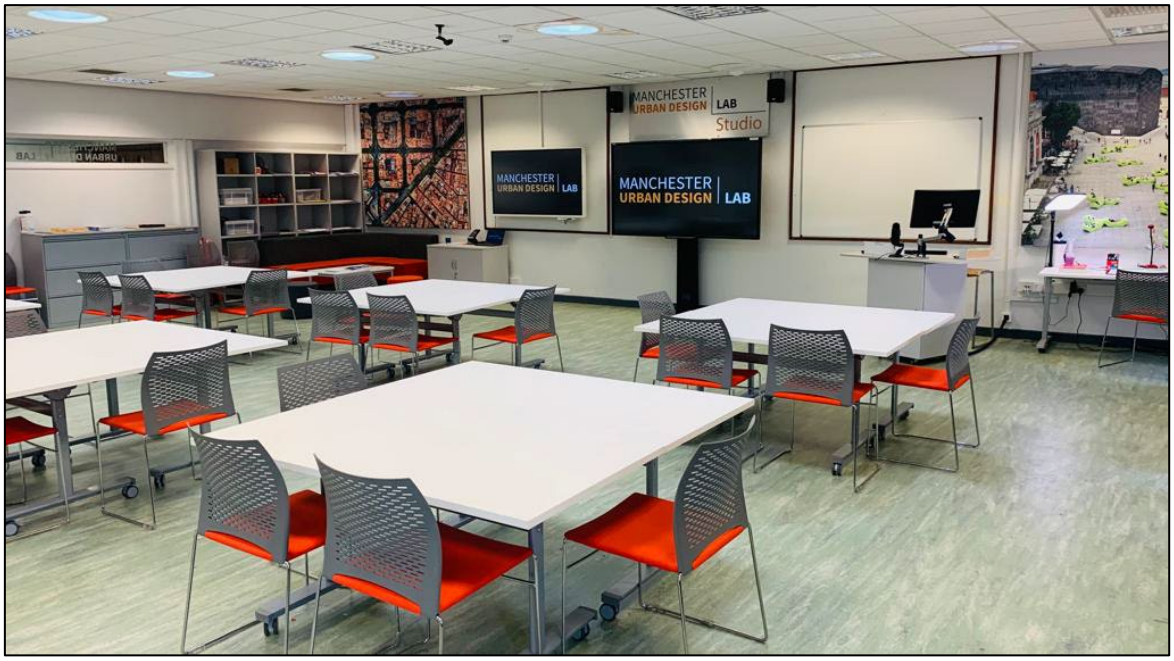

Figure 1 The MUD-Lab studio is organised to allow information-oriented lectures and workshop introductions as well as guest speaker presentations, practical exercises and small-size group collaborations. It also provides a flexible environment which can be arranged to allow the delivery of one-to-one direct feedback through design crits

Figure 2 The 3D model workshop allows students to explore design ideas and contextual responsiveness in an applied and practical manner – testing and evaluating proposed solutions and concepts

Within the MUD-Lab structure the practical, studio-based teaching and learning does not fully replace the theoretically focused, instructor-led lecture theatre environment associated with higher education. The theoretical underpinning provided through lectures forms a critical part of the process, providing the foundation upon which students can build new knowledge through their studio-based experiences—ensuring that the education experience delivers not only knowledge gathering and exchange, but knowledge application (Black & Mell, 2024). Students are encouraged to maximise their use of the studio throughout the year and view the studio environment as more than a physical room, but as an active system of engagement in their learning and development.

4. Evaluating the MUD-Lab Studio

This research set out to explore the studio-based teaching and learning approach within MUD-Lab at the University of Manchester. The studio has been fundamental to urban design education at the University for the last 10 years, since the inception of the MSc Urban Design and International Planning (UDIP) programme in 2015. This paper draws upon the authors' direct teaching experience during this time, along with an evaluation process, formalised in the 2020-21 academic year, and undertaken in the subsequent academic years 2021-22, 2022-23, 2023-24 and 2024-25. The evaluation process aimed to gather feedback from MUD-Lab teaching staff and postgraduate students enrolled on the MSc UDIP programme and has informed annual incremental programme adaptations implemented during this period. The research scope focused on the role and impact of the studio as a vehicle for teaching and learning, capturing attitudes, perceptions and experiences –and reflecting on how and why we operate a studio; the perceived benefits; critiques; areas for improvement; and how we can ensure that urban design pedagogy within the studio environment consistently delivers the intended teaching and learning outcomes, evolving to meet emerging needs.

A series of techniques were employed to capture information pertaining to the scope of this research during the 5-year evaluation period. Unstructured interviews were undertaken with 11 members of staff involved in studio teaching (including main academic staff, teaching tutors, and regular external contributors) to explore their intended rational for the urban design studio, and how it is set-up and delivered in conjunction with intended learning outcomes and the wider curriculum agenda. Student perspectives were captured through anonymous unit-evaluation surveys completed at the end of each semester by students for all studio-facing modules (*student n. 168*) (including semester 1 'Urban Design Studio' and 'International Urban Design', semester 2 'Urban Design Project', 'Masterplan Studio' and 'Urban Design Futures Studio' and semester 3 'UDIP Design Dissertations'); studio-specific surveys conducted at the end of each academic year for all graduating urban design students (also anonymous) (*n.86*); and organised open focus groups held twice a year (at the conclusion of semester 1 and semester 2) with students to capture their views, perspectives, and experiences of studio (*n.73*).

Interview and focus group transcripts and survey responses were collated and coded (using NVivo software) to unpack the staff intentions for the studio (its importance for educating urban design) and the student experiences (the perceived benefits and pitfalls of engaging in a studio-led learning environment). Through the thematic analysis of the MUD-Lab staff interviews, 5 key reasons for undertaking a studio approach in urban design emerged. 5 broad themes were also identified based on the analysis of student responses that encapsulate their experiences (positive and negative are evident within each). Throughout the study period the MUD-Lab has sought ways to directly respond to the evaluation responses, implementing new practices and initiatives with the express intent of enhancing the experience and improving the outcomes of the studio as a learning environment. The importance of learning lessons and adapting and evolving are critical to ensure the studio remains a relevant and effective element of urban design pedagogy. As authors we hope these findings are helpful to others seeking to foster a new studio-approach – or evolve an existing one – within their own institutions.

5. The Staff Intentions: Importance of a Studio-Led Approach

To understand the role of the studio in urban design education it is imperative that a clear approach and principles are identified, with a defined practical aim. There is not a single universal set-up for how to operate a design studio – it is therefore vital to unpack the rationale behind any given set-up to ensure that it is rooted in a clear aspiration and context. Unpacking this rationale was central to the staff interviews and subsequent thematic analysis, the outcomes of which identified 5 key reasons for undertaking a studio-led teaching and learning practice. These can be summarized as pedagogy; critique; professional preparation; tangible outputs; and culture.

5.1. Pedagogy

The design studio is viewed as the epicentre of learning in MUD-Lab – fostering the core skills and competencies that lectures alone cannot provide. It emphasizes an active and project-based learning model (Webster, 2008) where students engage with real-world sites and 'learn by doing'. It is a form of 'problem-based learning' (PBL) with students tasked to find solutions that are iterative and context based (Salama, 2016). Teaching staff highlighted that the studio approach aims to *"give students the dedicated space to reflect on their projects, somewhere they are comfortable in learning not only from their successes, but also their failures…in many ways our job as educators is to facilitate student learning, not to control and manage it exclusively"* (MUD-Lab Tutor #3). The studio exists to act as a vehicle for supporting intending learning outcomes – with the MUD-Lab taking a very technical applied approach to urban design teaching, the studio is argued by staff to be the ideal learning environment to ensure a focus can be on real-world style project submissions – with students encouraged to collaborate to enhance creativity and critical thinking (Oh et al., 2013) and graphical communication and associated skills have space to be taught, tested, and developed.

5.2. Critique

The studio is also highlighted by staff as playing a vital role in the feedback loops between tutors and students – with the crit process at the centre of this. Crits are pivotal but can be traumatic and stressful if poorly managed (Anthony, 2002). At MUD-Lab the studio crit is central to how the semester is planned and delivered – "*crits are strategically placed as key milestones in student project's to ensure everyone gets feedback on the major components of their submission, it is also a useful way to encourage students to be working regularly on their schemes to avoid falling behind, and allows us as staff to pick up where they might need some extra help – oftentimes that is individual problems, but sometimes we are able to quickly spot a corporate issue in the learning and re-visit certain topics or areas with the whole group"*(Tutor #8). At MUD-Lab crits are graded and compulsory (summative) to ensure they are taken seriously and students treat them as key stages in their learning process. The importance of the weekly studio also ensures students get to know staff more informally given their regular exposure – meaning crits become less frightening and can feel like an extension of the informal feedback (formative) being received on almost a daily basis. It is also important that feedback within the crits, and more informally in-studio, be consistent - with balanced and constructive feedback. Staff are encouraged to view themselves as facilitators of the student's project development, not just critics of it (Goldschmidt et al., 2010).

5.3. Professional Preparation

One of the core justifications for a studio approach in MUD-Lab was the requirement to prepare students for future employment – to ensure they graduate with experiences that mimic what they are likely to encounter in professional practice delivered through authentic studio scenarios. "It is our job to bridge education and practice – to prepare the students for what is to come next. The studio needs to, as best as we can manage, replicate how designers are working in the real-world, obviously it will never be perfect in this regard – ultimately, it's a controlled environment we provide, but there are lots of things we can do and include to make it as realistic as possible." (Tutor #1).

Some of the elements of the studio approach that seek to replicate real-world experiences and prepare students for post-education were cited as "external engagement with practitioners as often as is possible" (Tutor #3); "encouraging and providing a platform for multi-disciplinary collaborations" (Tutor #10) (see Natarajan & Short, 2023); "ensuring integration of policy and design" (Tutor #8); "partnering with local authorities, developers, and practices to ensure students can see how our studio reflects what is going on beyond these walls" (Tutor #8); and "involving, where possible, students in wider MUD-Lab projects and research that has tangible impacts beyond academia" (Tutor #6). Students should complete their 1-year MSc UDIP at MUD-Lab and have as seamless a transition into their chosen vocation as possible – "without the design studio we simply cannot give students that insight into what their work life in urban design will look and feel like" (Tutor #1).

5.4. Tangible Outputs

Without clear and tangible outputs that will benefit the students long-term the studio risks being viewed as a vanity project, or a tradition, rather than a bespoke methodology for delivering core learning outcomes. The MUD-Lab studio is held up as an ideal vehicle for ensuring students can produce their best work and deliver the best design projects. "*The studio allows the students to produce a wide range of different outputs…not only their completed projects, but they also get to showcase their skills in graphical communication, analysis, design detail, software, even physical 3D modelling*" (Tutor #2). These outputs are not only for grading purposes to collect the necessary unit credits to graduate, but also to develop portfolios that will supplement future job applications. "*One of the key deliverables of the studio here is that students end up with a really strong design portfolio – this is key to differentiating yourself in a crowded job market. Not many will bring their essays or coursework reports to a job interview…. but they will absolutely bring their portfolio and their models. I hope students see the value in our approach here, that their university assignments have*

a dual role, well as long as we make sure the projects are relevant and they have the tools to produce fantastic outcomes." (Tutor #11). To support such physical outputs MUD-Labs supplements the design studio with a dedicated 3D model workshop (see Figure 2) – and scheduled portfolio training that provides students the opportunity to receive feedback on their personal portfolio work prior to applying for jobs.

5.5. Culture

MUD-Lab staff demonstrated a strong belief that for the urban design studio to work in the ways they intend and for it to be successful – it requires a holistic approach and perspective that seeks to promote a broader culture that students can associate themselves with. "Having a physical space is necessary of course, but it's not enough on its own, students need to want to be in that space and feel a sense of ownership and belonging – otherwise it becomes a chore rather than an experience"(Tutor #7) To develop this culture several key elements were highlighted – aiming to foster a 'team-environment', ensuring the studio space is 'welcoming and attractive', inspiring students with a clear undertaking of what the outcomes will be if they invest and engage regularly, and finding innovative ways to allow natural connections and relationships occur.

"At MUD-Lab we have a very clear appreciation that it is about more than the physical spaces themselves – what makes the studio work is the people. Look after the people, staff, students, externals, and things seem to take care of themselves. You cannot force a culture….but you can provide the right conditions for it to manifest, we do so much to try and foster this, not always successfully – but our yearbooks, showcases, external events, drinks evenings, and even our branding [MUD-Lab]… it is always noticeable that as the year goes on more and more students want to have our branded stuff, they become more and more part of the MUD-Lab". (Tutor #8).

6. The Student Experience: Perceived Benefits (and Pitfalls) of a Studio-Led Approach

As previously discussed, the studio-led approach to urban design education places the student at the forefront of the learning environment – offering a platform for more direct engagement and more individual control over how to apply what is being taught. The system is designed to test students, whilst also arming them with responsibility for their own educational progress – the student experience therefore becomes fundamental to the successful operation of the urban design studio. It is imperative students understand and recognise the rationale for a studio-led approach, their attitudes and perceptions will ultimately shape their level of involvement and subsequently how much they get out of the intended learning. Whilst it remains true that individual perceptions may not always truthfully reflect reality (Ding & Gebel, 2012), they can have tangible impact on behaviour and resultantly whether something (the studio in this case) functions as intended (Black & Street, 2014). This research unpacks 5 student-perceived benefits of the studio - each have counter arguments – pitfalls and potential concerns raised that should be viewed of equal importance in shaping an effective studio approach.

6.1. Hands-on Experience

Comfortably the most common studio benefit identified by MSc Urban Design students in the MUD-Lab is the hands-on approach that ensures students are not passive in their education, but rather they view themselves as active participants in learning. This predominately applies to timetabled studio sessions led by staff and tutors – wherein short talks are broken up with applied student-led exercises. Students value the opportunity to put into practice the knowledge being delivered from the front of the studio – in an environment where they can work with peers and have instantaneous feedback and support from staff. Many students feel this hands-on practical approach is vital to their understanding, and confidence in applying discipline-specific language and skills, complex analysis techniques and testing out design concepts. This benefit is even more keenly felt when students are being taught software – a learning by doing methodology is recognised by students as critical for their development and confidence.

"My past experiences of university was sitting in a lecture-hall being talked at, I fully get that is important as we need to consume knowledge….but often it can feel very theoretical and our understanding superficial, in studio though we put into practice the theory, we get to immediately have a go at things…I always leave the studio lessons confident I can apply the learning because that is exactly what I have just done. This is never more important than when we are being taught quite difficult techniques or how to present work professionally using things like Illustrator or Photoshop [software]*".* (MUD-Lab Student Focus Group)

There are however risks identified by some students to this hands-on approach – whilst many associate the highly technical and practical studio sessions with real-world practice and experience, some others have commented that it can feel "*artificial*" (Unit Evaluation Survey) or "*lacking in the complexities I would expect in professional practice*" (Unit Evaluation Survey). This is a challenge for educators seeking to provide a real-world experience within a controlled academic setting that ultimately requires 'hypothetical projects' at some level (Cuthbert, 2010).

6.2. Collaborative Opportunities

The ability to collaborate regularly in an environment that encourages team-working and peer-learning makes many students feel that their education is more than a form of knowledge exchange with staff – but is rather a more complex and nuanced experience where individuals believe they get more out when they put more in. Many students fed-back that the studio fosters an atmosphere of constant development, where they not only believe they are learning from others, but that their active participation ensures they take on the role of 'teacher' – a symbiotic system where learning is constant and progress can be inspired from multi-sources. The mostly commonly stated sources being 'staff', 'other students', 'external tutors and practitioners', 'viewing others project work', and 'students studying other disciplines'. It was clear from several focus group discussions that these collaborations are not always viewed as naturally occurring, with a recognition that organisation is key to drive opportunity.

"It is easy to just rely on the small group of mates you make [for feedback and collaborations] *…so having timetabled peer-crits was great, it made me discuss my designs with others I would never have ordinarily approached on the course".* (Student Focus Group)

"Having the chance to discuss our work with external professionals was amazing, having your lecturer give you help is great, but hearing from those in jobs I ultimately want to have myself is so valuable, it made me feel like what I was doing, what I was producing, was going in the right direction and would not just get me a good grade, but hopefully impress employers and get me good job too". (Student Focus Group)

For a small number of students collaboration did bring some negative perceptions, with some arguing that "*certain people* [other students] *definitely hold back their best ideas, or do not fully participate in sharing…they are happy to take from others but not reciprocate*" (Studio Survey). This can lead to "*clear rivalries between certain students*" (Studio Survey), as they compete rather than collaborate (*see* Crowther, 2013). One student also highlighted the potential for those less vocal or outgoing to fall behind – with those perceived as being more confident or outgoing getting the most benefit out of teamworking and feedback beyond the structured components of the course.

6.3. Creative Freedoms

The ability to try different things and make mistakes in a safe-environment was highlighted as a core benefit of the studio approach – many students stated that the studio was a space where they felt comfortable to "*give things a go*" and "*try out different approaches without worrying about looking foolish or getting a poor grade*" (both Student Focus Group). This creative freedom cited by students was related to a number of key aspects of how the studio is set-up and how it relates to the curriculum. Most students surveyed believed that urban design projects required designers willing to innovate and make value judgments in regard contextual response, design quality, and feasibility. It is therefore imperative that they are encouraged to "*try things, fail, and learn from*

why that did not work for that particular place" (Studio Survey) – this productive failure (*see* Kapur, 2016) ensures that students feel time spent in studio is always valuable, regardless of the individual days 'output' in relation to their assigned projects (Fernando, 2007). Others discussed the contrast to other more traditional forms of education during their studies – citing more rigid coursework with fixed parameters and expectations that did not encourage out-of-the-box thinking, and the freedom to employ different methods, such as sketching, modelling, talking - to work through, test, and refine ideas and approaches.

Creative freedom does come with caveats according to some students – many cite a 'fear of failure', or consistent 'failure' leading to concerns over progress and the potential to fall behind peers. Others articulate worries over their ability to be 'creative' in comparison to peers. *"I loved the more structured elements like the analysis and even developing our design briefs…. but the design stuff itself was really challenging for me, others just seemed to have a natural knack [gift] for this…. I found this stage so stressful and felt like I needed more guidance at key points"* (Student Focus Group).

6.4. Feedback and Mentorship

Controlled and consistent feedback was viewed as one of the most tangible and critical components of a successful studio-led model of learning by students. This can be divided into two distinct feedback types – the structured crit and informal relationships. The structured crit was held up as vital to ensure students have clear milestones for their projects/schemes and receive specific, targeted feedback from staff who will be responsible for grading the final submissions. *"Whilst crits are undoubtably the scariest thing we do at university, I could not imagine where my work would be without them – the feedback we get is great and does help make the work better, but it's more they loom large at these key points in the semester and focus your brain to work towards them. It gets you out of the 'messing around' stage and forces you to make decisions and get things on the boards"* (Student Focus Group).

Not all students agree that the crit positively assisted their project development however – with some finding the feedback provided "*overly-subjective*" or "*lacking depth*" (Unit Evaluation Survey). In part, this could be attributed to variations in learning styles, however across several unit-evaluation surveys comments have been recorded that criticise perceived tutor bias that affects the level of feedback received – and feelings of confusion as one tutor may be overly critical of certain aspects of a design, whilst another overlooks these issues or even disagrees with the prior negative feedback – leading to students believing such feedback is arbitrary. Anthony (2002) highlighted this issue in the studio approach – that at times tutors' opinions and perceptions can be at odds with one another.

The informal relationships between tutors and students can be of benefit for a number of reasons – students cite the ability to access consistent and quick feedback in-studio as beneficial in progressing their development, but also in growing relationships with staff which can make them more comfortable in asking for help for example. This more flexible form of feedback often empowers students:

"Seeing the lecturers in the studio most days means conversations become more natural over the year…we can have a joke with them and get to know them better, it breaks down some of the boundaries and you can feel like you are not just being taught, but you are being mentored" (Student Focus Group).

Some students do however feel excluded, at times, from this form of relationship, "*it's clear that some tutors like some students more than others and this is reflected in the time they spend with different people…I do not live very close to the campus so always feel like I am a stranger when I come to studio and do feel I miss out because of it at time*"(Studio Survey). Language can also be an issue raised in regards staff/student relationship development, with some international students

commenting they can feel excluded due to their lack of confidence in conversing more informally in English – putting them at a potential disadvantage in relation to other students.

6.5. Sense of Identity

"The MUD-Lab studio was like my second home… actually maybe my first home as I spend more time there than I did at my flat! My studio mates are like my family now" (Student Focus Group).

"This was one of the hardest years of my life, but it was also maybe the best. I made friends for life – we went through this epic journey together and I couldn't have done it without them" (Unit Evaluation Survey).

"I came to study at University of Manchester, but I left an alumni of the Manchester urban Design LAB. I still carry my MUD-Lab tote bag everywhere I go" (Student Focus Group).

Many studies have illustrated similar student feelings on their studio experience in university (i.e. Pelsmakers et al., 2020; RIBA, 2021). A primary take-away from the MUD-Lab student feedback was a shared feeling that the studio space was "their space" – and this creates a unique culture amongst the cohort. From working together in collaboration, to pushing hard towards deadlines for crits, or final submissions, the collective experience developed bonds that continue long after graduation. Also having a 'banner' (in this case the MUD-Lab) to join together under was valued – a tribal marker within the wider university – further strengthening the feeling that they belonged to a unique and select group.

Whilst the overall feedback across the surveys and focus groups was positive regarding the sense of identity fostered by the MUD-Lab studio – there where a number of warnings stated that may risk this in the future if not managed and considered carefully. These centred around commonly referenced issues including managing workloads, ensuring deadlines did not overlap (RIBA, 2021), encouraging life beyond the studio, and working closely with those with disability or in need of dedicated support (physical or mental). Links to mental health decline related to the studio-approach are well documented (see Oliveira et al., 2020) and must be carefully considered to ensure students avoid stress and burnout as a result of studio culture. One student commented that the MUD-lab hosting student showcase events and publishing student yearbooks each year caused them stress – "seeing the quality of past student work was both inspiring and terrifying…I worried for so long that I could not live up to what I'd seen, it caused me sleepless nights at the start" (Student Focus Group).

7. The MUD-Lab Development: Learning Lessons and Implementing Change

The process of evaluation outlined in this study has resulted directly in a number of adjustments to how design studio is managed and operated within the MUD-Lab – there have been several modifications made over the 5-year period to ensure that student concerns are addressed and that the urban design pedagogy and associated studio approach continues to evolve with contemporary professional practice and emerging challenges facing both urban settings and people. Through a process of reflection on their teaching and scholarship in the context of the urban design studio the authors have identified 5 changes that have been implemented with the express aim of enhancing the studio experience for students and staff alike – these are all the result of lessons learned and could be explored and considered by any studio-led educational setting.

7.1. Working with 'Live' Clients

There are lots of examples of 'live' project integration in design education (see Cuthbert, 2010), but the challenge for educators remains that designing curriculum around such projects can be unsustainable. Such projects often have a limited shelf-life and when completed new projects may require significant curriculum adjustment. 'Live' projects also introduce the complexity of external practices and individuals becoming core to teaching and students outcomes, with inherent challenges in consistency of commitment, familiarity with the teaching framework and ability to engage the students (Kamalipour & Peimani, 2025). At MUD-Lab we have always focused on real-

world sites for student projects, but maintained a strong element of artificiality, with clients played by tutors for example. This approach maintains staff control over projects – increasing consistency and fairness across the cohort – but fails to expose students to real-world complexities and impact. In response to this we set-up an extra-curricular design project approach – where students have the opportunity to work on a 'live' project with a real-world client alongside support from academic staff. An example project is MUD-Lab's collaboration with Stockport Metropolitan Borough Council in the delivery of a new central government funded Design Code for the region. MUD-Lab set up an optional student extra-curricular project wherein students delivered a strategic framework document for two key areas that both informed the subsequent design code and became part of the suite of policy for the council's planning team. Students got the opportunity to put into practice the skills they developed in studio during graded assignments and have a piece of work they contributed directly towards influence design policy and future development. The optional nature of these types of projects ensures students do not feel pressure to be involved, and staff ensure that work on the scheme is organized to avoid interference with curriculum deadlines.

7.2. Exposure to Professional Practice

In addition to the 'live' clients – MUD-Lab has sought out ways to provide students with more exposure to urban design schemes and development happening internationally – to enhance their knowledge and grow their best practice understanding. It is imperative that students recognize the importance of collaborations and other disciplines in the delivery of high-quality schemes – often the studio environment can be singularly focused on the role of the urban designer only (Yavuz Özgür & Çalışkan, 2025). To tackle this a series of new initiatives were introduced at MUD-Lab, with 2 long-term solutions integrated into the studio-based model. Firstly, the use of external practitioners for timetabled 'informal crits' – these crits are not graded and are promoted as specialized feedback opportunities. Sessions are planned where a series of invited external tutors to come into the studio to discuss students work from a different perspective – these sessions aim to provide professionals from fields including architecture, landscape architecture, planning, road/highways, health and wellbeing, and sustainability. Such an approach allows students to receive unique takes on their design schemes – it also enables key learnings on the roles of other disciplines in the production of place. The second initiative was to create a formal platform for external professionals to showcase their own real-world schemes and projects to students – though an organized series of talks and exhibitions under the title of 'MUD-Lab Professional Practice Forum'. This forum allows for the exchange of ideas and approaches and exposes students to international practice and different challenges being faced in different contexts.

7.3. Focus on Critical Thinking – Not Definitive Answers!

Student expectations are often based around the notion that there are 'right' and 'wrong' answers – that their assignments are inherently correct or incorrect. To challenge this perception and encourage more critical thinking and creative freedom a number of changes were made to the MUD-Lab studio approach. Whilst the strategically placed crit model is useful for ensuring students keep to deadlines and work regularly on their assignments – the graded element can cause students to worry about whether they have delivered the 'correct' scheme – by adding in a series of scheduled informal staff surgeries between these crits students are encouraged to be braver in what they seek feedback on – to test and try new ideas and approaches without the fear of losing grades. Model making is also encouraged earlier in the design optioneering or development stage, rather than only at the end design stage – allowing students to more effectively explore solutions within their context to ascertain which options best meets their brief.

Initially the studio approach was deliberately flexible and loose to reflect the desire for more critical thinking – however adapting to incorporate more 'rules' had clear benefits. Practical rule-setting regarding studio opening hours meant students had to leave the studio each evening by 8PM – promoting a better work-life balance, and ensuring students take time to step back from

their work – to reflect and refresh. A new non-credit module (Urban Design Applied Skills) was also developed to focus exclusively on the teaching of software – removing this from the studio-environment and separating the final graphical presentation from the creative thinking and development more clearly.

7.4. A Transparent Process

One of the most significant developments in the MUD-Lab to enhance and improve the studio approach was the development and publication of a comprehensive and accessible bespoke framework for both understanding and practicing urban design in a contextually responsive manner from appraisal to design delivery (Black et al., 2025). This framework was developed in response to our need for a structured, yet flexible, process that enables individuals to develop the core sills necessary to practice urban design as a technical product, to develop projects along a logical pathway that still requires creative approaches, thinking, and commitment. The Applied Urban Design Framework provides clarity on the role of the urban designer, and transparency on the design process undertaken. This has become the template for education in MUD-Lab, and students are able to immediately recognize the process required from start to finish – and have a clear structure to follow at each stage of their projects in studio. It ensures expectations are clear and understood – that key milestones are highlighted and recognized – and assignment requirements are more easily understood. Having such a framework has allowed students to better structure their time in the studio – to appreciate each stage of the process within the wider context. The framework promotes consistency of approach across all projects and assignments and reassures all students that there is a clear mechanism they can adhere too. Having such a framework also allows for grading to be clearer, as staff can pinpoint expectations and students can appreciate what they are required to present – leading to less subjective critiques and a more balanced and targeted approach to feedback.

7.5. A Sense of Self

The danger with promoting and encouraging a culture of teamwork and community identity within the studio setting – is that it risks students becoming homogenized. Much of the criticism of a studio environment in the literature can be attributed to a lack of individual care and attention. Considering the feedback of the MUD-Lab students in this paper, the counters to the benefits of the studio tend to be focused on a lack of appreciation that not everyone will think, act, or feel the same way. To counter this at MUD-Lab there have been a number of different approaches tested that seek to demonstrate to students that they matter as individuals and they have a voice. Beyond the timetabled teaching and scheduled studio sessions there has been an effort to organize and host non-graded trips and tours – often to encourage peer-bonding and allow for more informal discussions to happen between staff and students. These take the form of walking tours in the city, a now annual residential 2-day trip to Newcastle (UK) that aims to allow students to get to know staff and peers better early in the academic year, and even group meals together funded by the MUD-Lab and University. In addition, interventions implemented in response to ongoing evaluation have been made in recent years to focus attention on one-to-one sessions with students, sign up surgeries with tutors that allow students to have more focused time with a staff member to discuss their work and/or their concerns – and later in the year conversations regarding career progression and opportunities. Making these opportunities less informal at key times ensures a more equitable approach that includes all students.

This research itself was in part about ensuring students had a voice in the studio – opportunities to complete specific studio surveys anonymously in addition to the university standard unit evaluations, and focus groups set up to listen and record student experiences and communicate MUD-Lab responses and initiatives to tackle issues that have been raised. In a broader sense university wellbeing policies are being better integrated and incorporated – as well as support offerings regularly communicated in studio – with encouragement to make use of the networks and provisions available (see RIBA, 2021).

8. Conclusion: Benefits vs Risks

This paper has established that the studio plays an integral role in urban design teaching and learning, with recognized benefits from the perspective of both teaching staff and students. The studio-led approach is however complex in its both its benefits and risks – as highlighted through past research demonstrating the problems associated with the studio approach. This paper has further highlighted some of these concerns, and therefore urban design educators must carefully consider how the design studio fits into their teaching and curriculum development and delivery.

The studio-based teaching and learning approach within the MUD-Lab at the University of Manchester was explored through a thematic analysis of feedback gathered from studio teaching staff and postgraduate students enrolled on the MSc Urban Design and International Planning program. The review identified the intended role of the studio from the teaching perspective as core to the urban design pedagogy and assessment and feedback approach. The intention for the studio is driven by its reflection of professional practice processes and delivery of tangible outputs – and its anchor point for a broader design culture. Benefits for students reflected these intentions, valuing the hands-on experience (and yet recognizing the iterative nature of learning and safety of the studio space in this regard). Developing a studio culture is a complex undertaking, but something which allows students not only the opportunity to collaborate with peers, but to develop individually as an urban designer.

Delivering studio should not be the result of tradition or expectation, it must be more robustly rationalized and justified, shaped to ensure maximum benefit for the students involved, with the risks (real and perceived) mitigated as best as possible through ongoing studio practice. The studio is an approach that must support the curriculum – not shape and define it – it should be designed and delivered in an appropriate way to maximize the intended learning outcomes of the course. All involved, staff/student/external practitioner should be aware of how it is to operate, with a consistency of approach and agreed expectations. This requires engagement and communication – in particular between staff and students – understanding the experience of those engaging with the studio is critical to truly ascertain its usefulness, to enhance its impact, and create a positive environment. It is an ongoing process, a constant evolution, just as the field of urban design adapts and responds to emerging global and local challenges facing people and places, so must urban design education adjust to remain relevant. The urban design studio must reflect such changes if it is to remain a critical component in bridging the education-practice gap and developing the next generation of urban designers ready to make a positive impact on the world.

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CRediT Authorship Contribution Statement

Philip Black contributed 80% - including conceptualization, methodology, investigation, data analysis, and writing. Rachel Kerr contributed 20% - including project administration, editing, and proof-reading.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data Availability

Data will be made available on request.

Ethics Committee Approval

Ethics committee permission is not required.

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The MUDD program, UNSW: The centrality of transdisciplinary curricula in urban design studio (UDS): A phenomenographic exploration of factors impacting urban design studio curricula

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Abstract

This paper explores the evolution of teaching methods in urban design education within the context of Australia's postgraduate programs. Utilizing phenomenography—a qualitative research methodology grounded in educational science—it is organized into three main sections. The first section delves into the multifaceted drivers of curricular transformation in urban design, encompassing the effects of managerialism, the prevalence of neoliberal ideologies, and the persistent identity crisis facing the field. The second section presents a detailed case study of a particular graduate program, emphasizing its contribution to the discussion of theories of learning and teaching in urban design pedagogy. By analyzing the former Master of Urban Development and Design (MUDD) curriculum at the University of New South Wales (UNSW) Sydney, the final section synthesizes the insights garnered from the structure of the MUDD program, proposing that these can inform refining and enhancing the quality of future Urban Design program models. The MUDD program exemplifies the adoption of transdisciplinary methods and teaching, learning and curricula theories in urban design education, while underscoring the urgent need for improved pedagogical training for faculty. This article not only documents these shifts but also serves as a time capsule, preserving the structure of a distinguished Urban Design curriculum during a tumultuous period in higher education worldwide. Our research identifies three key findings: first, Urban Design Studios (UDS) often operate in disciplinary silos that inhibit the integration of urban systems. Second, although there is some support for transdisciplinary methods, practitioners' understanding of UDS pedagogy remains limited. Third, there is a critical need for educational science training for higher education instructors within the Australian Higher Education Institutional context. These insights underscore the urgency of adopting transdisciplinary approaches in urban design education, with implications for policy development and enhanced educational outcomes within the Built Environment field.

Keywords: transdisciplinary, the master of urban development and design, urban design, education, design pedagogy

1. Introduction

This paper critically explores the evolution of curricula in postgraduate urban design education in Australia, highlighting significant gaps in the existing historical literature regarding educational curriculum models in this discipline, particularly in the context of the COVID-19 pandemic (Crosbie, 2020; Jayasuriya, 2020). It employs Phenomenography, a qualitative research method rooted in educational science, which emphasizes the variations in individuals' experiences and conceptualizations of phenomena (Marton, 2004). The discussion is structured into three primary sections: first, an examination of the underlying factors driving curricular changes; second, a case study of the Master of Urban Development and Design (MUDD) program, which exemplified a

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cohesively aligned transdisciplinary curricula approach; and, finally, a synthesis of insights aimed at informing potential enhancements for future urban design programs.

The pandemic has precipitated a transformative shift in higher education, revealing vulnerabilities in previously effective pedagogical frameworks for urban design education (Kanwar & Carr, 2020). Consequently, a marked loss of educators and program discontinuities has led to a critical ontological knowledge deficit in the field (Bare et al., 2021; Carnegie et al., 2022). With more than three decades of experience in this enduring urban design program, the authors have directly observed the evolution of its practices and impacts.

Despite a renewed interest in Urban Design curricula post-pandemic, the current spatiotemporal conditions mean there remains a notable lack of comprehensive studies on transdisciplinary Urban Design Studio curricula, especially those examined through the lens of educational science prior to the pandemic (Kamalipour & Peimani, 2022). This gap underscores the pressing need for scholarly investigation and intervention to equip future urban designers with the vital skills required to tackle contemporary urban challenges (Cuthbert, 2016; Yavuz Özgür & Çalışkan, 2025).

This study delves into the MUDD graduate program model at the University of New South Wales (UNSW), with a particular focus on studio-based experiential learning (Palazzo & Shirleyana, 2024; Thompson & Chapman, 2025). Utilizing Martonian (1997) phenomenography, we uncover oft-ignored dimensions of urban design education that are pertinent to current realities (Akten, 2023; Marton & Booth, 1997a, 1997b; Pinar, 2022). The challenges brought to light by the COVID-19 pandemic, coupled with the analytical dualism of leadership and management in higher education institutions (HEIs), necessitate a critical reassessment of established educational theories in order to improve effective pedagogical practices (Kamalipour et al., 2023).

The significance of pedagogical curricula and the incorporation of learning, teaching and curricula theories, particularly Biggs' (1996) concepts of constructive alignment, creating an integrated curricular framework, require recognition and integration across all tiers of curriculum design within HEIs, including in urban design education (Biggs, 2014; Biggs & Tang, 2010; Fischer, 2025; Fox, 2019; Tepper, 2005). This integration spans from the macro level of policy formation, which seeks to eliminate redundancy in program offerings within institutions, to the meso-institutional level, where a transdisciplinary approach is essential for creating programs that are cohesively aligned. At the micro level, this alignment is critical in the daily formative and summative assessments within classrooms, underscoring the necessity for lectures, tutorials and design studios to be synchronized with instructors who are well-informed about the curricular content throughout the educational continuum (Barrett & Hordern, 2024; Denholm, 2023).

Consistent with these educational theories in the MUDD program, the founders had cultivated a cohesive and aligned curriculum (Cuthbert, 2023; Lang, 2006). This study chronicles the evolution of the MUDD graduate program and elucidates the institutional frameworks that shaped its approach to Urban Design education (Fischer, 2025; Weirick, 2015). Through a thorough literature review, alongside secondary source analysis and targeted interviews, we present a detailed narrative of the program's conceptual development.

Urban design continuities to grapple with an identity crisis while navigating its multifaceted dynamics, contested definitions, and varied pedagogical approaches (Burayidi, 2015). This complexity introduces numerous variables that must be thoughtfully considered, while the field’s contested nature results in a range of approaches that complicate both study and practice (Cuthbert, 2001; Kamalipour et al., 2023). This situation reflects the fundamentally multidisciplinary, interdisciplinary, and transdisciplinary character of urban design (Cuthbert, 2011; Cuthbert & Suartika, 2014; Lang, 2022).

To navigate these complexities effectively, foundational theories from educational science are crucial for guiding curriculum development and decision-making. A clear distinction among key terminologies is necessary. The term "MULTIDISCIPLINARY" refers to the simultaneous engagement of distinct disciplines, each maintaining its own boundaries while contributing unique methodologies and insights (Kaufman et al., 2003). Conversely, "INTERDISCIPLINARY" denotes a collaborative approach in which various disciplines integrate knowledge and techniques, resulting in a cohesive framework for understanding (Van den Besselaar & Heimeriks, 2001). Finally, "TRANSDISCIPLINARY" transcends traditional disciplinary limits to develop innovative frameworks and insights, often involving stakeholders beyond academic settings in addressing complex real-world challenges (Lawrence, 2010; Klein, 2008).

2. Approach and Methodology

This study employs a qualitative phenomenographic methodology explicitly rooted in the ontological, non-dualist, and second-order perspective of Martonian phenomenography. This approach incorporates phenomenography's epistemological stance of intentionality by incorporating Marton's (1997a) anatomy of experience framework and analyses the data using his (2004) five-step process for phenomenographic data analysis. Phenomenography's interpretivist paradigm emphasizes analyzing the subtle ways in which differing institutional arrangements across various professional practices and academic communities have significantly influenced MUDD outcomes (Marton, 2004).

To facilitate this exploration, a thorough literature review was conducted, drawing from a wide array of sources. This review encompassed the analysis of primary sources, including academic literature, which provided contemporary theoretical perspectives and empirical findings relevant to the topics under consideration. It also included secondary sources, including course handbooks and outlines, marketing materials and MUDD yearbooks (UNSW, 2016, 2019, 2020a) which offered insights into student life and cultural dynamics across various periods, highlighting significant events and social interactions. Additionally, program reviews were evaluated to assess the effectiveness and relevance of academic and extracurricular programs over time (Weirick, 2015).

In addition, strategically conducted phenomenographic interviews with eighteen urban design studio educators from Australia, the US and the UK, who possess firsthand knowledge and experiences related to the events, enhance the exploration of diverse viewpoints. The qualitative data gathered were systematically analyzed and categorized into four thematic areas: 1) Defining Urban Design, 2) The Role of Urban Design Studio in the Urban Design Curriculum, 3) The Impacts of Urban Design Studio on the Urban Design Curriculum, and 4) The Implications of these Impacts. This structured thematic analysis culminated in the construction of an outcome space that reflects the interrelationships among the identified categories, encapsulating the evolution of the identified themes and insights, thereby contributing to a comprehensive understanding of the subject matter (Martin, 1997a; Martin, 1997b).

3. The Urban Design Identity Crisis

Urban design is a discipline that embodies a dynamic and contested character, resulting in a complex analytical duality. This duality is evident both as an academic field of study within higher education institutions and as a professional practice in the industry (Schurch, 1999). This complexity arises from the multifaceted definitions, roles, and pedagogical approaches that encapsulate urban design (Burayidi, 2015). Such contention has given rise to a variety of methodologies within the field (Kamalipour et al., 2023). The inherently multidisciplinary, interdisciplinary, and transdisciplinary attributes of urban design education contribute to its continuous integration into broader curricula, which include architecture, landscape architecture, and urban planning issues (Anacker, 2023; Bakir & Alsaadani, 2022; Inam, 2011). However, as noted by Cuthbert (2023), there is a concern that incorporating the principles of architecture or planning into urban design may overlook the unique needs and characteristics of urban environments. He suggests that each

discipline has its own strengths and should coexist, rather than one attempting to dominate the others, and that "[e]fforts to colonize Urban Design by architecture or planning are misplaced" (p. 13).

Navigating the academic pathways associated with urban design education can present considerable challenges for educators and students, particularly given the complexities of urban development, leading Carmona (2014) to refer to Urban Design as a mongrel discipline (Cuthbert, 2008; Kamalipour et al., 2023). The nomenclature of the MUDD program reinforced its primary emphasis on urban design, which contrasts with the focus observed in Anglophone contexts of the time. In this context, there had been a noticeable shift in planning education toward a "social science" approach (Peker, 2025; Yavuz Özgür & Çalışkan, 2025).

However, this shift often overlooks the practical realities of the physicality of the built environment, leading to a divergence between pedagogical models and the expectations set by these approaches (Fischer, 2025; Lang, 1983). A persistent viewpoint within the discipline posits that urban design curricula tend to disproportionately underemphasize critical fields such as economics, sociology, law, public policy, and statistical analysis, thereby neglecting the essential transdisciplinary aspects vital for a holistic understanding of urban challenges (Yavuz Özgür, 2025).

The discourse on urban design education would benefit from a thorough examination of co-design processes that prioritize inclusivity and engage diverse stakeholders. By incorporating tacit knowledge from other place-makers, educators can enhance the pedagogical framework, acknowledging the experiences of those who interact with urban spaces (Zhang et al., 2025). This co-design approach enriches educational content and fosters collaboration between theory and practice. It promotes a deeper understanding of the socio-cultural dynamics shaping urban environments and underscores the significance of participatory methodologies in urban planning and design, aligning with the view of urban design as a socially embedded practice that transcends technical expertise (Nelischer & Kickert, 2025).

4. MUDD Program: Transdisciplinary Collaboration in Urban Design Education

The MUDD program at UNSW was established in the mid-1990s, a period during which urban landscapes were increasingly characterized by significant challenges associated with rapid urbanization and the intricacies of late capitalist frameworks (Bell, 1997). Its inception was spearheaded by a coalition of leading academics who identified the pressing need for a transdisciplinary approach to urban development. This need was particularly evident given the accelerating global urbanization trends, which necessitated innovative pedagogical frameworks (Fischer, 2025).

The MUDD program was developed within the former Graduate School of the Built Environment (GSBE) in the then Faculty of Architecture, developed to foster interdisciplinary postgraduate coursework and research degrees. Having failed to fully achieve its goals, Dr Bruce Judd was appointed a new Coordinator (and later as Head of School) to develop a suite of programs including urban design, sustainable development, heritage conservation, and facilities management. He sought the support of distinguished Professors and Heads of School in Architecture (Jon Lang and Paul Reid), Planning (Alexander Cuthbert) and Landscape Architecture (James Weirick) and invited them to form a group to develop the master's degree in urban design. The group was later joined by a Visiting Fellow in the School of Building, specializing in property development, providing input on the complex interplay between design, policy, and property market forces (Fischer, 2025; Weirick, 2015).

The MUDD program distinguished itself by synthesizing traditional course offerings into a cohesive academic journey that directly responded to the nuanced challenges of contemporary city-making in a globalized context (Weirick, 2015). Collaborative endeavors, including transdisciplinary workshops, served to unite students in the collective examination of complex

urban issues, reflecting an understanding of the necessity of cross-disciplinary engagement in tackling such challenges (Weirick, 2015).

The original team behind the MUDD program identified significant shortcomings in traditional urban design paradigms, positioning the program as a vital platform for both inquiry and practical application (Cuthbert, 1994; Lang, 1983). Ongoing contributions from industry professionals and visiting scholars ensured that the curriculum remained responsive to the rapidly evolving landscape of urban development (UNSW, 2016, 2019, 2020b). Ultimately, the MUDD program represented a collective aspiration to redefine urban design as a critical aspect of urban development discourse, aiming to educate future leaders equipped to engage with the complexities of urbanization, capital dynamics, and public policy (Washburn, 2013).

4.1. MUDD Program Institutional Structure

When analyzing the MUDD program's position within academic institutions, it is essential to examine the specific nuances of institutional identity related to urban design programs. The MUDD program at the University of New South Wales was positioned within the former Graduate School of the Built Environment, an integral component of the then Faculty of Architecture. This deliberate placement within a transdisciplinary context—comprising Architecture, Planning, Landscape Architecture, and Building—facilitated a robust synthesis of diverse academic disciplines. Furthermore, the structure was later redefined, consolidating the various schools as Programs along with MUDD within a unified Faculty and School of the Built Environment.

The MUDD program aimed to integrate urban design within a broader context by recognizing its relationship with other built environment disciplines—making it an intellectually distinct yet integrative field. This positioning reflects variations in the institutional identity of urban design programs across different universities. While some programs may be more closely tied to architecture or planning departments, leading to a focus on aesthetic or regulatory aspects, others, such as MUDD, sought to transcend traditional boundaries by engaging with the more complex economic, social, and policy dimensions of urban development. This differentiation emphasizes the extensive impact of urban design and its essential role as a discipline that can effectively tackle the complexities of urban environments (Fischer, 2025).

4.1.1. MUDD Curriculum Overview (1995-2020)

The curriculum of MUDD encompassed various knowledge areas, enriched by the Harvard model, incorporating architecture, landscape architecture and planning, along with distinct domains and subdomains, which included several specializations and sub-specializations (Lang, 1981). The curriculum of the MUDD program was transdisciplinary, drawing upon three primary bodies of knowledge:

Spatial Political Economy: This domain focused on understanding how global capital formation, investment, and disinvestment manifest in urban forms and structures.

Urban Design Principles and Paradigms: This area encompassed normative models of urban design that emphasize aesthetic, social, and environmental considerations, examining what constitutes ‘good city form’.

Urban Design as Public Policy: This subdomain explored the relationship between public policy and urban design, including how design principles intersect with the interests of the property sector and the public realm.

Each of these areas could be further refined into sub-specializations, allowing students to tailor their studies to their interests and the specific challenges they wish to address in urban development. In the first semester, students had the flexibility to select one elective 6 UOC (Units of Credit) course from a range of relevant disciplines offered by the Faculty of Built Environment (FBE) graduate programs or, with approval, from other Faculties (Weirick, 2015).

4.2. MUDD Program: Emerging Themes

The MUDD program's thematic problem areas were centered on addressing two significant global challenges: rapid urbanization and the implications of urban projects within the framework of late capitalism. As cities grow at unprecedented rates, MUDD examined how urban design and development could address issues such as housing affordability, sustainable development, environmental stress, and social inequities (Espinoza, 2022). Additionally, the program emphasized the importance of engaging with critical urban issues encountered in cities across five continents. By utilizing Sydney as a case study, the program grappled with local urban challenges while maintaining an international perspective, focused initially on the rapidly urbanizing East Asian region. This dual focus enabled students to develop solutions that are not only contextually relevant but also informed by global trends and practices in urban development within a living, breathing city.

4.2.1. Principles of the MUDD Degree

Since its inception in the 1990s, the MUDD Program evolved under guiding principles aimed at fostering an intensive and immersive educational experience. Spanning two semesters and a Summer Term, the original 120 UOC program was designed to be completed within a single calendar year, encouraging students to engage fully in a vigorous 'Graduate School' environment. While the program initially supported only full-time enrolment to encourage an intense commitment, part-time study options were later made available to better accommodate local students from practice, thus maintaining a commitment to a vibrant Studio culture.

The program also transitioned through two changes in University UOC policy. The initial program required completion of 120 UOC with Design Studios increasing from 20 UOC in Session 1 to 30 UOC in Sesson 2 culminating with a 40 UOC International Design Studio in the Summer Term reflecting the increase in complexity of projects. Accompanying 10 UOC lecture courses were offered in Session 1 (History of Urban Development, Urban and Environmental Law, and Real Estate Development) and Session 2 (Critical Urban Theory and Urban Landscape) along with a 20 UOC Case Studies course in Summer Term. A 10 UOC Elective was required in Sessions 1 and 2. Soon after a change in University policy set a total UOC requirement of 24 per Session and 72 overall.

In 2003, Design Studio UOC was reduced from 12 to 9 UOC for Session 1 and remained at 12 UOC for Session 2 and the Summer Term. Lecture courses were therefore set at 3 UOC each and elective at 6 UOC each. A new 6 UOC course 'Communication in Urban Design' was added to the Summer Term Program. This involved design, editing and production of a high-quality annual yearbook on the MUDD program's outcomes. In 2006 a further University edict required a minimum of 6 UOC for lecture courses. To achieve this, all Design Studio courses became 12 UOC, Session 1 lecture courses were consolidated into one 6 UOC History and Theory of Urban Development and Design, Session 2 courses into 6 UOC Theory of Urban Development and 6 UOC Planning, and Urban Development and Summer Term courses into 6 UOC each. One elective was retained at 6 UOC. Thus, the idealistic content of the lecture courses was compressed and the progressive increase in Design Studios abandoned, diluting to some degree the intention and scope of the program (Weirick, 2015).

Despite these institutional changes, the MUDD Program prided itself on the involvement of both senior academic staff and experienced practitioners as instructors, ensuring that students received high-calibre guidance. Unlike many other urban design programs, it welcomed a diverse cohort of students from around the globe, including professionals with backgrounds in architecture, landscape architecture, planning, engineering, property development, and more. By embracing students from a variety of disciplines, the program enriched the learning experience through a transdisciplinary approach despite institutional constraints (Cuthbert, 2007; Lang, 1994).

4.3. The Educational Experience in the MUDD Urban Design Program

The suite of Design Studios was fundamentally supported by a series of theory courses that examined significant themes such as spatial political economy, urban history, urban design theory, planning and development, property development, urban landscape design, heritage conservation, and the practicalities of urban design implementation, which were assessed through a comprehensive case study course.

MUDD's curriculum was built upon the foundational theories established by its founders. Lang's extensive academic contributions had notably enriched this curriculum, especially through his paradigm-based approaches, as showcased in his work, "Urban Design: A Typology of Procedures and Products" (Lang, 2006). Since the early 1980s, Lang has also championed integrating studio and workshop experiences into the education of planning students (Lang, 1981; 1983). Cuthbert's writings from 2003 to 2011 offer a critical perspective on spatial political economy, which is crucial for analyzing urban dynamics (Cuthbert, 2003; 2011; 2008). Furthermore, Fraker's (2007) concept of "Forcefields" provided an insightful framework for understanding urban design. Together, these theories and frameworks profoundly influenced the educational structure of the MUDD Urban Design Studio.

By concentrating on specific design elements and methodologies, students improved their understanding and capability to navigate the diverse challenges inherent in urban settings. The studio courses encompassed a wide array of design typologies, including residential, commercial, mixed-use, and public spaces, allowing students to engage with various urban scenarios and scales.

Distinct categories emerged within the studio work based on project focus. For example, some studios prioritized sustainable design practices, encouraging the exploration of typologies that promote eco-friendliness and resilience in urban contexts. Others concentrated on socio-spatial equity, prompting students to address the typological challenges present in informal settlements or areas experiencing gentrification. Overall, the diverse theories, categories, and typologies fostered critical thinking and creativity, empowering students to view urban design not merely as a technical endeavor but as a civic responsibility that necessitates careful consideration of the social, economic, and environmental implications of their design choices.

4.3.1. MUDD Design Studio Focus

Grounded in theories of spatial political economy and normative ideals of urban design, the Design Studio curriculum addressed urban growth and change, particularly in the dynamic East-Asia region. Sydney served as a living laboratory for students, facilitating a deeper understanding of urban development processes within a transparent political framework. The program's studio structure was intentionally developmental, increasing project complexity from the first to the third semester.

'The goal of the studio sequence "UDS sequence in UD curricula" is to enable students to develop their ability to design decision processes and policies and products to meet specified ends. There is no substitute for learning-by-doing, problem-solving experience in the studio.' Jon Lang (1981) co-founder of MUDD.

Design Studio formed the heart of the curriculum, constituting 50% of the overall program. A pivotal experience was the International Urban Design Studio, a compulsory core component that occurred each Summer Term. This collaboration with an overseas university, city planning agency, or consulting firm allowed students to immerse themselves in the urban dynamics of a different culture and apply their design skills in real-world contexts.

Each year, the work produced in the Studios culminated in a professional-quality yearbook and exhibition that highlighted student achievements and showcased their projects. The program maintained a fixed student-to-staff ratio of 1:15 to promote an intimate, Masterclass form of learning environment, while this ratio was ultimately determined by faculty policy regarding studio

instruction. Efforts were made to attract a diverse cohort in terms of gender, country of origin, and discipline, thereby fostering a rich tapestry of perspectives.

Admission to the program was contingent upon the successful completion of a four-year undergraduate degree in a relevant field, achieving a minimum Credit average. The MUDD Program emphasized group collaboration, which comprised approximately 60% of the curriculum. This focus reflects the collaborative nature of urban design, allowing students from non-design backgrounds to contribute their skills and participate meaningfully in the Design Studio process.

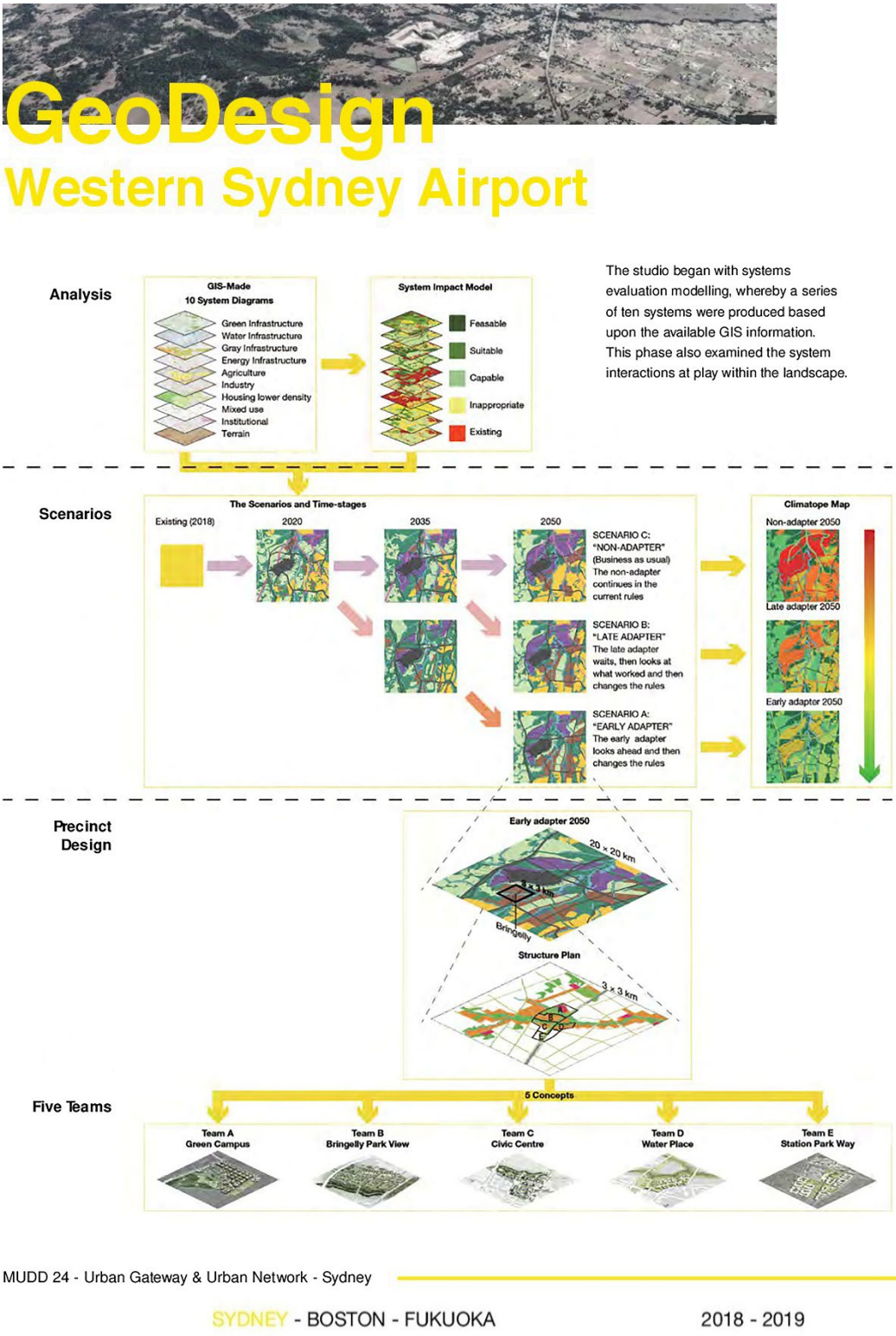
The sequence of the Urban Design Studio was systematically structured to align with the curriculum, starting with fundamental principles of urban design and advancing to intricate examinations of urban design as an element of public policy. Core skills were further developed in the second Urban Design Studio course, which delved into planning policies, project feasibility, and the formulation of urban design guidelines. The summer course, International Urban Design Studio, involved a two-week international field trip, allowing students to quickly apply their design knowledge and skills in a different cultural context.

The following figures illustrate the thematic frameworks of the Design Studios and showcase examples of student work from the MUDD24 academic year, covering 2018 to 2019 (UNSW, 2019). Figures 1 to highlight archetypal projects from students engaged in these studios (UNSW, 2020 a, b).

Figure 1 depicts student work from Studio 1, which utilized narratives drawn from film and cinema to deepen students' understanding of urban history, identity, and lived experiences. This methodology ensured that design proposals were both contextually relevant and accurately reflective of the specific urban environments being explored.

Figure 1 Semester 1 studio 1 MUDD24-the city and cinematic space-Ip Man (2008)-MUDD students 2018-19, pg. 42

In Figure 2, students from Studio 2 focused their attention on a specific site in Sydney. Collaborating with Carl Steinitz from the Harvard Urban Design School and University College London, MUDD students applied his modelling evaluation techniques to develop 'change models' for the Western Sydney Airport (Pettit et al., 2019; UNSW, 2019).



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MUDD 24 - Urban Gateway & Urban Network - Sydney

SYDNEY - BOSTON - FUKUOKA 2018 - 2019

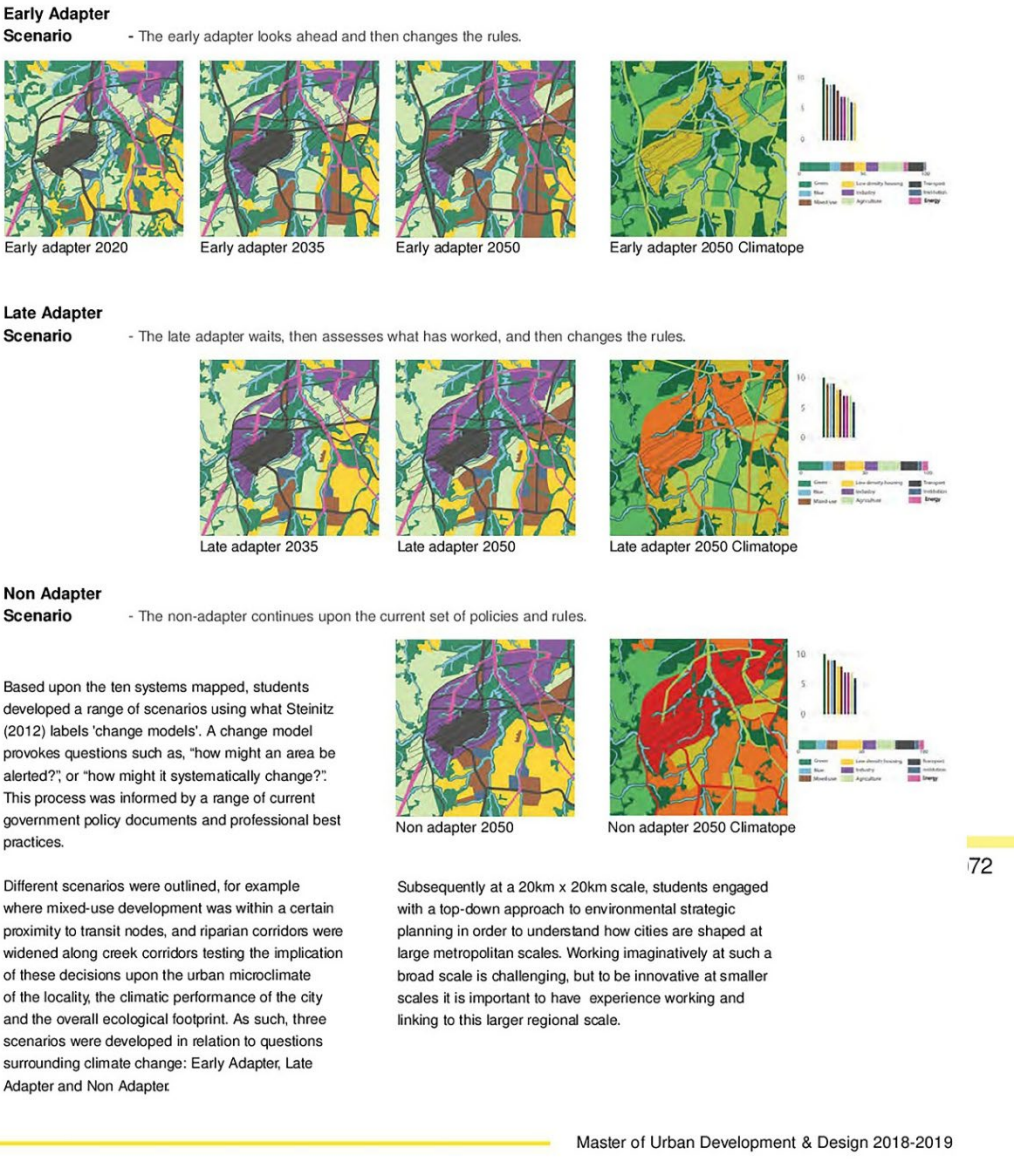

Figure 2 Semester 2 studio 2-MUDD24-Sydney studio-Geodesign Western Sydney Airport pages 71-72

Figure 3 showcases examples of student work from the International Design Studio 3, completed during the 2015-2016 academic year, which embarked on visits to Chicago and Berlin. The Chicago studio, hosted by the global design firm Skidmore Owings and Merrill, focused on the pressing issues of social and economic segregation in the city. The studio examined sites under consideration by the Obama Foundation, which were controversially situated in the city's prominent parks—Jackson Park and Washington Park—originally designed by Frederick Law Olmsted and Calvert Vaux in 1871 (UNSW, 2016).

Throughout its 26-year history, the studio has explored over 54 cities worldwide, producing more than 408 Urban Design Case Studies from 1995 to 2020. Its primary objective has been to engage with global patterns critically and creatively.

MUDD 21 - City Visions II

Obama Presidential Center, Chicago

Garfield Boulevard, Washington Park

Michele Apricia + Ju Xizhe + Li Han + Wan Li + Wang Mengya

The vision is to create an integrated web of buildings that defines the surrounding streets and draws in the landscape qualities of the park in a flowing series of green courtyards. The Obama Presidential Center will have a strong urban presence on Martin Luther King Drive and Garfield Boulevard, developed as an urban complex integrated with the Garfield 'L' Station on the Green Line. Interwoven with retail and commercial uses, the complex will be built to the street edge, scaled to the height of the adjoining Edmund Burke Elementary School. Thus, it will create continuous urban fabric in scale with surviving elements of the neighborhood. Instead of placing the Obama Presidential Center within Washington Park, as the official site proposes, the landscape qualities of Washington Park will be brought into the complex as a series of inter-related courtyards within the city block linking the library, museum and community outreach components of the OPC. The arts incubator established by Theaster Gates on Garfield Boulevard will be supported as a local and global generator of urban activity. Educational initiatives will extend OPC outreach from neighborhood schools to vocational training centers and start-up businesses. The mixed-use complex will be complemented by infill housing within the grid structure of the neighborhood. East-west light rail extending from Midway Airport will pass the OPC on Garfield Boulevard and the Du Sable Museum of African American History across Washington Park to the University of Chicago campus. Initial design studies for this and the 51st Street site were undertaken in association with Lotta Larsson on exchange from Chalmers University of Technology, Göteborg, Sweden.

Urban design framework

Aerial perspective north to Obama Presidential Center

OPC
OPC
OPC
OPC
OPC
OPC
Mixed Use
Mixed Use

Street section west along Garfield Boulevard

Perspective west with Obama Presidential Center on left

Figure 3 Summer semester studio 3-MUDD21-international studio-Chicago-MUDD student work 2015-2016 folio MUDD 21 city visions 11 pg. 80-81

Figure 4 illustrates the activities associated with the “Communication in Urban Design Studio” Course. Recognizing the need to enhance students' graphic communication skills, this led to the introduction of the additional coursework subject, "Communication in Urban Design." This development significantly improved students' competencies in editing, graphic design, exhibition planning, and event coordination—essential skills for studio practice in urban design. Each year, students had the opportunity to consolidate their learning by presenting their projects during a major exhibition and at the yearbook launch, highlighting the importance of effective communication in conveying design concepts and engaging with the community. This integration of practical skills within the studio environment effectively prepared MUDD students for success as future urban design practitioners (UNSW, 2016).

Figure 4 Summer semester-communications studio-MUDD24-MUDD students working on the exhibition, folio and event-(UNSW, 2016) pg. 81

The MUDD program has demonstrated its impact through the achievements of its alumni. For example, Sibrani Sofian, with URBAN+, has led innovative projects like the development of Jakarta's new capital, Nusantara, located in East Kalimantan, Borneo, Indonesia, showcasing the program's integration of theory and practice (Sofian, 2025). Another graduate, Zhizhe Yu from AI.SpaceFactory has contributed to significant developments such as the PingAn Finance Center, Shenzhen, China. Alumni frequently highlight the program’s focus on real-world problem-solving and collaboration, underscoring its role in preparing adept urban practitioners for contemporary challenges (Yu, 2020).

5. Findings

5.1. Positioning the Principles of the MUDD Program in Educational Science

In the exploration of urban design education, it is paramount to ground our findings within a comprehensive framework that articulates both pedagogical intent and practical application. As such, Tables 1 and 2 serve as critical empirical reflections of the educational strategies employed in the MUDD program, illustrating the theoretical underpinnings that guided its curriculum development. These tables encapsulate the synthesis of learning and teaching theories that inform our robust instructional methodologies, illustrating how effective educational practices were intricately woven into the structural fabric of the MUDD degree.

Priestley and Minty (2013) posits that curriculum-making, conceived as a social practice, mandates that educators within Higher Education Institutions be afforded a degree of teacher agency. This agency empowers educators to engage in meaningful deliberation regarding the selection of knowledge and content that aligns with the curriculum's overarching objectives. Moreover, curriculum-making requires rigorous critical reflection upon pedagogical methodologies—analyses of the approaches that drive our educational processes and shape the intellectual development of learners. It also necessitates the strategic structuring of assessment opportunities for students and the thoughtful organization of knowledge to enhance effective learning outcomes.

In investigating the educational framework of the MUDD program, we present two key tables that outline its pedagogical strategies. Table 1 offers a survey of various pedagogical models that are foundational to the MUDD curriculum. Each of these models has been selected based on empirical research demonstrating its effectiveness in developing critical competencies, such as critical thinking, creativity, and collaboration among students. The MUDD program included immersive methodologies, like Studio-Based Learning, and experiential approaches, such as Field Studies, signifying a thoughtful alignment with established educational theories. This alignment aimed to enhance the relevance of urban design education while actively engaging students in practices that reflected current trends in the field.

Table 2 further examines specific interventions and instructional practices integral to the MUDD program. This analysis clarifies how the previously mentioned theoretical frameworks were operationalized within the curriculum, providing concrete examples of evidence-based pedagogies in practice. By employing this analytical perspective, we assess the educational methodologies utilized in the MUDD program, emphasizing its commitment to fostering a transformative learning experience that was both innovative and grounded in empirical evidence. Together, these tables shed light on the program's efforts to cultivate an educational environment that equipped students to navigate the complexities inherent in urban design.

Table 1 Outline of Pedagogical Learning and Teaching Theories in the MUDD Program

Learning and Teaching Models:	Description:	Implementation:
Studio-Based Learning: (Schön, 1985)	Central to MUDD's approach, this model involves immersive, hands-on learning experiences in which students engage in real-world projects and case studies.	Students work in design studios to develop urban design solutions, receive peer and instructor feedback, and iterate on their designs.
Project-Based Learning (PBL): (Dutton, 1987)	PBL involves students tackling complex, real-world problems over an extended period, fostering collaboration and critical thinking.	Assign projects that require students to propose urban design solutions to actual community needs, involving local stakeholders for insights.
Interdisciplinary Collaboration: (Klein, 2008)	Encouraging students to work alongside peers from different disciplines (architecture, city	Establish joint projects or courses where students from various programs collaborate on urban

	planning, landscape architecture) reflects MUDD's transdisciplinary approach.	design challenges, promoting a comprehensive view of urban environments.
Field Studies and Site Visits: (Yusoff et al., 2019)	Site visits to urban spaces allow students to analyse existing conditions and understand the context of urban design.	Schedule regular field trips to diverse urban areas, encouraging students to apply theoretical knowledge to real-world observations.
Experiential Learning: (Kolb, 2014)	This approach emphasises learning through experience, allowing students to engage with real environments and situations.	Incorporate internships or cooperative education opportunities in urban design firms or city planning departments to provide practical exposure.
Collaborative Learning: (Lew et al., 1986)	This theory highlights the importance of social interaction and collaboration in the learning process.	Implement group projects where students work in diverse teams to solve urban design challenges, promoting peer-to-peer feedback and shared learning experiences.
Place-Based Education: (Gruenewald & Smith, 2014)	This method focuses on the local community and environment, enhancing the relevance of learning through direct engagement with local issues and contexts.	Encourage students to investigate local urban issues, creating projects that address community-specific challenges, enhancing their sense of ownership and relevance.
Critical Pedagogy: (Ayoub Mahmoudi et al., 2014)	This approach encourages students to critique existing societal structures and consider how design can impact social justice and equity in urban settings.	Foster discussions and workshops around the ethical impacts of urban design, urging students to challenge norms and propose innovative, equitable solutions for communities.
Reflective Practice: (Schön, 1983)	This theory emphasises the importance of reflection in learning, helping students to critically analyse their experiences and improve their future practice.	Incorporate reflective journals or portfolio reviews where students document their processes, decisions, and lessons learned throughout the design studio projects.

Source: Original table created by the author, Lawton, J. (2025), for this paper.

Table 2 Outline of Pedagogical Curriculum Theories in the MUDD Program

Curriculum Models:	**Description:**	**Implementation:**
Constructive Alignment: (Biggs, 1996)	Constructive Alignment is an educational framework that aligns learning activities and assessments with learning outcomes. It promotes curriculum design where all elements work together to achieve desired objectives. In urban design, this model emphasises integrating essential competencies and skills, ensuring teaching methods and assessments are designed to create meaningful learning experiences.	To implement Constructive Alignment in urban design studios, educators should define clear, measurable learning outcomes that reflect the required competencies. Engaging teaching strategies like collaborative projects, real-world case studies, and interactive workshops can be used. Assessments should evaluate these outcomes through portfolios, presentations, and design critiques, ensuring that all curriculum elements align and are scaffolded with educational goals for a cohesive learning environment.

Integrated Curriculum Design: (Beane, 1997)	This model integrates various subjects such as ecology, sociology, and economics within urban design courses.	Develop a curriculum incorporating lessons from these fields into urban design projects, emphasising the interconnectedness of urban issues.
Community Engagement Framework: (Vance-Chalcraft et al., 2024)	This model emphasises working with communities to co-create urban design solutions.	Include service-learning components where students engage with local communities, applying their design skills to address real societal challenges.
Adaptive Learning Modules: (Bernard et al., 2019)	A flexible curriculum allows students to pursue themes or projects that interest them while covering core urban design principles.	Provide a range of elective courses that students can choose based on their specific interests in urban design, fostering personalised learning.
Capstone Projects: (Farrell et al., 2012)	This is a culmination of students' learning, where they can showcase their knowledge and skills in a significant project.	In the final year, students could work on a comprehensive urban design project that addresses a current urban challenge, presenting their proposals to a panel of industry professionals.
Biesta's Holistic Model of Curriculum Design: (Biesta, 2015)	This model advocates for an interdisciplinary curriculum that incorporates elements of cultural studies, environmental science, and participatory design into urban design education.	Integrate cultural awareness sessions that help students understand diverse community perspectives and values, facilitating inclusive urban design practices.
Priestley's Framework for Curriculum Innovations: (Priestley & Minty, 2013)	This framework focuses on the dynamics of curriculum change and the importance of teacher agency in implementing reforms.	Encourage faculty to adapt urban design courses based on emerging urban issues, fostering an environment where educators can exercise their creativity and expertise in shaping the curriculum.
Thijs and van Akker's Curriculum Design Model: (Thijs & Van Den Akker, 2009)	This model emphasises the interplay between educational theory, context, and practice, advocating for flexible and context-sensitive curriculum development.	Design urban design courses that reflect local challenges and opportunities, allowing students to engage with issues pertinent to their specific urban contexts.
Shiro's Critical Pedagogy Framework: (Schiro, 2012)	This theory promotes social justice through education and emphasises the role of critical reflection in the learning process.	Incorporate critical reflection exercises that challenge students to consider the ethical implications of their urban design decisions and advocate for equitable solutions.
Olm's Experiential and Reflective Learning Theory: (Carvalho et al., 2021)	This model highlights the importance of experiential learning combined with structured reflection to deepen understanding and skill acquisition.	Implement reflective journals or group discussions after fieldwork or design projects, encouraging students to critically analyse their experiences and learnings within urban design contexts.

Source: Original table created by the author, Lawton, J. (2025), for this paper.

The integration of diverse theoretical frameworks into the urban design curriculum, as detailed in Tables 1 and 2, fostered a dynamic learning environment that significantly enhances students' comprehension and practical skills in urban design, particularly in real-world situations.

Recent research indicates a notable increase in the demand for education-focused and sessional teaching positions relative to traditional academic roles (Marshall, 2012; McComb & Eather, 2023). Individuals occupying these positions often possess professional or academic credentials, however,

they frequently lack the critical competencies necessary for effective pedagogy. Many early-career instructors transition from corporate environments, where their responsibilities predominantly involve the implementation of directives rather than the management of projects. This assumption that such professionals or academics inherently possess the requisite skills for pedagogical practice is fundamentally flawed. Expecting them to transfer all essential teaching competencies without targeted training and support is unrealistic.

6. Conclusion

The MUDD program was disestablished as a separate master's program, and its courses were integrated as specializations within a generalized Master of City Planning program. This change will be the focus of another academic paper. In light of the dissolution of the MUDD program, it is essential to recognize both the advantages it provided and the lessons learned by course designers during its implementation. One notable observation is the ongoing challenges related to time allocation within the curriculum framework. These challenges persist regardless of whether the courses are offered in full or as plug-in modules. Despite concerted efforts to address these issues, a recurring conflict arises over the balance of essential skills that students are expected to acquire.

This conflict often results in overlooking the primary objective: enhancing students' urban "design" capabilities. The aim should be to empower students to critically assess design solutions, enabling them to discern between effective and ineffective outcomes, regardless of their future professional contexts. As we reflect on the MUDD experience, it is crucial to re-evaluate curriculum structures to prioritize comprehensive design solutions, thereby cultivating a more robust skill set among aspiring urban designers. Such enhancements would ensure that students are not only technically and theoretically proficient but also skilled in making informed design decisions throughout their careers.

The pedagogical ethos supporting the MUDD degree, underpinned by Educational Science, necessitates thorough analysis and reflection, especially in a world facing the urgent challenges of urbanization and social inequality. The integration of various pedagogical models, as outlined in Tables 1 and 2, is not simply an academic choice but rather an essential response to the complexities of an evolving urban landscape. The MUDD approach highlights a deep awareness of the ethical responsibilities inherent in the field of urban design.

While the incorporation of immersive methodologies such as Studio-Based Learning and Field Studies accentuates experiential knowledge, it simultaneously raises critical questions about the adequacy of traditional educational paradigms to equip students for the multifaceted socio-political realities they will inevitably encounter. Thus, the MUDD program's commitment to fostering interdisciplinary collaboration and place-based education was pivotal in producing graduates who do not shy away from grappling with the underlying forces of inequality and injustice that permeate urban environments.

Additionally, the emphasis on reflective practice within the curriculum challenged students to not only engage with their immediate design responsibilities but also critically assess the broader implications of their work. In an era marked by systemic injustices, the MUDD program was committed to ensure that its graduates were not only technically proficient but also equipped with the moral compass necessary to advocate for transformative solutions that prioritize equity and sustainability.

Moreover, the reliance on established educational theories must be juxtaposed with a willingness to innovate and question their limitations. As we advance further into the complexities of the 21st century, it is imperative that urban design programs evolve to address the unpredictability inherent in urban design, adapting their pedagogical approaches to respond dynamically to emerging challenges and ensure that educators and students alike remain at the forefront of critical thought and action.

In this respect, Urban Design programs must transcend traditional academic boundaries to effectively fulfil their societal roles. They must cultivate not only proficient practitioners but also collaborative thinkers who understand that the visioning of equitable urban futures is a transdisciplinary endeavor, involving diverse perspectives from various stakeholders and place-makers. This inclusive approach acknowledges the intricate relationship between urban design and social justice, emphasizing the need for collective action in addressing community challenges. Such an undertaking demands courage, creativity, and a resolute commitment to interrogating the status quo. By adopting this collaborative framework, Urban Design degrees can truly function as catalysts for meaningful and transformative change within our increasingly complex urban environments.

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Jodi Lawton: Writing – review & editing, Writing – original draft, Methodology, Investigation, Analysis, Data curation, Conceptualisation, Data visualisation. Bruce Judd: Writing – review & editing, Writing – original draft.

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Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data Availability

Data will be made available on request.

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Ethics committee permission HC230125.

Resume

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The grounded projection: A reflective examination of urban design pedagogy at Melbourne School of Design

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Abstract

Urban design education faces unprecedented challenges as ecological emergencies, socio-political risks and technological transitions converge to reshape cities worldwide. These planetary-scale disruptions necessitate pedagogical approaches that prepare future urban designers for fundamentally different professional realities. This paper presents the Master of Urban Design program at the University of Melbourne as a response to these challenges: a grounded projective approach that systematically integrates analytical rigour with speculative imagination across three sequential design studios and a culminating thesis. The paper documents a carefully orchestrated pedagogical journey: students master rule-based design thinking through intensive engagement with urban morphology, design codes, rules and regulations, then collaborate with industry partners to address pressing questions of social equity and public health, before ultimately expanding their temporal vision to envision climate-adapted and technologically augmented urban futures spanning multiple generations. Following this three-design studio sequence, the thesis studio enables students to pursue individual research expertise. Throughout this progression, Melbourne transcends its role as a mere case study to become a genuine living laboratory and a place where students develop profound contextual knowledge. This comprehensive framework demonstrates how systematic spatial-analytical foundations enable rather than constrain imaginative speculation, how individual design expertise can flourish within collaborative frameworks, and how extended temporal thinking can be meaningfully integrated into studio-based education. The program's critical contribution lies in creating space for speculation and projective work by drawing intelligently and creatively from a grounded understanding of urban design practice and enabling students to envision transformative urban futures while maintaining disciplinary rigour.

Keywords: urban design, pedagogy, education, design thinking, Melbourne School of Design

1. Introduction

Urban design educators today face profound challenges in determining the most effective ways to teach the discipline. The difficulties characterising contemporary urban design often result from past design and planning decisions. This recognition prompts a crucial question: should established approaches continue to be used in attempts to "fix" these problems, or is it time for a fundamental shift in how urban design is conceived and practised?

Historically, the future was regarded as an expansive frontier, full of optimism and possibility. Today, however, urgent issues such as climate change and various socio-political crises have brought the future into sharp, immediate focus, demanding decisive action to secure a liveable world for the generations ahead. Challenges that once appeared distant are now urgent, as environmental and social crises reshape the priorities of urban design and planning. This urgency

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arrives precisely when the field itself remains in flux and is still negotiating its theoretical foundations, methodological frameworks, and pedagogical approaches. In this context, the question becomes how to prepare practitioners capable of coupling rigorous analytical grounding with the imaginative courage to envision alternative urban futures.

Melbourne School of Design's (MSD) Master of Urban Design program recognises that addressing these unprecedented planetary challenges requires ***"grounded projection"***: a pedagogical approach that makes space for speculation and projective work while drawing intelligently and creatively from a grounded and evidence-based understanding of urban design practice. As both the authors of this paper and the coordinators of the presented design studios, we define the essence of this approach as the understanding that deep, analytical, contextual, and socially situated knowledge serves as the springboard for radical imagination.

Banerjee (2016) has called for 'reflective educators' to document their teaching experiences with clear articulation of learning objectives and pedagogical outcomes, identifying this reflective examination as a critical task for urban design educators. Yet such reflective documentation predominantly addresses individual studio experiences and derives valuable lessons (Batuman & Altay Baykan, 2014; Chiaradia et al., 2017; Higgins et al., 2009; Loukatiou-Sideris and Mukhjia, 2016), rather than demonstrating how pedagogical approaches integrate systematically across multi-year progressions. The documentation of program-level pedagogical frameworks, which demonstrate how multiple studios and pedagogies integrate across complete degree sequences, remains scarce in the literature (Kamalipour & Peimani, 2022, 2025).

Addressing this gap through a reflective examination of our sustained teaching practice, this paper presents the overall urban design education framework at the Melbourne School of Design (MSD) by systematically examining each studio's pedagogical approaches, analytical methods, and illustrative student works. Rather than focusing on isolated studio approaches, we provide a detailed examination of how three sequential design studios and a thesis studio build upon one another systematically. The thorough documentation and discussion of this sequence demonstrate a pedagogical approach that consciously and progressively integrates evidence-based and spatial-analytical understanding of urban space with speculative and long-term imagination of urban futures. This examination contributes to international discourse on urban design pedagogy by offering a reflective discussion of how systematic analytical foundations can enable imaginative capacity in addressing contemporary urban challenges.

1.1. Master of Urban Design Program at MSD

The Master of Urban Design program at MSD operates as an independent graduate program within the Graduate School of Design, positioned alongside other master's programs such as architecture and planning. Since 2017, the urban design studios have focused on a range of public concerns as the thematic framing for the studio courses. This has been systematically supported by a larger "Designing Futures" strategy, the overall vision guiding the MSD between 2023 and 2028 (Melbourne School of Design, 2023). Within this framework, the main concerns have been framed by the impact agendas of climate action, healthy places, social justice, future practice, and First Nations.

The two-year Master of Urban Design program comprises three design studios and a thesis studio, spanning four semesters. Students progress from Studio A (semester one) through Studio B (semester two) and Studio C (semester three) to the thesis (semester four). Alongside these core studios, students undertake compulsory coursework that includes planning law, urban design theory, strategic planning, and urban economics, with additional elective courses available from graduate programs in architecture, planning, and other relevant disciplines.

Urban Design Studio A introduces students to a shared knowledge and skill base that engages with urban morphology, urban metabolisms, the public realm, and health. Students are tasked with

applying systematic analytical tools within tangible projects in the City of Melbourne. This studio establishes analytical rigour through rule-based thinking, performance-based evaluation and exploration of design alternatives by manipulating urban codes and regulations.

From this crucial analytical foundation, Urban Design Studios B and C focus on two specific lenses through which they engage with urbanism, each building upon the systematic thinking established in Studio A. Urban Design Studio B is framed by a social and political lens, where the designing futures agendas of healthy places and social justice can be explored in a more detailed manner. Students apply their analytical capabilities to real-world urban challenges, working with industry partners to address transit-oriented development, urban renewal, and civic infrastructure projects.

Urban Design Studio C extends the temporal and scalar dimensions of systematic thinking through a climate action lens. It engages a more ecosystemic reading of urbanism, expanding the temporal horizons of design thinking to 75-100 year frameworks while maintaining the analytical rigour established in previous studios. This temporal extension represents a crucial pedagogical innovation: students learn to apply systematic thinking not only to immediate design decisions but to long-term ecological and planetary considerations.

The Urban Design Thesis Studio serves as the capstone experience, enabling students to apply the analytical rigour, social awareness, and ecological thinking developed across the three studios toward self-initiated research questions. This progression, from the systematic foundations of the design discipline through social complexity to ecological futures, prepares students to engage with the urgent challenges facing contemporary urbanism.

All design studios are structured around a projective view on urban design practice, introducing students to emerging and future practice concerns and skills. This spans new technologies such as expanded reality, artificial intelligence, digital mapping, and simulations, as well as learning from emerging ideas and concerns associated with urbanism. Moreover, a fundamental element across all three studios is the frequent use of Melbourne as a living laboratory for urban design investigation. This approach enables students to develop a cumulative understanding of their immediate living environment over multiple semesters, fostering deep contextual knowledge. The pedagogical framework embodies the faculty's commitment to transformative impact, ensuring graduates can operate as globally connected yet regionally relevant practitioners.

2. Urban Design Studio A

Urban Design Studio A's overall pedagogical framework spans the understanding of urban morphologies and the various ways urban designers can shape urban form, through developing a more considered understanding of the urban metabolisms that sustain our urban environments. We begin by establishing why the urban block serves as the foundational scale for urban design thinking (2.1), then reframe design itself as rule-based variation generation rather than singular creative expression (2.2). This foundation enables students to navigate multi-dimensional performance-based evaluation (2.3), extend block-level thinking to broader urban systems (2.4), and ultimately communicate design through diverse representational methods (2.5).

2.1. Urban Block as the Foundational Unit of Urban Design

Urban Design Studio A has been coordinated by Dr Leire Asensio Villoria and co-taught with Dr Onur Tümtürk, establishing a consistent pedagogical approach that has evolved through sustained collaboration and refinement over multiple years. The studio addresses a fundamental challenge in the discipline: establishing coherent urban design knowledge among students from diverse disciplinary backgrounds—architecture, planning, landscape architecture—who bring distinct design thinking habits, approaches and value systems (Palmer et al., 1997). When confronting urban design problems, these students persistently ask, *"What should we look at?"* Studio A's response positions the *urban block* as the foundational unit for the urban design process. This choice stems directly from the need for a systematic approach to accommodate disciplinary diversity while establishing a shared methodological foundation for examining urban space.

Unlike design studio pedagogies that typically either build from individual building sites to neighbourhood-scale proposals or begin with broad urban analysis before narrowing to specific design interventions, Studio A deliberately operates at the intermediary block scale, which embodies both individual components (parcels, buildings, open spaces) and generates collective urban fabrics when aggregated. The block's two-way scalability proves pedagogically advantageous, offering sufficient complexity for engaging multidimensional systems operating at distinct scales.

2.2. Design as Rule-based Variation Generation

Studio A explicitly challenges models that position design as individual creative expression or intuitive problem-solving. Instead, we encourage students to understand urban design as a systematic exploration of alternatives defined by multiple, competing performance criteria and various design codes and regulations. This shift in perspective aims to cultivate the mindset of working with typological variations rather than seeking singular solutions (Moudon, 1992; 1994). Moreover, this pedagogical stance recognises that a comprehensive understanding of existing urban morphology must precede innovative intervention. Studio A students require deep fluency in how urban form components work individually and relationally before meaningfully challenging the existing system. As Romice et al. (2020) argued: *"before learning to 'think out of the box', a reliable understanding of how the box works and what designers can do for it is required"* (p.191).

The pedagogical sequence begins with a comparative morphological analysis of selected urban grid systems from different contexts, which are updated annually to maintain contextual relevance. Urban grids offer a generative spatial framework that makes block-level urban design principles accessible to first-year students new to the discipline. They provide regular structures for understanding how design rules at multiple scales interact and generate urban form systematically. We treat urban grids as regulatory systems that define the character of urban blocks not only morphologically but also through planning rules and legislation (Busquets et al., 2019). Students examine distinct urban grids, such as Melbourne's Hoddle Grid, Barcelona's Eixample, Vancouver's downtown blocks, or Portland's fine-grain blocks, as comparative case studies. Each of these represents different regulatory approaches to block-street relationships, building-open space configurations, and density distributions.

This morphological exploration is also assisted by advanced tools and custom scripts in Rhino and Grasshopper (associative modelling), enabling students to systematically vary key parameters: block dimensions, building heights, setbacks, plot coverage ratios, and street dimensions. Students intuitively understand how different regulatory frameworks and form-based conditions derive distinct block configurations and urban characters by manipulating parameters and observing resultant formal variations. They discover, for instance, how extremely spacious Melbourne blocks (200m x 100m) accommodate different densities and building types compared to Portland's compact 60m x 60m blocks, or how Barcelona's courtyard blocks regulate inside-outside relationships through specific depth-to-width ratios and central void requirements (Figure 1).

2.3. Multi-dimensional Rule-based Evaluation Framework

Building upon this foundation, we introduce multiple performance dimensions through sequential layers constructed week by week. Each layer builds upon and constrains previous considerations, teaching students to navigate complex trade-offs between competing objectives. This demonstrates why optimal 'one-size-fits-all' designs are not only undesirable but impossible—the critical mindset we cultivate. This is followed by evaluating these iterations based on a broader range of issues, considering the outcomes of the generative process through both measurable and qualitative judgment criteria. The iterations needed to be contextualised into the wider project and site concerns.

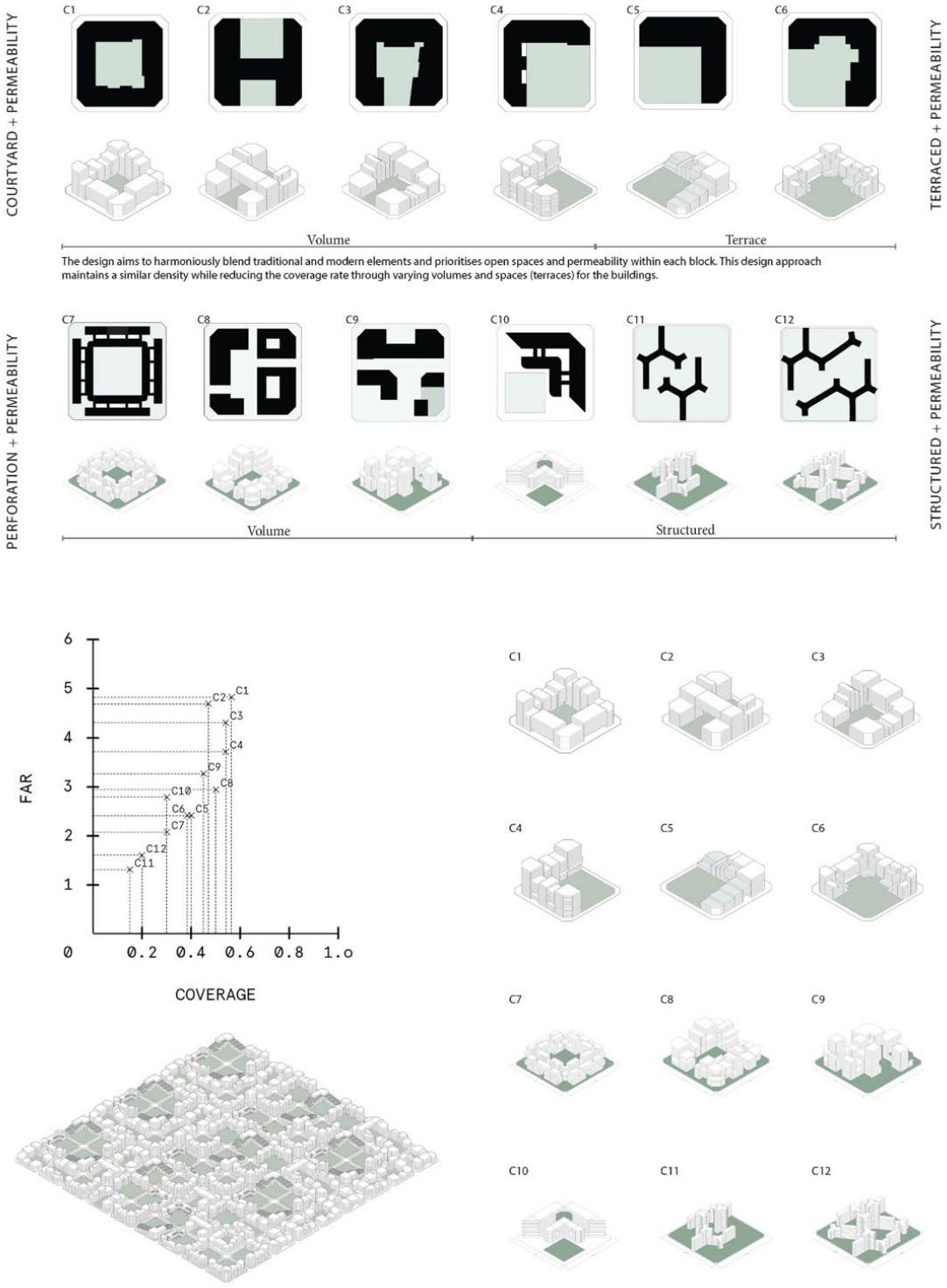

Figure 1 Parametric generation and exploration of alternative urban block configurations in Barcelona (top), comparative built density measurement and urban fabric trials (bottom) (Credit: Student team: Zhi Yi Chung, Shichen Pan – Instructors: Leire Asensio Villoria, Dan Hill, Onur Tümtürk)

Built density analysis forms the initial evaluation layer, establishing density as the essential parameter concretising urban blocks. Students assess their generated variations using Ground Space Index (GSI) and Floor Space Index (FSI) through the Spacematrix methodology (Berghauser Pont & Haupt, 2010). Rather than a classic analysis of existing conditions, students produce variations and measure them systematically. This rule-based evaluation introduces objective criteria for comparing subjectively different solutions while establishing quantitative thinking as fundamental to design evaluation.

Solar analysis constitutes the second layer through *heliomorphism*, which involves a systematic evaluation of solar access and shading performance (Waldheim et al., 2020). Students design solar envelopes to maximise buildable volumes, ensuring buildings do not cast shadows on neighbours or open spaces. Solar fans are used to evaluate whether open spaces receive adequate sunlight across hours and seasons through dynamic parametric modelling in Grasshopper (Figure 2). This environmental layer reveals how density optimisation conflicts with solar access requirements, necessitating a conscious trade-off navigation by students rather than simple maximisation.

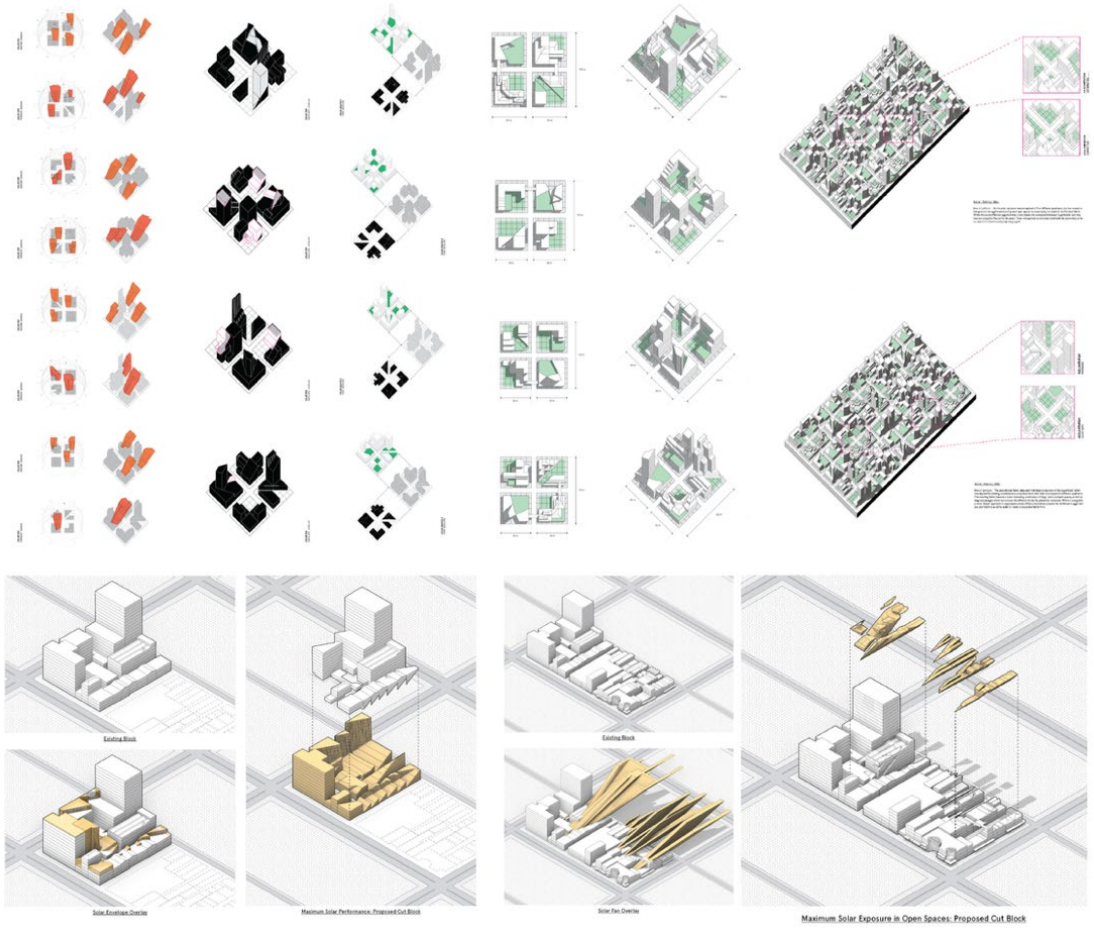

Figure 2 Urban block variations through solar analysis (top) (Credit: Student team: Nicholas Ots, Jordan Schmid); Urban block variations through solar analysis (bottom) (Credit: Student team: Alina Sebastian, Astha Shah, Vaishnavi Singh – Instructors: Leire Asensio Villoria, Dan Hill, Onur Tümtürk)

Urban metabolism forms the third evaluation layer, introducing flows of energy, materials, and information sustaining urban life. Student teams investigate the following processes: hydrological systems and landform, waste management, energy systems, urban ecology, microclimates, or transport networks. For instance, when studying hydrology, the various groups employ runoff analysis to model land surfaces, computing runoff behaviour and flood risks in urban blocks while devising configurations for water treatment within established density and solar constraints. This performance-based variation transforms understanding from a static spatial arrangement to a dynamic systems thinking, revealing how various metabolic processes and their intrinsic dynamics influence the spatial character of urban block variations over time (Figure 3).

Figure 3 Urban block variations through exploration of metabolic processes: Water flow analysis (top), materialisation of strategic interventions at block scale (bottom) (Credit: Student team: Nicholas Ots, Jordan Schmid, Alina Sebastian, Astha Shah, Vaishnavi Singh – Instructors: Leire Asensio Villoria, Onur Tümtürk)

Civic space and public life complete the evaluation and exploration framework, examining how block configurations enable or constrain social and cultural experiences. Most crucially, students begin imagining what type of public life their design alternatives afford. Supplemented by global precedent studies and literature, they assess which variations afford what possibilities, evaluating interface quality, accessibility, active-passive façade, and walking experiences from a pedestrian perspective. This imaginative process reveals further trade-offs and conflicts, as students discover how their previous formal decisions determine the affordances of urban blocks (Figure 4a). Urban public and social space typologies, including squares, parks, laneways, and public gardens, are also studied. An understanding of urban civic spaces is drawn from established categories of public spaces while also speculating on other, more novel and emerging precedents. This is framed by the course engagement with the City of Melbourne's Future Streets program (Figure 4b-4c).

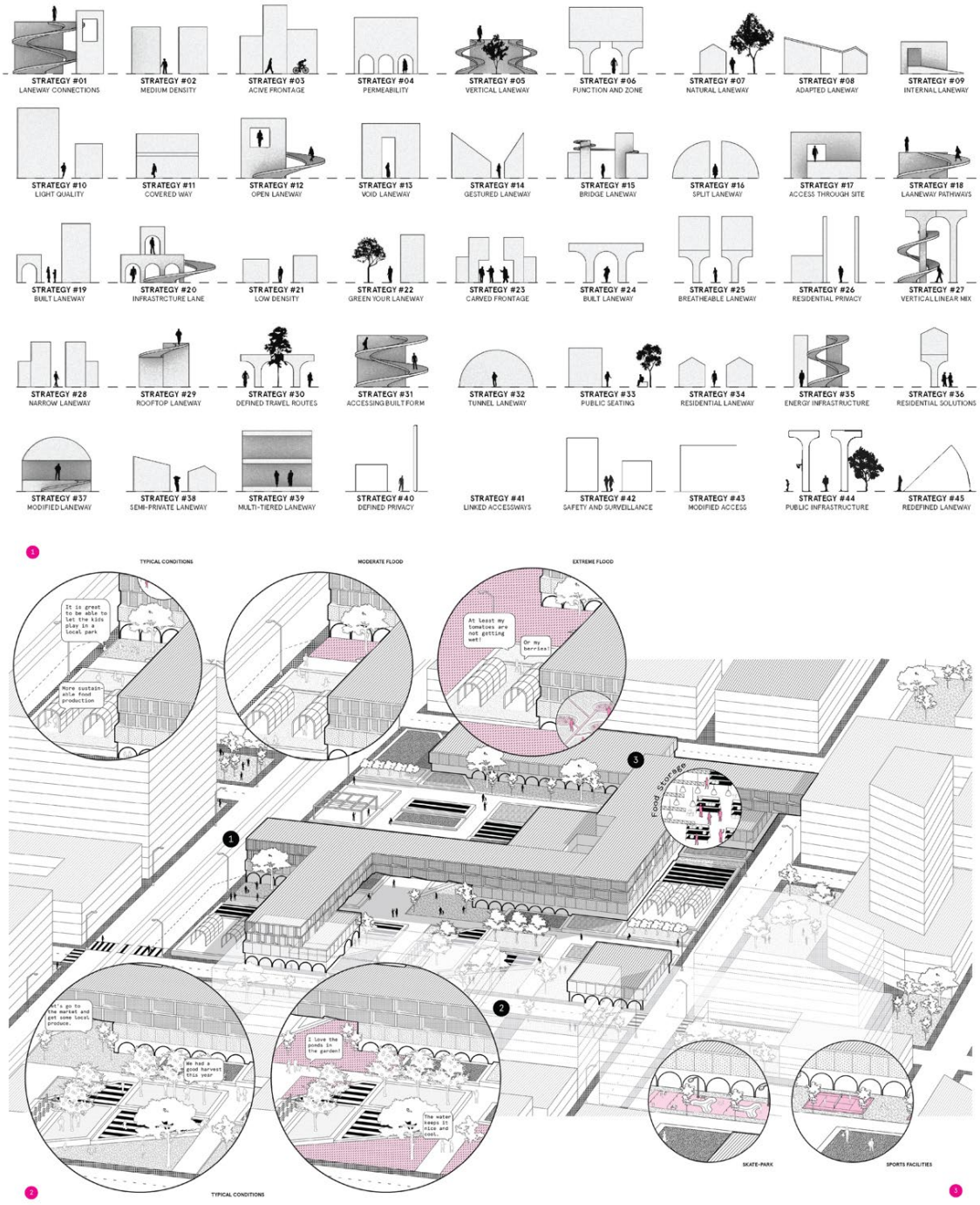

Figure 4a Exploration of public space typologies and affordances (Credit: Student team: Nicholas Ots, Jordan Schmid – Instructors: Leire Asensio Villoria, Onur Tümtürk)

While benefiting from the capacity to define many of its systems and constituents with a degree of objectivity, urban design is engaged with complex concerns. It is required to mediate between various parameters, considerations, and diverse stakeholders. The course is predicated on the idea that urban design is a practice that mediates different influences. It locates proposals that satisfy complex questions rather than offering optimised answers to bounded problems.

Figure 4b Imagination of future streets and public plazas of Melbourne (Credit: Student team: Wanti Zhao, Yuning Zhou, Chensong Gao – Instructors: Leire Asensio Villoria, Onur Tümtürk)

Figure 4c Imagination of future streets and public plazas of Melbourne (Credit: Student team: Hongkai Zhang, Kehan Shang, Huicong Xu, Vikram Giri – Instructors: Leire Asensio Villoria, Onur Tümtürk)

This multi-layered framework, progressing week by week, operates through concurrent design thinking, where technical skill acquisition, site-specific analysis, and design concept formation co-occur through iterative engagement with given sites, variations, and toolsets. Our approach consciously rejects linear models that separate analysis, synthesis, and design into sequential phases, positioning design alternatives as conjectures and hypotheses that are tested against contextual conditions and continuously modified (Hillier & Leaman, 1974; Hillier et al., 2025; Çalışkan, 2012). Design concepts of students emerge through systematic exploration rather than preceding it.

Our studio setting supports this process through weekly workshops introducing analytical tools (parametric design, associative modelling, density calculation, solar modelling, hydrological analysis) alongside theoretical frameworks and precedent studies. Each week presents new challenges, accompanied by specific toolsets to address them, progressively equipping students with critical thinking and variation generation approaches. As students generate and evaluate alternatives across introduced performance dimensions, they simultaneously develop an understanding of site-specific opportunities and constraints, discovering design ideas through systematic testing of variations against real conditions.

2.4. Scaling-up: From Urban Block to Urban Systems

While maintaining the urban block as a foundational module, we require students to apply systematic scalar extension of their block-level solutions through repetition, variation, or adaptation to new contextual circumstances. Students use selected urban block variations as generative seeds for neighbourhood, district, and city-scale strategies. They discover how systematic block-level thinking aggregates into larger urban transformations.

One exemplary project involved students assigned a block containing multi-story car parking. Through the metabolic evaluation layer, they converted this single-purpose parking into a multi-functional infrastructure for rainwater harvesting in one of their block variations. Scaling up to address the broader flooding issues in Melbourne's city centre, students analysed hundreds of similar car parks throughout the central area. They realised that strategically maintaining the most essential car parks while transforming others into ecological infrastructure could fundamentally address the city's flooding challenges (Figure 5). Thus, a block-level ecological strategy became a comprehensive urban design concept and question.

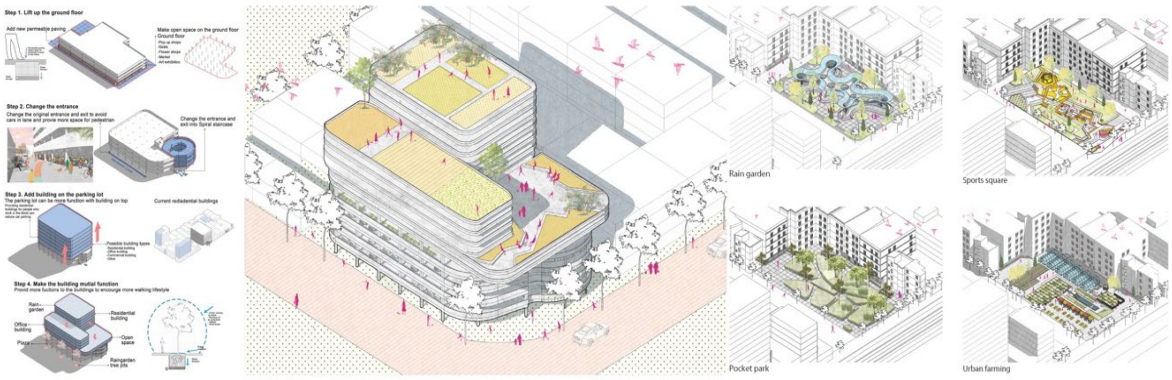

Figure 5 Transformation of multi-storey carparks in Melbourne city centre (Credit: Student team: Zikang Zhao, Wanbing Yu – Instructors: Leire Asensio Villoria, Dan Hill, Onur Tümtürk)

Another exemplary scaling involved students whose block variations explored diverse pedestrianisation strategies. Several groups scaled their pedestrian-focused urban blocks to propose pedestrianising Bourke Street, one of Melbourne's major city centre thoroughfares. A key design idea embedded within their block variations became a research question for wider city-scale

pedestrianisation (Figure 6). This demonstrates how simple variations can generate urban-scale conjectures, which are tested through design.

Figure 6 Pedestrianisation of Bourke Street in Melbourne city centre (Credit: Student team: Runhan Yuan, Rice Mok, Krishna Maya Nair – Instructors: Leire Asensio Villoria, Onur Tümtürk)

2.5. Multiplicities in Design Communication

Reflecting our variation-based urban design approach, we emphasise design communication through multiple representation techniques. While valuing procedural thinking throughout the semester, academic requirements necessitate tangible design outputs. We dedicate the final 2-3 weeks to helping students develop comprehensive communication portfolios: design research booklets in hard copy format, poster presentations, 3-minute video narratives encouraging creative and prompt communication of design ideas, 3D digital models and fly-through animations, virtual reality experiences enabling audience immersion, and laser-cut or 3D-printed physical models.

This diversity serves two purposes: accommodating different learning styles within our diverse cohort, while also demonstrating that urban design communication must adapt to varied audiences, including technical specialists, community stakeholders, and policymakers. Our end-of-year exhibition, MSDx, showcases these diverse representation techniques through a combination of hard-copy materials, digital screens, VR headsets, and physical models (Figure 7).

Studio A's systematic block-based pedagogy establishes a critical perspective for urban design education by positioning variation generation, performance-based evaluation, and systematic comparison as foundational skills of future urban designers. This approach develops students' capacity for evidence-based decision-making while cultivating critical thinking, which is essential for subsequent academic semesters and their future professional practice.

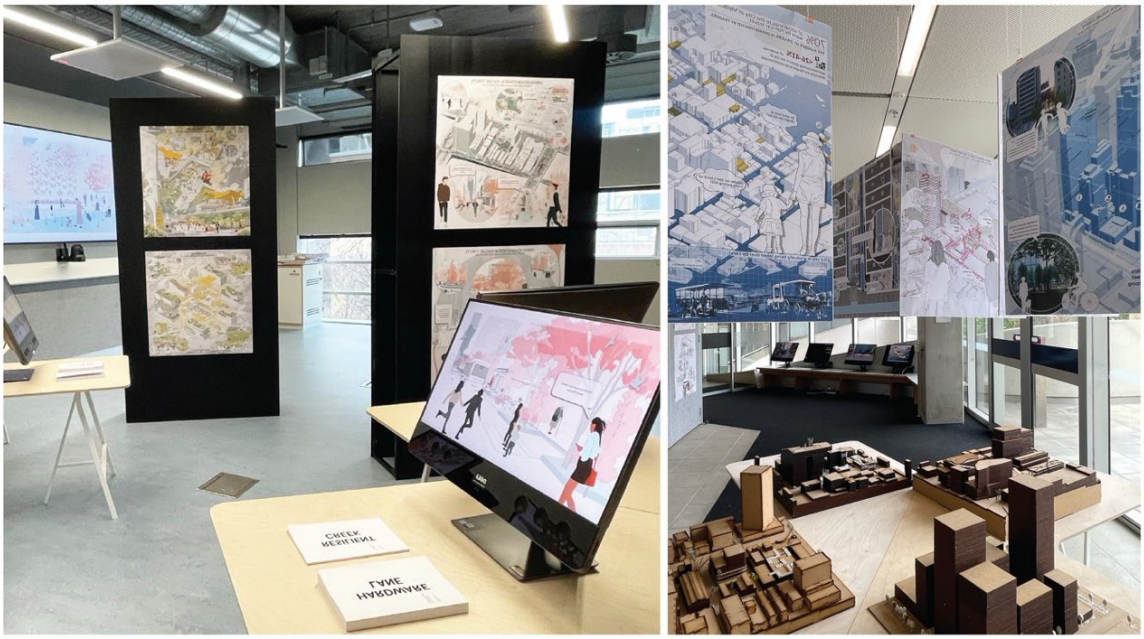

Figure 7 Urban Design Studio A's MSDx materials illustrating various communication media and techniques (Photos: Onur Tümtürk)

Our methodology in Studio A emphasises multiplicities over singular solutions through rule-based exploration and prepares students with systematic thinking and analytical rigour. Students develop confidence in navigating complex urban challenges while understanding trade-offs between competing performance criteria by immediately engaging with design through an analytical perspective. This foundation proves crucial as students advance to subsequent studios of the Master of Urban Design program.

3. Urban Design Studio B

Building upon Studio A's analytical rigour and systematic thinking, Urban Design Studio B applies these foundational capabilities to the fundamental societal and political processes. This shift toward social and political engagement reflects one of the discipline's core responsibilities. Urban Design Studio B and C operate as the two studios that afford students a focus on approaching the creative practice of urban design through two important and distinct conceptual framings of the city. Studio B acknowledges the city as a reflection and outcome of social, political, and cultural practices. It directs students towards the ideas and processes which connect the social and political lives of its diverse constituents and citizens to the ways in which we imagine the forms of the city. The studio also explores how the thoughtful organisation and inclusion of public infrastructure, services, and social spaces can help cultivate a more equitable and inclusive city.

Rather than allowing pedagogical approaches to emerge from arbitrary professional preferences, urban design education requires a systematic grounding in the stewardship of the public domain and the reproduction of urban meaning within democratic civic life (Cuthbert, 2006, 2007). While Studio A develops systematic tools for analysing urban morphology, density, and metabolic processes, Studio B extends this analytical framework to address the MSD's Designing Futures agendas of healthy places (Mah & Asensio Villoria, 2016; Sepe, 2020) and socially responsive design (Loukaitou-Sideris, 2020).

In recent years, Urban Design Studio B has focused on concerns related to the design of urban systems, sites, infrastructure, and the public realm, with a particular emphasis on how it enriches and enables the cultivation of an active and vibrant civic realm. These studios have been coordinated by Dr David Syn Chee Mah and taught by industry-based studio leaders, including

Sander Versluis and the UN Studio global team, which included Caroline Bos, Dana Behrman, and Ren Yee, as well as Michael Powell at Skidmore, Owings & Merrill, Andy Fergus, and Prof. Donald Bates.

This professional practice-oriented approach differs from participatory design or co-design pedagogies that involve direct community collaboration in design processes. Instead, it brings students together with industry partners who are engaged with real-world urban design challenges their offices are currently addressing. This exposes students to how professional practitioners navigate social and political processes, understand diverse community perspectives, and respond to stakeholder input within the constraints and opportunities of actual practice contexts within a design studio setting.

3.1. Melbourne as a Living Laboratory

Melbourne continues to serve as the living laboratory for urban design investigation, but with an explicit focus on understanding and addressing the city's social and political challenges. Students engage directly with Melbourne's urban communities through site visits, stakeholder meetings, and collaborative workshops with local organisations. This immersive approach enables students to apply their systematic analytical skills to real urban conditions while developing an understanding of how social infrastructure, civic spaces, and community needs intersect with the formal and metabolic systems they studied in Studio A. The sustained engagement with Melbourne's diverse neighbourhoods, from the expanding suburban rail corridors to the densifying inner city precincts, provides students with direct experience of how social equity, accessibility, and community wellbeing can be systematically evaluated and enhanced through urban design interventions.

This course's social and political framing of urban design has informed the development of studios dedicated to a range of Melbourne-sited projects related to specific social concerns. This has included studios tasked with projecting how to define compelling forms of public space associated with new transport interchange nodes in Melbourne's expanding suburban rail infrastructure, adapting existing urban precincts to more deliberately address the prevalence of its expanding urban nomad communities, and the conception of the city as an intentional design project informed by social and political ideas.

3.2. Diverse Professional Partnership Models

The studio, led by Michael Powell of Skidmore, Owings & Merrill (SOM) in 2024, exemplifies how transit-oriented development requires the systematic integration of social and infrastructural analysis. The studio focused on proposing the urban redevelopment of the transit hub area in the Box Hill activity centre: an area slated for density and housing uplift as well as transformation into a central transport node in Melbourne's middle ring suburbs. This site forms one of the main stations along the proposed suburban rail loop project: a major project in Melbourne that has the potential to support the development of alternative centres to the main central business district. While alleviating pressure on the city centre, it also provides the opportunity to define an activity centre in Box Hill that could transform its social life and economy. The studio utilised the transit-oriented development model to propose a reorganisation of the public realm: using transport infrastructural investment as a catalyst for embedding significant public realm expansions on the site (Figure 8).

The studio focused on how infrastructure and the public realm can be used to structure the way in which housing and densification are managed intelligently on this site. Students learned to apply multi-dimensional evaluation frameworks to balance competing demands of transportation efficiency, housing affordability, and community space provision. It also involved conceptualising how a new town centre for Box Hill is embedded in the everyday lives of its citizens. The studio supported students in considering how their proposals operate as social infrastructure, as well as conceptualising the representational aspects of the public realm. This focus on the design of the city's public spaces is most recently extended in a studio led by Professor Donald Bates: revisiting the site adjacent to Melbourne's Federation Square. This studio extends dedicated consideration

of the detailed design of both public spaces and embeds it within a focused examination of how it enables and cultivates the social and public practices of its citizens.

Figure 8 Box Hill Activity Centre (Credit: Student team: Alina Sebastian Rose, Rice Mok, Rasia Firayasan, Vaishnavi Singh – Instructor: Michael Powell (SOM))

UN Studio's approach demonstrates how urban design can address demographic change and spatial adaptation. More importantly, it reframed the conventional urban design studio structure around a specific urban subject: the urban nomad. Rather than basing proposals around conventional abstractions such as populations and communities, the studio assumed the particular lifestyles of the urban nomad as the basis for understanding and transforming the site. UN Studio structured the Urban Design Studio B course 2025 around reorganising a high-density precinct

within inner city Melbourne. They used the district's growing digital nomad population to determine how this underserved, yet overdeveloped part of the city could be retrofitted. As the urban nomad lifestyle was assumed as the lens through which the site was reorganised, this enabled students an understanding of the challenges of the site in relationship to how it may support everyday life practices of particular urban actors: highlighting the significant inadequacies in civic and social infrastructure to support the social and cultural lives of the central business district's large itinerant populations of international students, newly arrived migrants, and highly mobile professionals: amongst others. Urban design proposals and strategies focused on the multiple scales of the public realm, as well as civic and transport infrastructure interventions that would reorganise the site to support the social lives of these often marginalised or seemingly transitory actors in the city (Figure 9). Leveraging the practice expertise for diagramming complex information: the UN Studio-led course illustrates how rule-based thinking can be applied to emerging social patterns, testing multiple spatial scenarios for evolving urban demographics. The deliberate framing of the studio balanced this through the careful consideration of the very tangible life practices of an urban subject. It required urban design students to consciously consider the city as a lived site: challenging the abstractions and remote view that have characterised planning practices at various points in history.

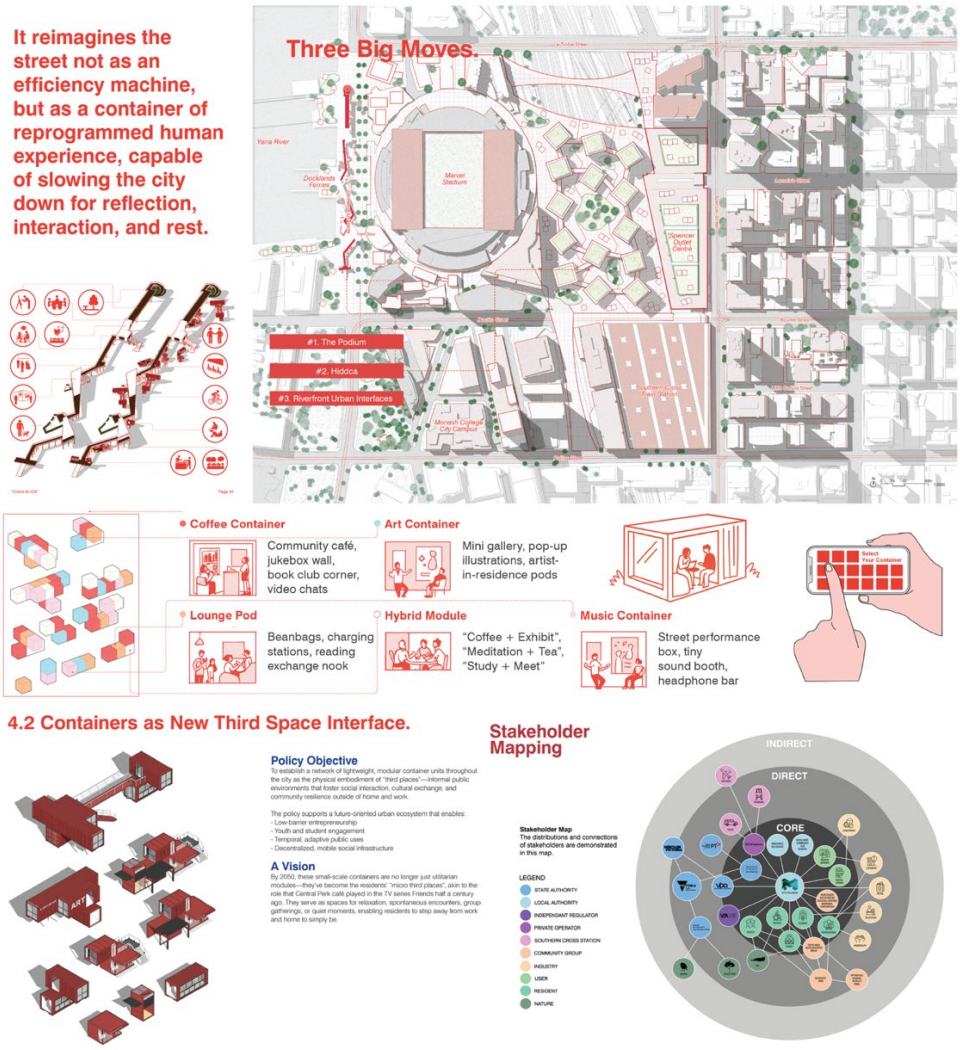

Figure 9 Three Big Moves (Credit: Winky Zheng – Instructors: Sander Versluis with Caroline Bos, Dana Berhman and Ren Yee (UN Studio))

Through these diverse professional partnerships, students learn to maintain analytical rigour while navigating the complexity of stakeholder interests, regulatory constraints, and community needs. The studio invites students to reflect on how political and social practices inform the city

while speculating how various sites may be reorganised to support a more open and equitable city. Studio B's focus on the social and political dimensions of the city: exploring the urban forms and organisations which both enable and represent the social and cultural lives of its citizens, is contrasted and complemented by the ecosystemic view of urbanisation explored in Urban Design Studio C. As students complete both studios, they are exposed to an engagement with urban design as a practice informed by the city as a social and political site, on one hand and urbanisation as a process where many systems and subsystems dynamically interact.

4. Urban Design Studio C

Studio C has been coordinated by Prof Justyna Karakiewicz, who has developed the studio's distinctive approach to extended temporal thinking and ecosystemic focus through an imaginative and systematic design methodology. *Moving from the typical project timelines, Studio C operates across 75-100-year frameworks, positioning students to think beyond conventional planning horizons toward ecological futures that acknowledge deep time and planetary considerations.*

As an advanced urban design studio, the studio acknowledges that the distinction between nature and society has grown increasingly porous in the Anthropocene era, the epoch in which human activity profoundly influences Earth's processes. This is particularly visible in cities like Melbourne, where flood risks in neighbourhoods such as Docklands and Fishermans Bend have spurred integrated responses. The city council has developed various interventions to maintain the area's resilience, sustainability, and liveliness for generations. However, these efforts deserve a reflection: are piecemeal solutions sufficient, or is a more profound change needed in our relationship to nature?

Studio C's pedagogical approach shifts toward a new perspective that acknowledges humans as participants in a complex, interconnected web of life, whose well-being is inseparable from planetary health (Alberti, 2016). Thriving will depend on embracing innovation while respecting ecological limits and learning from natural systems. This paradigmatic shift requires students to apply the systematic thinking developed in previous studios to questions that operate across multiple generations.

The following sections describe the students' work in the recent Urban Design Studio C (2023–2025), demonstrating how design thinking can be extended to address climate futures. These three studios address distinct but interconnected themes: shifting from asking what nature can do for humanity to examining how urban design can nurture and repair the natural world; exploring the role of urban infrastructure in climate adaptation and flood resilience; and preparing future urban designers not only to collaborate in multidisciplinary teams but also to ensure their designs support both their immediate sites and the surrounding urban context.

4.1. Creative Triggering: Speculative Thinking in a Short-term World, Designing in the Slow Lane

Urban design has often defaulted to superficial "quick fixes" that address symptoms rather than root causes, resulting in short-lived solutions to deeply structural challenges. A shift is urgently needed toward systemic, long-term, and ecologically grounded approaches that acknowledge the interdependence of human and non-human life. This studio explored such a paradigm through a century-long design investigation of Melbourne's Fishermans Bend precinct, marked by industrial contamination, increasing flood risk, and complex cultural histories.

The design studio positioned Fishermans Bend as both a site and a metaphor for broader urban dilemmas. Once a valued wetland for Aboriginal communities, the area was marginalised and industrialised by European settlers who viewed it as undesirable terrain (Victoria Planning Authority, 2025). Contemporary ecological understanding reinstates marshlands as critical assets, as they store and purify water, buffer against floods and droughts, sequester carbon, and serve as biodiversity hotspots.

Students applied the systematic analysis and evaluation approaches gained from earlier studios to this extended temporal framework, developing multi-dimensional analysis across 75–100-year horizons. Adopting "fast, medium, and slow" strategies over this timeframe, the studio developed a staged approach that filtered pollutants, sequestered carbon, and reversed biodiversity loss, while creating opportunities for recreation, education, and employment.

The studio's work visualised Fishermans Bend's gradual transformation across distinct stages: Stage 1 (2025–2030), Stage 2 (2030–2050), and Stage 3 (2050–2100). The plan integrates "slow, medium, and fast" approaches, with small to large-scale projects reflecting incremental and adaptive development rather than abrupt overhaul (Figure 10). This temporal thinking embodies urban design's fundamental orientation toward creating enabling conditions rather than predetermined outcomes. Thus, Studio C aims to cultivate students' understanding that the discipline's effectiveness lies in establishing frameworks that support adaptive and evolutionary processes for the long run.

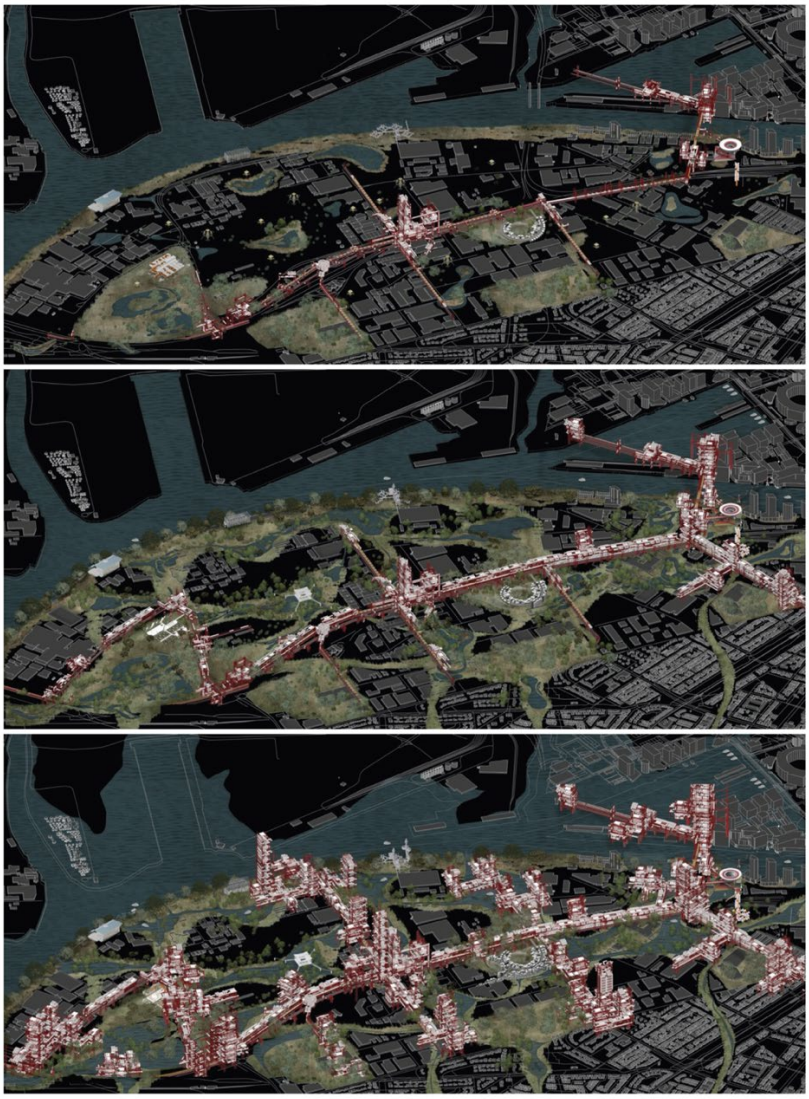

Figure 10 Fishermans Bend development stages: 2025-2030 (top), 2030-2050 (middle), 2050-2075 (bottom) (Credit: student team of UD Studio C 2023: Creative triggering – Instructors: Justyna Karakiewicz, Theo Blankley)

The studio developed a novel two-way pedagogical approach that operates on parallel tracks, addressing the inherent necessities of urban design practice where individual expertise must contribute to larger collective strategies. Students simultaneously developed individual design projects while contributing to larger-scale collective infrastructure strategies. This resulted in eight individual projects operating within two large-scale urban infrastructure strategies that brought

everything together. The projects demonstrate how individual creativity and collaborative coordination are essential responses to the complexities of contemporary urban design. Rather than treating individual and collaborative work as separate phases, the studio demonstrated how these scales of intervention can inform and strengthen each other throughout the design process.

The larger-scale collective decisions that guided individual responses emerged from collaborative workshops that utilised parametric tools and ecological theories. Students collectively employed analytical methods to identify strategic action points for the overall site transformation, building upon the systematic evaluation approaches established in Studio A while extending them to address ecological restoration and climate adaptation questions.

A notable component involves restoring the area's original wetland conditions, beginning with intervention at the site's lowest points. This step is both ecological and symbolic, acknowledging the historical and natural context while setting the foundation for sustainable urban development. The slow, blue-green infrastructure indicates where the first perturbation into the existing system (creative triggering) should occur and how it should gradually become the driving force of development. This infrastructure enables nature to reclaim the land, making it an active source of potential again (Figure 11).

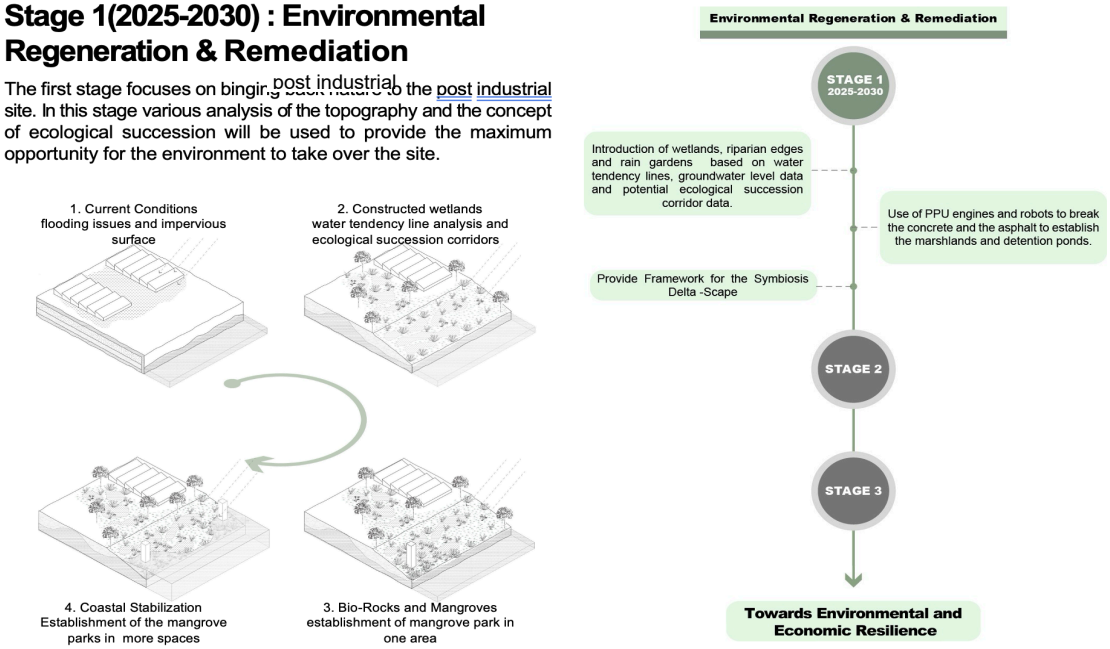

Figure 11 Environmental regeneration and remediation strategies (Credit: Student team of UD Studio C 2023: Creative triggering – Instructors: Justyna Karakiewicz, Theo Blankley)

The collective decision was to use colonisation and succession theory as the guiding framework. After selecting the lowest points on the site, which are currently empty, students used the Grasshopper script *Physarealm* collectively in workshops to determine the optimal location and direction for potential wetland expansion (Figure 12). This parametric analysis enabled students to make evidence-based collective decisions about macro-scale strategies while providing clear guidelines for individual project development.

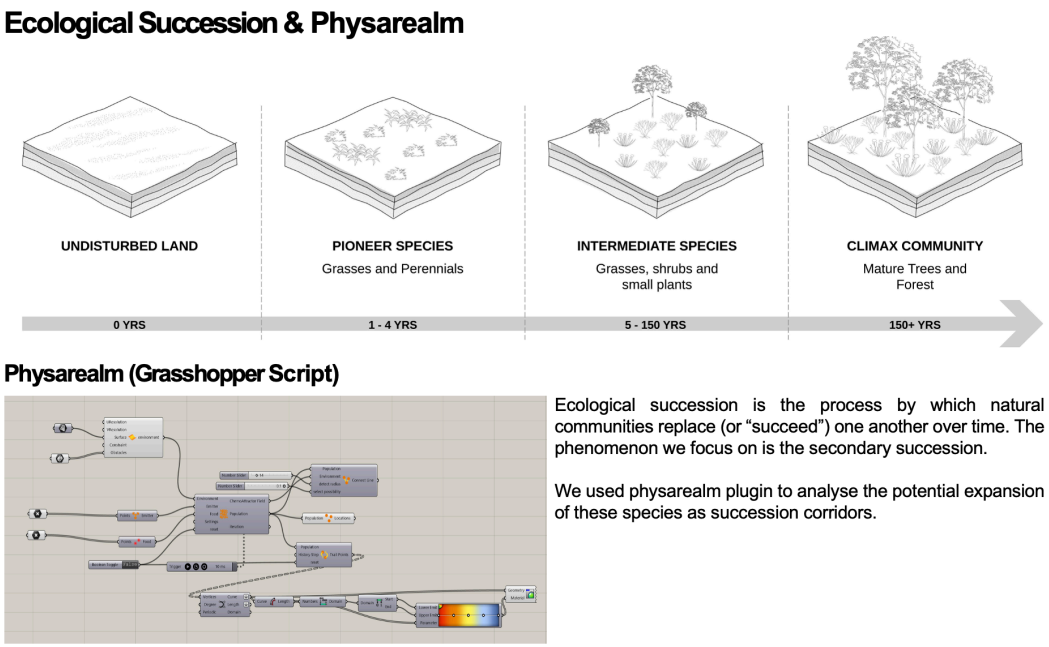

Figure 12 Ecological succession simulation via the Physarealm parametric tool (Credit: Student team of UD Studio C 2023: Creative triggering – Instructors: Justyna Karakiewicz, Theo Blankley)

Areas situated on past marshland (often low-lying) will be especially prone to chronic flooding, waterlogging, and potential infrastructure failure as sea levels continue to rise over the next two centuries. The collective analysis determined that selecting the lowest points on the site for initial intervention will enable wetland access to water and retain this water even during the dry season (Figure 13). With ecological succession, the wetland will be able to expand across the site, providing vital services such as water purification, carbon storage, flood mitigation, and habitat for biodiversity.

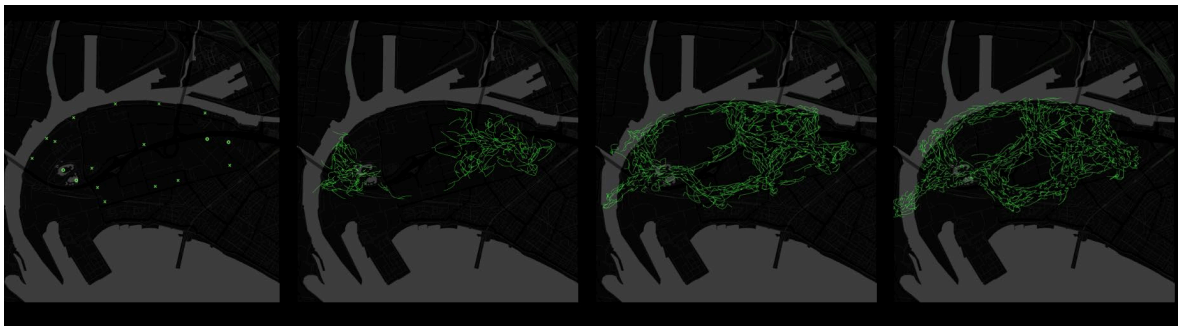

Figure 13 Restoration of the wetland, starting with the lowest points on the site (Credit: Student team of UD Studio C 2023: Creative triggering – Instructors: Justyna Karakiewicz, Theo Blankley)

This systematic approach to site analysis enabled students to develop individual architectural responses that contribute to the collective ecological strategy. Each project operates within a macro-scale framework, addressing specific programmatic, spatial, and technological questions that emerge from the larger restoration strategy.

The Fishermans Bend studio highlights a crucial shift in urban design education and practice: from reductive, short-term interventions to systemic, regenerative strategies that operate across decades and ecologies. It underscores the necessity of rethinking conventional approaches to land deemed problematic, recognising instead the latent potential in landscapes once dismissed. The pedagogical innovation lies not only in the extended temporal framework but also in demonstrating that individual design creativity and collective strategic thinking can operate simultaneously and productively. Students learn to contribute their analytical rigour and design skills to collaborative processes while developing their capacity for independent design thinking—preparing them for professional practice where both capabilities are essential.

4.2. Missing Link: New Typologies and Approaches

Rather than treating each studio as a completely new and different theme, Studio C 2024 built upon the knowledge base developed in the previous Fishermans Bend restoration project, creating continuity between semesters while consistently addressing the agendas of local municipality planning. The restored wetland ecosystem developed in 2023 raised fundamental questions about site integration and connectivity: how could the regenerated Fishermans Bend precinct be meaningfully connected to the surrounding urban fabric and the broader Melbourne metropolitan system?

In response, Studio C 2024 focused on rethinking one of the most emblematic infrastructural forms: *the bridge*. Here, the bridge was not simply a connector but was reconceived as both *liveable* and *living*: a dynamic infrastructure capable of transformation, reconfiguration, and adaptation. Against the backdrop of climate change, marked by intensifying storm surges, flooding, and coastal erosion, the studio sought to reconceptualise the bridge as something regenerative, not only mitigating risks but also nurturing ecological and social resilience.

The chosen site, Melbourne's Docklands, across the Yarra River from Fishermans Bend, provided fertile ground for this reimagining while maintaining a direct connection to the previous year's work. Vulnerable to flooding yet central to the city's future development, Docklands provoked students to test radical ideas for an architecture of adaptability that could integrate with the restored wetland systems developed in 2023. From this investigation, three projects stand out:

The Bridge as a Web Structure challenged conventional notions of the bridge as a neutral span. Nicholas Ots, Sihan Zou, Shichen Pen, Deifeyang Li, and Sarah Safira Indah Putri imagined it as a "web", which is an infrastructural network that not only connects but also transforms its surroundings. This visual metaphor aimed to portray infrastructure as a catalyst for change, sending ripples through the city’s fabric, moulding its social and physical reality (Figure 14).

Submerged Connectivities took a radically different typological approach. Michelle Lee, Shilo Burgess, and Jiang Zhiyuan rejected the bridge as an aerial crossing, proposing instead an underground and underwater system that revives Docklands by restoring it to its original wetland traces. The project envisioned a structure that grows and adapts over time, utilising recycled materials and biologically enabled innovations, such as mycelium. This "living infrastructure" is designed to withstand flooding, shifting seamlessly with rising waters and the evolving needs of its occupants (Figure 15).

Symbiosis Delta-scape explored how architectural intervention at the edge of land and water can operate as an extension of ecological systems. Jing Kang's project, set along the tidal estuary of the lower Yarra, integrated architectural forms with natural defences such as mangroves and oyster reefs. By deploying these soft systems, the design absorbed and filtered floodwaters while creating new landscapes of habitation, recreation, and education (Figure 16). Throughout the studio, these projects were shaped by broader questions essential for the future of urban resilience: how can cities adapt their physical and social infrastructure to address climate challenges while fostering thriving communities simultaneously?

Figure 14 The bridge as web structure (Credit: Student team: Nicholas Ots, Sihan Zou, Shichen Pen, Deifeyang Li and Sarah Safira Indah Putri – Instructor: Justyna Karakiewicz)

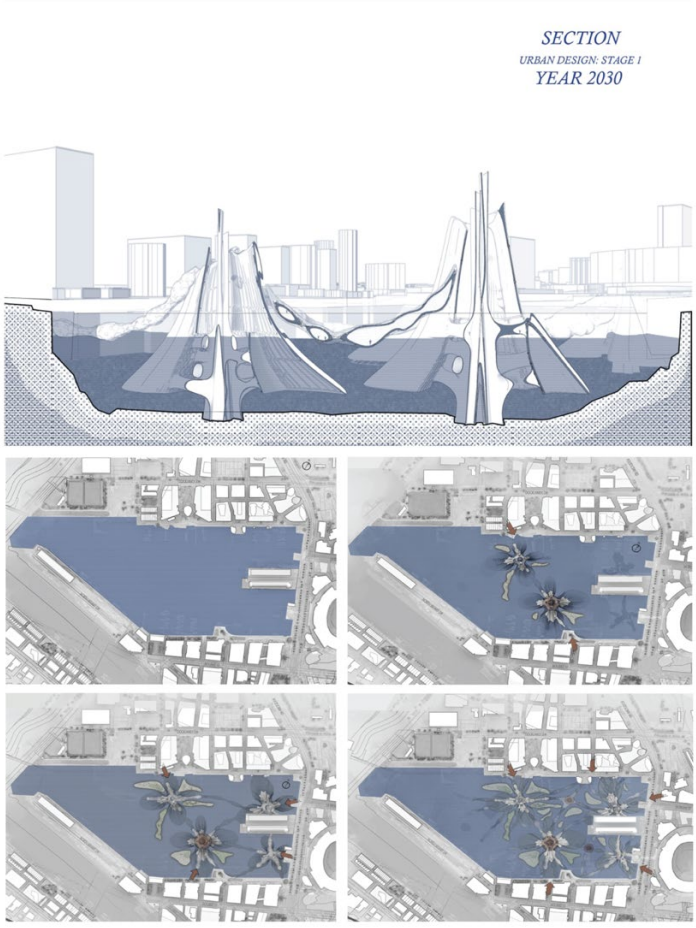

Figure 15 Section through termite-like structure (top) and development of the site plan from 2025 to 2080 (bottom) (Credit: Student team: Michelle Lee, Shilo Burgess and Jiang Zhiyuan – Instructor: Justyna Karakiewicz)

Figure 16 Ecological integrated waterfront at Fishermans Bend (top); Section illustrating edge conditions (bottom-left); Section illustrating processes within the bridge structure (bottom-right) (Credit: Jing Kang – Instructor: Justyna Karakiewicz)

4.3. Cyborg City: AI-augmented Climate Futures

In a world where artificial intelligence is increasingly embedded in our lives, society stands at a pivotal crossroads. Will we harness this powerful technology ethically, or risk being subsumed by it? Building upon the ecological restoration strategies of 2023 and the infrastructural connectivity explorations of 2024, Studio C 2025 extended the systematic analytical framework to encompass technological integration and AI-augmented climate solutions.

Through AI-augmented and imaginative inquiry, students investigated innovative models for sustainable living, focusing on three visionary concepts: *Foam Cities*, *Perturbanism*, and the *Cyborg*. Drawing on Peter Sloterdijk's philosophy, Foam Cities reimagine urban environments as networks of interconnected bubbles, reflecting the intricate social and spatial bonds that define modern communities (Sloterdijk, 1998). Perturbanism introduces urban design strategies based on minor, dynamic disruptions, fostering resilience by empowering cities to adapt fluidly to change (Karakiewicz, 2020). The Cyborg concept envisions a fusion of organic and technological elements, expanding human potential and redefining our interactions with machines and the natural world.

Students developed adaptive proposals that seamlessly blend architecture, advanced technology, and ecological systems by integrating artificial intelligence. In the opening week of the semester, students envisioned a better future for the area surrounding Southern Cross Railway Station in Melbourne. This strategic site connects to both the 2023 Fishermans Bend restoration work and the 2024 Docklands connectivity investigations. Over the remaining eleven weeks, they collaborated in groups to demonstrate how AI-driven ideas could materialise in reality. Ultimately, eight distinct visions emerged (Figure 17).

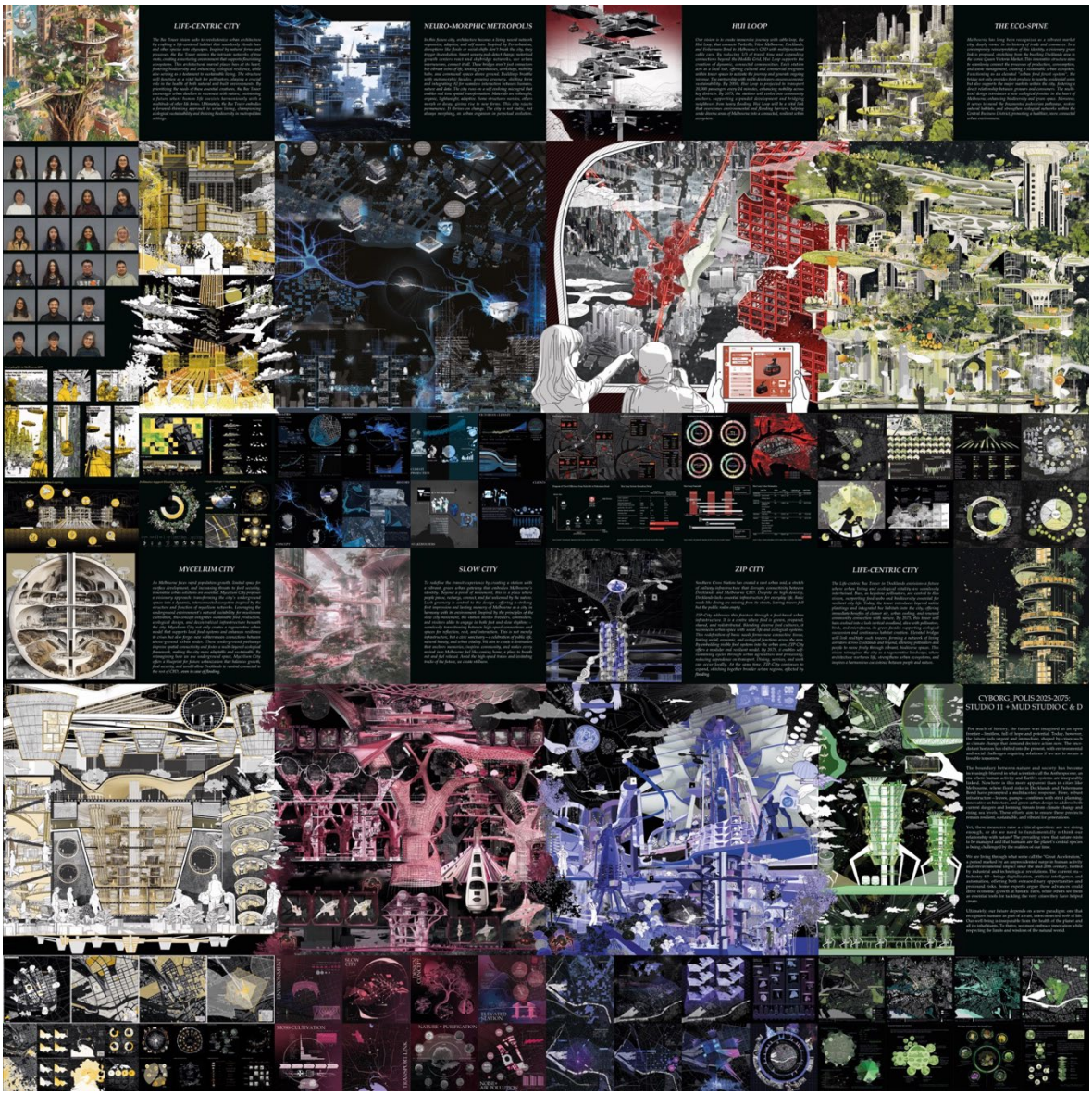

Figure 17 Eight unique visions of the students (Credit: Student team: Shangxi Hou, Mingchen Zhao, Astha Shan, Sulochana Khatri, Vendant Shrivastav, Rice Mok, Qianyu Liu, Huicong Xu, Krishna Maya Nair, Sixiao Wang, Kehan Shang, Chenghui Lu, Yian Feng, Alina Rose Sebastian, Raisa Firasyan, Anastasia Anindyasarathi, Shiyu He, Jingmeng Zhang, Ziyang Zhang, Vikram Giri – Instructor: Justyna Karakiewicz)

In the final days, students worked to integrate their projects, illustrating how these diverse proposals could collectively safeguard a large city district from rising water and severe flooding. Collaboration expanded, as all 24 students negotiated project boundaries and compromise, learning to work effectively within multidisciplinary teams and larger collectives while maintaining the core integrity of their ideas (Figure 18).

The three-year sequence of Studio C demonstrates how advanced urban design education can challenge students' conventional thinking while building systematic analytical and imaginative capabilities across extended temporal frameworks. By progressing from ecological restoration

(2023) through infrastructural innovation (2024) to technological integration (2025), students develop the capacity to apply rigorous and imaginative design thinking to the urgent challenges of climate action, preparing them for the independent research and self-directed investigation that characterise the thesis studio. Students emerge from Studio C equipped not only with technical analytical skills but with the collaborative capabilities and long-term thinking necessary to address the urgent challenges that will define their professional careers.

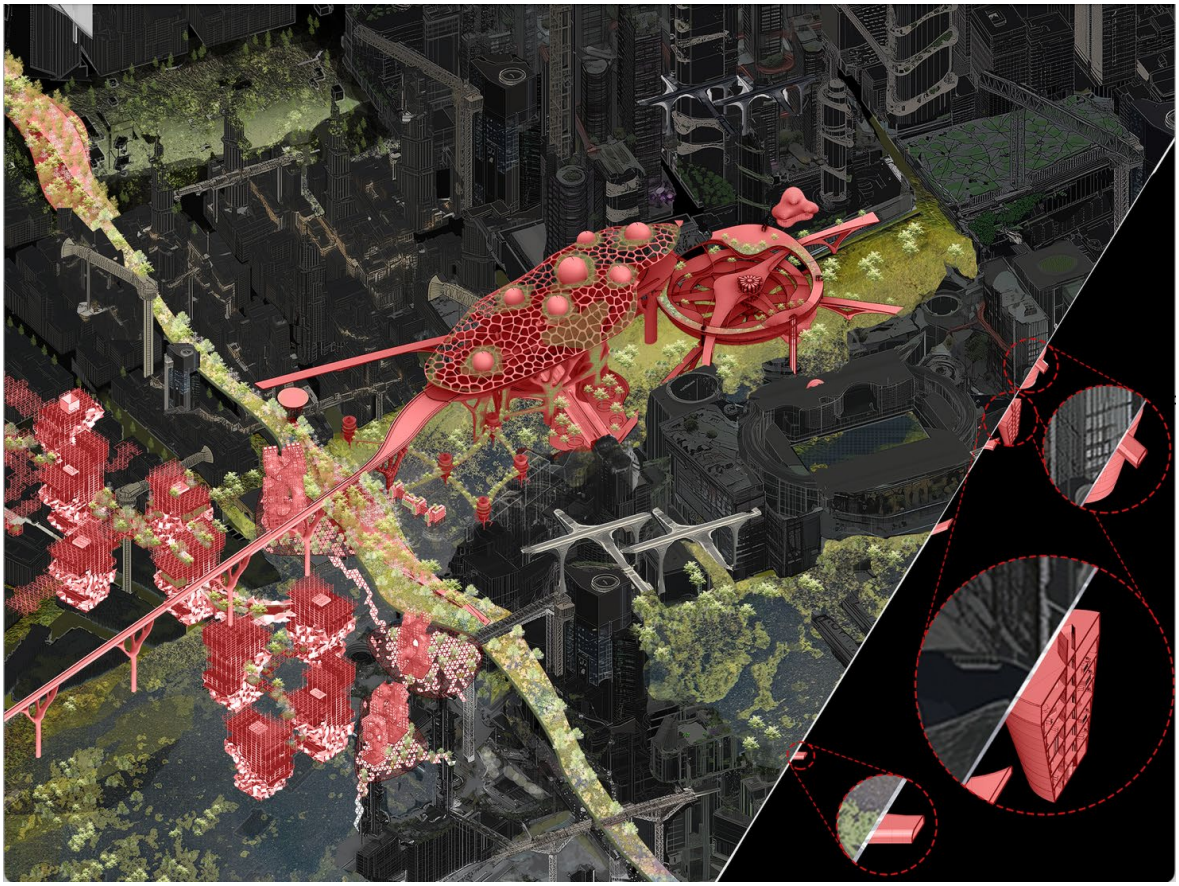

Figure 18 Collective image of the students (Credit: Student team: Shangxi Hou, Mingchen Zhao, Astha Shan, Sulochana Khatri, Vendant Shrivastav, Rice Mok, Qianyu Liu, Huicong Xu, Krishna Maya Nair, Sixiao Wang, Kehan Shang, Chenghui Lu, Yian Feng, Alina Rose Sebastian, Raisa Firasyan, Anastasia Anindyasarathi, Shiyu He, Jingmeng Zhang, Ziyang Zhang, Vikram Giri – Instructor: Justyna Karakiewicz)

5. Urban Design Thesis

The Urban Design Thesis, coordinated by Dr David Syn Chee Mah, serves as the capstone subject for the urban design program. It operates as a studio-based course that integrates design research methods, enabling students to develop research questions and hypotheses addressed through design. The thesis studio is structured to allow students to apply much of what they have learned in the program toward exploring a self-initiated thesis question. It involves an introduction to traditional academic research methods as well as an equal focus on connecting this traditional research to design-led research.

The thesis studio challenges the conventional thesis model, which is often viewed as the outcome of solely individual scholarship, instead positioning collaboration and negotiation as essential capabilities (Lang, 2005), while enabling students to develop individual mastery. This approach reflects the pedagogical philosophy established throughout the program: contemporary urban design requires both systematic individual analysis and collaborative strategic thinking.

It also reflects the nature of urban design as the convergence of many different urban concerns, systems, and practices. While students in the course are supported to pursue the traditional thesis

mandate of individual expertise, they are also required to bring their respective mastery to conversations with their peers. Mirroring the nature of contemporary urban design, where urban designers need to be able to operate across multiple scales, multi-levels, and across a diversity of systems. Rather than solely supporting individual scholarship, the thesis studio encourages students to build bridges between their own interests and expertise with those of their peers through a collaborative development of larger urban frameworks for sites in metropolitan Melbourne.

The course operates through a two-phase framework that mirrors the dual approach developed in Studio C. Students begin by creating their individual thesis research focus, articulating clear research questions, conducting literature reviews and precedent surveys, and synthesising this information to devise analytical frameworks and toolkits on urban design topics of their own definition. The second phase of the design research focuses on developing collective and collaborative urban design frameworks. Despite an open brief that allows students to pursue expertise in particular urban systems, processes, practices, and typologies, this collaborative requirement ensures that students learn to integrate their analytical capabilities with the concerns and systems introduced by their peers. This structure affords students experience in more traditional models of academic scholarship and supports them in pursuing creative practice as a form of knowledge production. This approach to design research is supported by the conscious framing of the project's contexts and themes. These sites and themes are chosen to engage students with less established challenges and contexts.

On one hand, sites such as peri-urban developments on the city's outer edges offer a less familiar context for the students to engage with. As many existing urban design concepts have emerged from various European and North American centres, they are generally informed by and rooted in sites that bear little resemblance to the outer suburbs of Melbourne. The European city and even the American sprawling suburb do not provide analogous references for these sites, as they either differ in terms of their morphologies or have significantly different ecological and social contexts. Confronting students with challenging and unfamiliar sites that are not regularly addressed in urban design literature and best practice requires that they engage more deliberately and inventively with these sites.

Another strategy for cultivating a learning environment supportive of design research is using urban themes or challenges that require a significantly projective position. A focused interest in the climate emergency requires urban designers to engage with an uncertain context: the future. It requires considering mitigation and adaptation strategies for conditions that are not fully known. This means that engaging with the climate emergency requires students to construct scenarios of how the climate emergency will transform familiar sites in the city. Developing strategies for the climate emergency is an inherently projective act: forcing students to construct their sites. For the H2O studio series of the Urban Design Thesis Studio, the site assigned to the students was not a specific location. Instead, students were tasked with considering the hydrological system as the primary site of their engagement, shifting them away from conventional urban design concepts of place to a more systemic approach to climate as an urban concern.

5.1. H2O (2018-2023)

The thesis studio has evolved thematically to address the urgent challenges of contemporary urbanism. Between 2018 and 2023, the urban design thesis emphasised the exploration of urban strategies that engage with climate change challenges, facilitating projects focused on urban hydrological systems and their entanglement with the city's energy and waste cycles, as well as engagement with food and material supply chains. These projects were based on the understanding that a systematic approach to urbanism offered valuable strategies for addressing climate change. It also focuses on the major drivers of change and challenges the overemphasis on studies of place as the primary means of initiating an urban design project. When considering the different scenarios of how the hydrological cycles and associated urban metabolisms may alter, familiar sites

in Melbourne may be rendered uncanny. This uncanniness problematises the existing tropes and best practice models of place-based ideas for urban design as it operates from a conservative position rather than a projective one. Given that addressing climate change requires consideration of what could be, rather than what is, the choice of framing urban design as a projective engagement with the climate emergency compels students to move beyond existing urban design conventions. As they thoughtfully and rigorously construct future scenarios and strategies for addressing these unfamiliar contexts, they are actively constructing novel urban design knowledge.

The group projects defined multi-scalar interventions that established alternative metabolic processes and practices to initiate and sustain regenerative urbanism. Some projects engaged with peri-urban sites to propose environmentally regenerative agricultural practices on the city's edge. Others focused on how the city's volatile, liminal water edges could be reconsidered as new forms of public realm for both human and non-human agents (Figure 19).

This phase of the urban design thesis studio was predicated on the urgent need to define an alternative interdisciplinary urban design practice that offered strategies for mitigating and adapting to the major public concern of the climate emergency. Building on urban design knowledge, the course supported the cultivation of a much-needed agility and exploratory emphasis on design research that acknowledges the strengths and shortcomings of established urban design best practices. This recalibration of the role of the thesis in an academic setting is informed by the need to support future urban designers who will be at the forefront of practising in an era of great uncertainty under climate change.

5.2. Transformers (2023-2025)

Since 2023, the thesis studio has expanded this forward-thinking approach to develop comprehensive urban frameworks for Melbourne's outer suburbs. Using the city as a laboratory for design research, students were tasked with developing strategies for transforming the city's activity centres within its sprawling metropolitan area. Over the last two years, this focus has been on urban renovation of outer suburban areas, such as Wyndham and Ringwood, which sit on the outer edge and experience some of the fastest population growth in the country.

A strategic focus on offering an alternative to the mass-produced suburban sprawl model that exemplifies these sites is crucial. The location of activity centres in these sites (areas slated for density and housing uplift) offers an opportunity to devise an alternative suburbia that can serve as a model for suburban retrofitting, offering a compelling alternative to the current model of Melbourne's sprawling suburbanization. These sites are also where the demographic change of the country is most visible, with Wyndham housing much of its recent migrants and some of its most multicultural communities. Melbourne's outer west is also defined by a dry and heat-stressed environment: a region characterised by native grasslands that are rapidly being eroded for the rollout of generic housing developments.

The focus on peri-urban developments on Melbourne's outskirts presents students with a less familiar urban site, while also requiring them to engage with the very particular ecosystems and landscapes associated with these sites. While much urban design typically focuses on city centres and more familiar urban models, Melbourne's outer suburbs present a less celebrated site for urban design focus. Besides the relative paucity of good urban design models, these sites also present students with significant challenges that are not easily addressed through conventional urban design theories and practices. In these sites, students in the course are expected to demonstrate their capacity to apply their knowledge and skills in a considered, thoughtful, and creative manner.

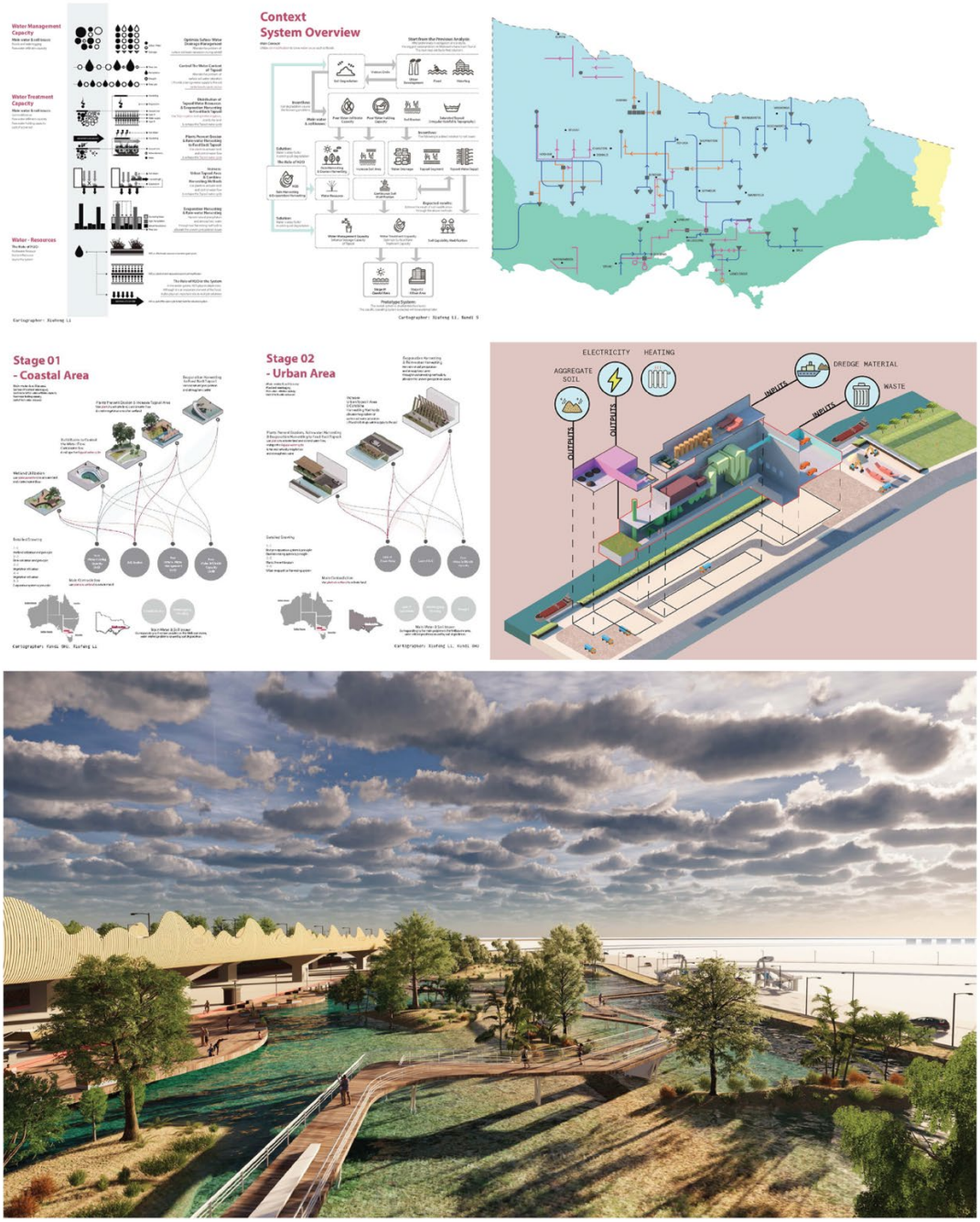

Figure 19 Urban hydrology metabolism diagrams (top) (Credit: Student team: Johnray Lee, Damian Shannon, Phuong Jamie Tran, Huey Jean Tan, Phoebe Goh, Fern Cheong, Xiufeng Li, Kundi Shu, Yuyao Wang, Peilin Wu, Bowen Ma, Spencer Murdoch, Le Minh Thuc Truong, Zhisheng Yin); Urban Water Park (bottom) (Credit: Student team: Bowen Ma, Spencer Murdoch, Le Minh Thuc Truong, Zhisheng Yin – Instructors: Leire Asensio Villoria, David Syn Chee Mah)

Students individually develop their own expertise in specific urban concerns but are tasked with developing a collaborative urban framework for these sites. This has helped cultivate sophisticated multi-systems frameworks. These include Xinru Liu's detailed designs for a tactical urbanism toolkit, which transforms what she calls suburban voids, such as the ubiquitous on-surface parking lots in Melbourne's suburbs (Figure 20).

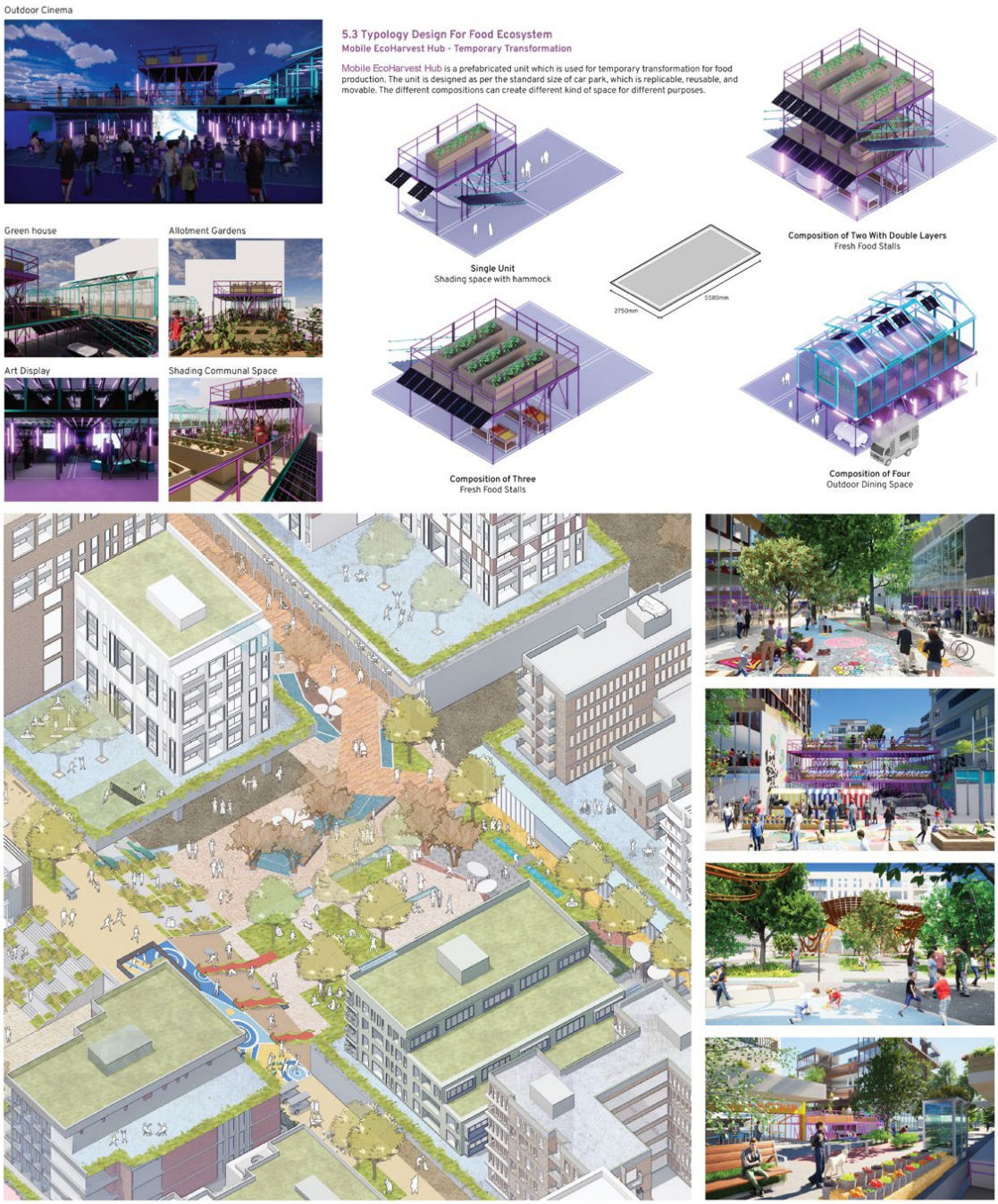

Figure 20 Tactical urbanism toolkit for carparks (top) (Credit: Xinru Liu); Activity Centre Design (bottom) (Credit: Student team: Ankita Malik, Xinru Liu, Rujie Zhang, Wenhao Zhang, Wanshan Li – Instructor: David Syn Chee Mah)

Nicholas Ots' proposal for studying the urban poche helped define how housing and the public realm may be regulated to produce compelling third spaces (Figure 21). Judy Huang's thesis on micromobility focused on the multiple scales at which it could inform the retrofit of a car-dominated outer suburban activity centre to integrate active mobility modes (Figure 22). Andrea de Silva's strategies for transforming large shopping centre multi-level car parking buildings from ubiquitous single-use structures into multi-functional and temporally dynamic programmed spaces. Learning from digital delivery platform systems: Yuning Zhou proposes a new logistical system for cultivating and distributing whole foods in Melbourne's outer suburbs, an area that can often be a fresh food desert (Figure 23).

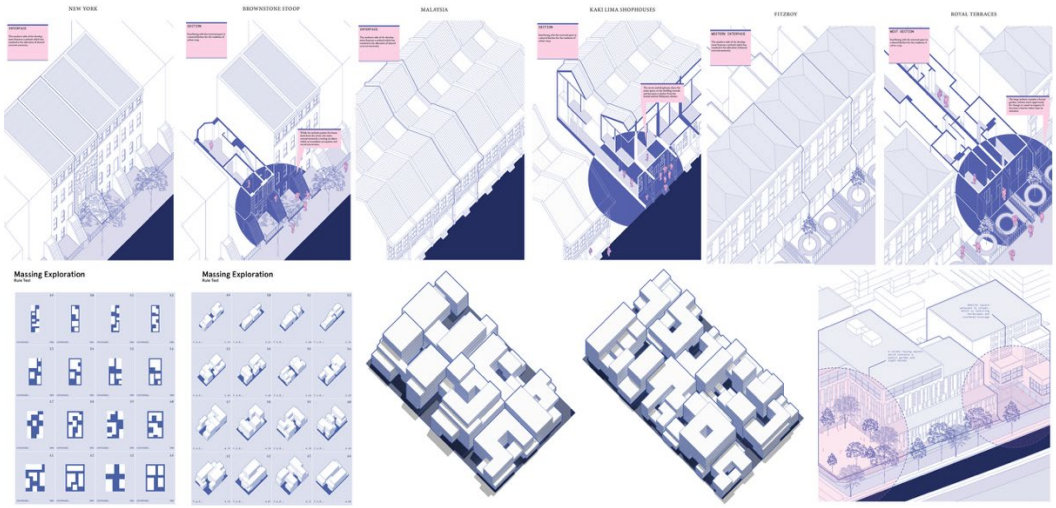

Figure 21 Urban Poche in Ringwood's Activity Centre (Credit: Nicholas Ots – Instructor: David Syn Chee Mah)

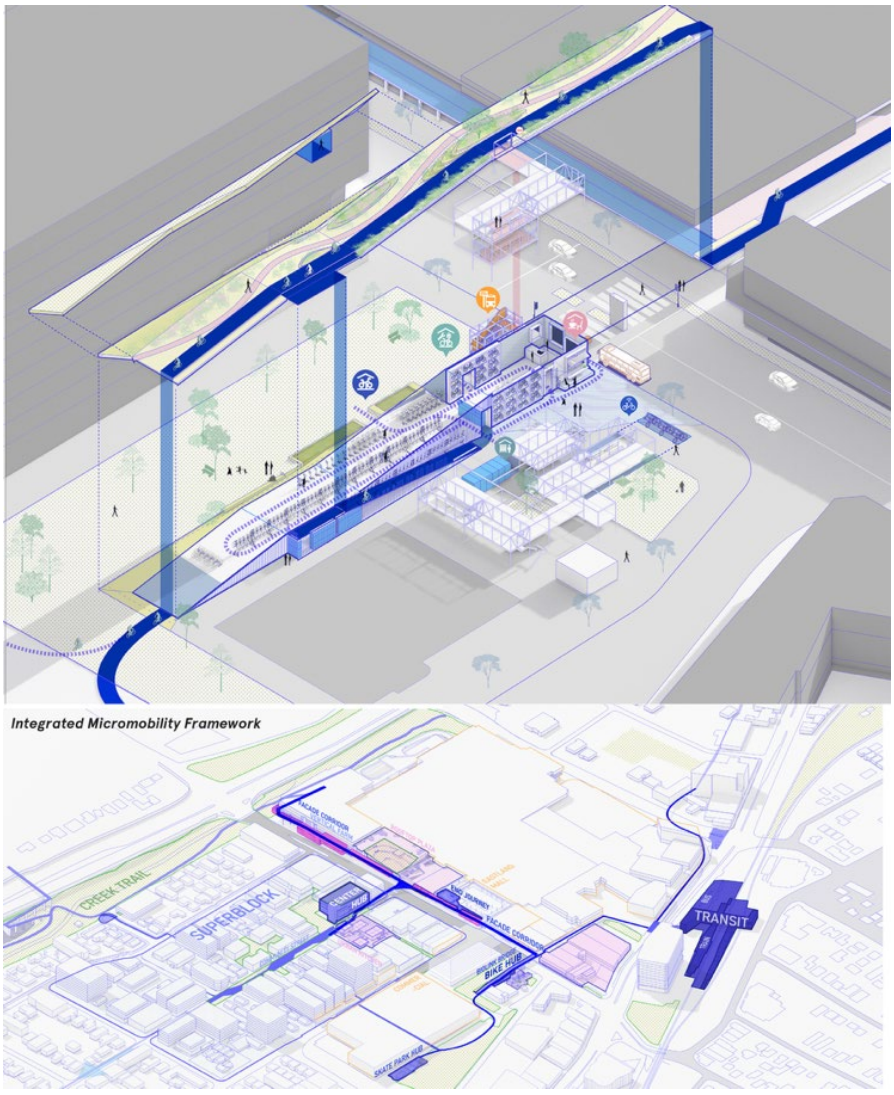

Figure 22 Micro-mobility in Ringwood (Credit: Judy Huang – Instructor: David Syn Chee Mah)

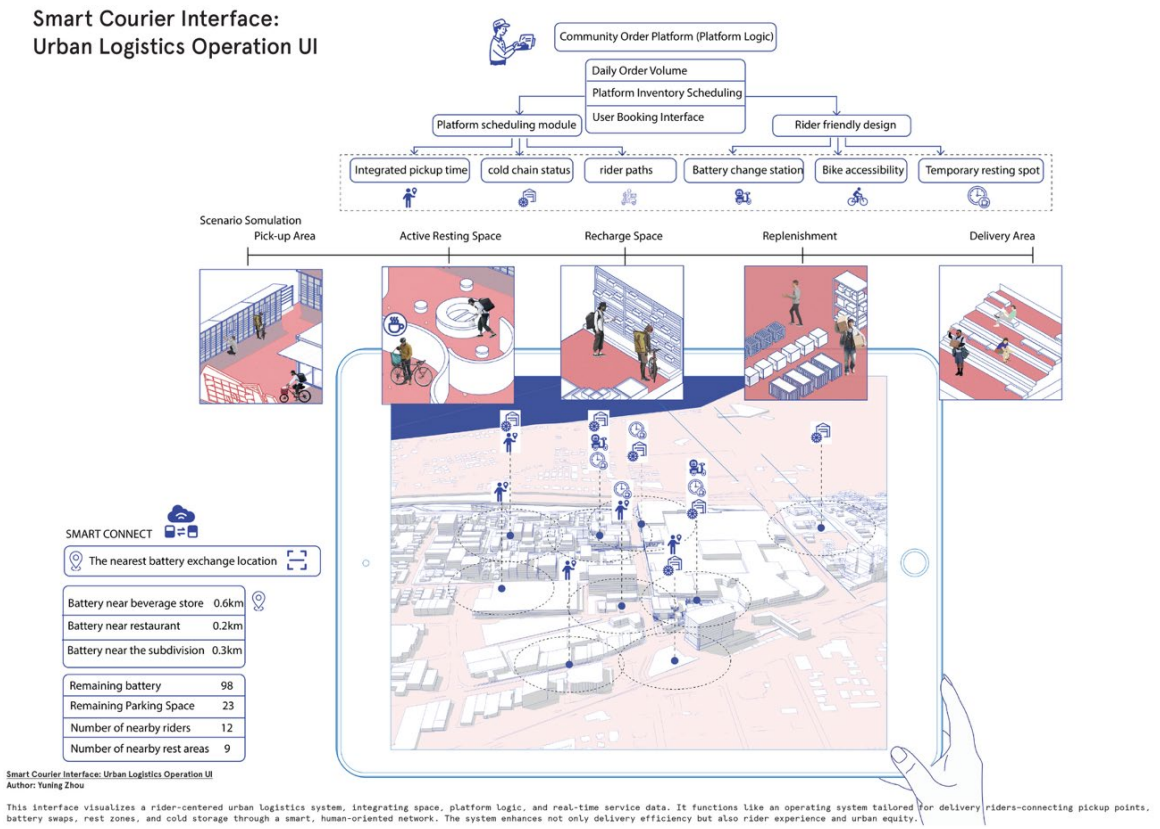

Figure 23 Access Fresh (Credit: Yuning Zhou – Instructor: David Syn Chee Mah)

As a collective response, students' research and proposals help define a multi-dimensional proposition for alternative urbanisation: a proposition to shift current practices and policies on city growth. This research is urgently needed to address the numerous challenges facing contemporary urbanisation while articulating urban practices that reduce our urban burden on the planet.

Overall, the thesis studio has been organised around both individual and collaborative research. Its structure challenges the dominant idea that a thesis is related solely to individual scholarship and places importance on collaboration and negotiation, while affording students the capacity to build individual mastery. Therefore, while this course affords students individually directed research, it also requires that each student negotiate with the concerns and systems brought by their peers through a group project in the second half of the semester.

The course is arranged to facilitate a wide-ranging engagement with the designated sites as students bring a range of their own interests to the collaborative development of an urban framework. Spanning between mobility, spatial justice, ecological, urban form, and tactical urbanism interests, amongst others, the thesis studio encourages and orchestrates a multi-level and multi-scalar proposal. Mirroring the idea that urbanism is sustained through the confluence of multiple concerns, processes, practices, populations, and materials, the course acknowledges that various values, authors, and stakeholders shape contemporary urban design. This also extends the capacity of these future urban designers to understand the complexity of each urban design site and problem. It expands urban design creative practice to a more complex yet grounded deliberation on the challenges of contemporary urbanism: a productive hybrid between research and design which neither the academic thesis nor design studio masterplan can support on its own.

6. A Way Forward: Prototyping Future Urban Design Studios

The Master of Urban Design program at Melbourne School of Design embodies a perspective for how future urban designers may think, work, and act in an era of unprecedented planetary challenges. Through the systematic progression across distinct studios, we argue for reimagining

urban design education that moves beyond traditional disciplinary boundaries toward collaborative, evidence-based and imaginative practice capable of addressing the urgent complexities of contemporary urbanism. Our grounded projection perspective creates space for radical speculation by drawing intelligently from systematic understanding of urban design practice and embracing the analytical rigour necessary for credible intervention. This approach is characterised by agility and openness in reframing contemporary urban concerns, allowing each studio to build pedagogical approaches that acknowledge the multiple lenses through which cities may be viewed and imagined. Rather than simplifying complexity, the program benefits from engaging directly with the multifaceted nature of contemporary urban design practice.

In a recent comprehensive examination of urban design programs worldwide, Yavuz Özgür and Çalışkan (2025) identified three primary pedagogical models in urban design education: normative pedagogy (focusing on systematic performative analysis of what constitutes good urban form), pragmatic pedagogy (emphasizing professional practice and real-world problem-solving), and exploratory pedagogy (engaging speculative scenarios and future possibilities). Their analysis of 70 international programs documented significant pedagogical variety that could be categorized according to these models. In this paper, we demonstrate that the Melbourne School of Design's Master of Urban Design program reflects each of these identified pedagogical approaches through its sequential studio progression, offering a comprehensive educational framework.

Studio A's role in developing a foundation for urban design is extended through a rule-based variation generation and multi-dimensional evaluation frameworks. It establishes the systematic analytical foundation characteristic of normative pedagogy and introduces students to the forms, systems, and practices which constitute the city. Studio B is informed by a social and political lens through which urban design and the city are viewed. It benefits from the industry-based studio leaders who bring current practice experiences engaging with the city’s communities, stakeholders, and governance. Students are tasked with developing an understanding of the social, cultural, and political practices that shape the city.

Studio C transforms analytical capabilities into speculative design thinking, applying evidence-based methodologies to 75-100-year temporal frameworks that challenge conventional planning horizons. As a complement to Urban Design Studio B, it is framed by an ecosystemic view of urbanism. This progression illustrates how normative, pragmatic, and exploratory approaches can complement each other when properly sequenced within an urban design program. Thus, MSD's sequential integration builds capabilities systematically across all three models within a coherent educational progression that prepares students to navigate the full complexity of contemporary urban challenges.

Melbourne's role as a living laboratory throughout the program establishes another crucial pedagogical principle: deep, sustained engagement with place generates cumulative student understanding. This approach demonstrates how repeated engagement with the immediate urban context enables students to develop the contextual expertise necessary for meaningful intervention. The city becomes not merely a site for design exercises but a complex system demanding long-term stewardship and collaborative responsibility (Figure 24).

The program's emphasis on collaboration between students across individual and collective design projects reflects an understanding that contemporary urban challenges exceed the capacity of individual designers or singular disciplinary perspectives. Thus, students learn that urban design operates through negotiation, compromise, and shared responsibility. They also recognise that urban design operates as a collective art, where creativity emerges through shared engagement between professionals and users across time (Marshall, 2016). This preparation proves essential for professional practice where technical expertise must contribute to larger collaborative processes.

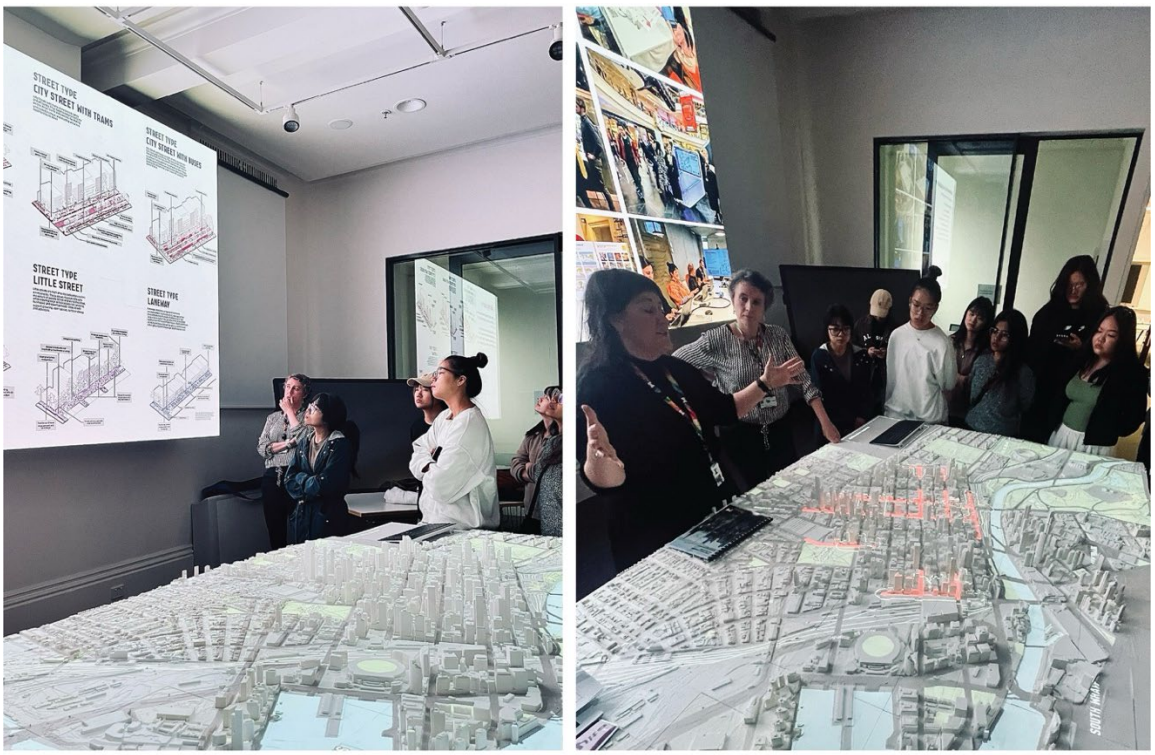

Figure 24 Students exploring the city of Melbourne's Future Street Initiative (Photos: Onur Tümtürk)

Perhaps most significantly, the program's futuristic perspective and temporal expansion in Studio C, from conventional project time spans to a century horizon, positions future urban designers to think beyond typical planning time frames toward ecological and planetary considerations. Since urban design decisions span multiple generations, this extended temporal thinking necessitates novel methodologies that foster imaginative capacities through nonlinear design approaches. Rather than following conventional linear design methods, Studio C consciously employs speculative image production and backcasting techniques that work backwards from envisioned futures to systematic design strategies (Çalışkan et al., 2020).

This studio-based progression, forming the pedagogical spine of the graduate program, operates within a broader curriculum structure that includes theory seminars, technical workshops, and elective courses. While this paper focuses explicitly on documenting the three sequential design studios and a thesis studio as the core pedagogical framework, we acknowledge that a comprehensive examination of how supporting courses interact with and reinforce studio-based learning would constitute valuable direction for future research on urban design pedagogy (Kamalipour & Peimani, 2025).

In recent years, studios conducted in the Urban Design Studios B and C stream have been supported to prototype future urban design studios that may form part of the ongoing focus of the program. This included a studio led by Leire Asensio Villoria, with Rose Hung (of the Urban Land Institute), speculating on how new technologies and infrastructural systems might impact the city more systematically.

In 2024, *Infrastructural Urbanism: Towards a Net-zero City* focused on projecting how electrified mobility, microgrid energy networks, and waste-to-energy systems may transform the city at a metabolic, organisational, and formal level. This included projects that proposed novel mobility infrastructures associated with electric vehicles, which also doubled as new social spaces in the city. The project by Judy Huang, Wanyi Zhao, and Yunning Zhou also offered multiple strategies, including retrofitting the city's current petrol station networks and providing tangible examples of

how brownfield sites may be reclaimed as locations for integrating these new infrastructures (Figure 25).

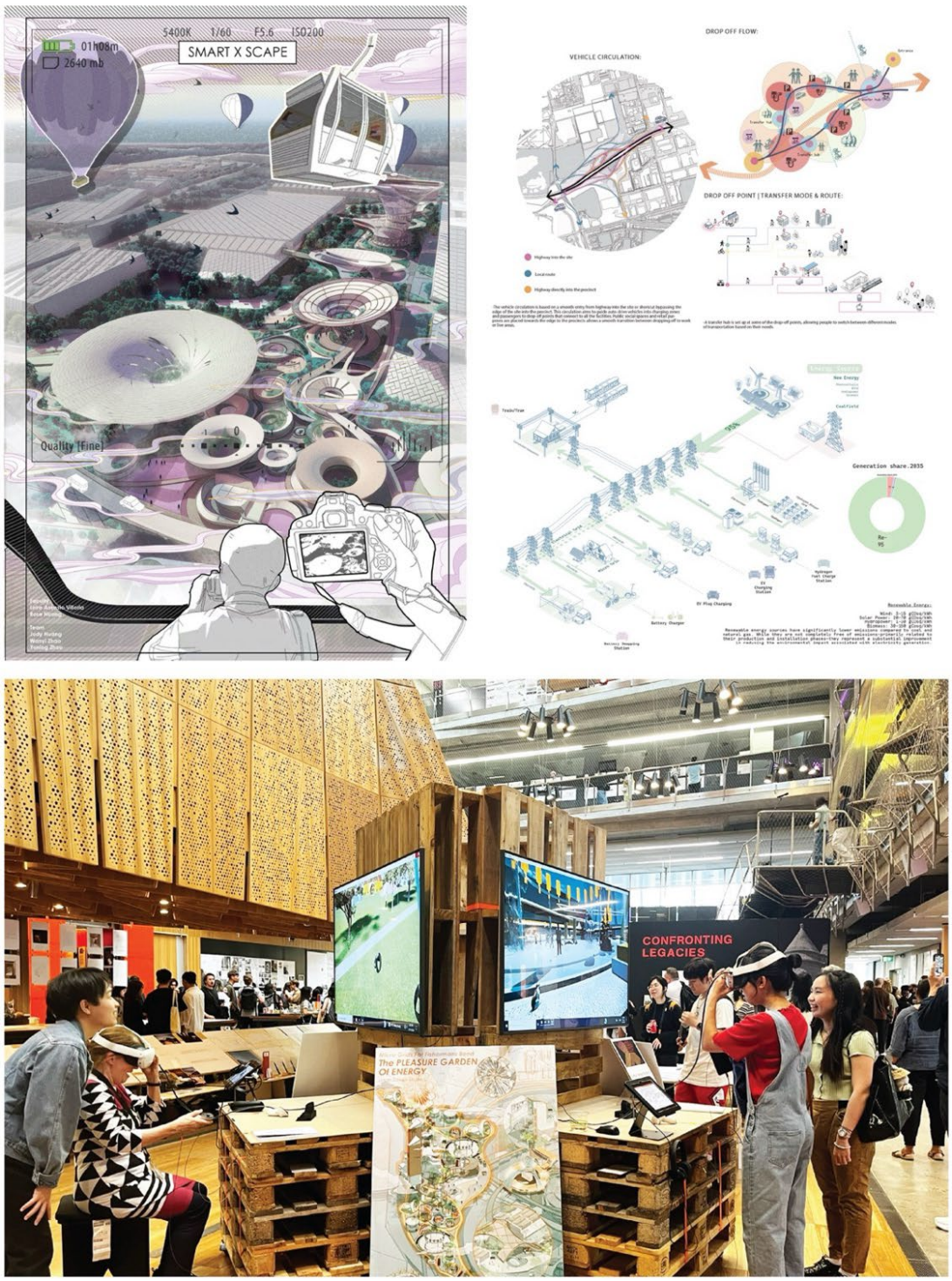

Figure 25 Student work examples from Infrastructural Urbanism: Towards a Net-Zero City (Credit: Student team: Judy Huang, Wanyi Zhao, Yuning Zhou- Coordinator: Leire Asensio Villoria- Instructors: Leire Asensio Villoria, Rose Hung)

Our sustained experience in coordinating these studios over multiple years demonstrates both significant strengths and areas that require further development. Studio A's systematic morphological foundations effectively establish shared analytical vocabularies, which are essential for subsequent work in the program. We continuously experiment with new digital tools (parametric modelling in Grasshopper, AI-assisted urban analysis, generative design applications, and VR-enabled spatial exploration) as pedagogical prototypes for engaging students with recent

technological transformation. However, balancing technical skill development with creative confidence-building remains challenging, particularly for students from diverse disciplinary backgrounds who arrive with varying levels of technological literacy. Moreover, the rapid evolution of digital tools, including GenAI applications in design, demands ongoing pedagogical adaptation to ensure students develop critical perspectives on technology's role in shaping cities.

Studio B's industry partnerships offer invaluable professional exposure, connecting students directly with current practice challenges, particularly in areas such as social equity, community engagement, and governance structures. Yet maintaining pedagogical continuity across different industry collaborators each year presents ongoing challenges, as each partnership brings distinct methodological approaches and project expectations that require careful integration with the program's broader pedagogical framework. We continue to develop frameworks that ensure consistent attention to the social and political dimensions of urban design practice, regardless of which industry partner leads the studios.

Studio C's extended temporal frameworks challenge conventional planning horizons, enabling students to think speculatively about climate futures. However, we recognize difficulty students face in developing credible long-term ecological scenarios without extensive prior training in climate science, ecological processes, and environmental systems thinking. This challenge highlights the critical importance of supporting theory courses on climate urbanism, ecological design, and environmental systems, which can reinforce studio-based learning.

These critical reflections reveal how MSD Urban Design Studios respond to interconnected contemporary urban challenges (technological transformations, social crises, and ecological emergencies) while acknowledging ongoing pedagogical development needs. Prototyping future studios demonstrates the program's commitment to remaining responsive to emerging challenges while maintaining pedagogical coherence. These experimental studios test how the established *grounded projection* framework can accommodate new concerns, technologies, and creative approaches while preserving core commitments to analytical rigour, collaborative capacity, and planetary consciousness. Recognising that design is simultaneously problem-solving and problem-making (Karakiewicz, 2019), these studios prepare students to understand that every urban intervention creates new realities even as it addresses existing challenges. As urban design education continues to evolve globally, the MSD framework offers one pathway toward preparing urban designers who can engage complexity, embrace emergent opportunities within uncertainty, and take collective responsibility for the planetary futures their decisions will shape.

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CRediT Authorship Contribution Statement

Onur Tümtürk: Conceptualization, methodology, writing – original draft, writing – review & editing, resources, visualization, project administration. Justyna Karakiewicz: resources, visualization, writing – review & editing. Leire Asensio Villoria: resources, visualization, writing – review & editing. David Mah: resources, visualization, writing – review & editing.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data Availability

Data will be made available on request.

Ethics Committee Approval

Ethics committee permission is not required.

Resume

Onur Tümtürk is an Assistant Professor of Urban Design and Morphology at Bilkent University and a Postdoctoral Research Fellow at MIT's Senseable City Lab. His research focuses on understanding how urban form conditions shape various processes in cities, bridging novel approaches including morphometrics, machine learning and spatial analytics. He has published extensively in leading journals such as Cities, Environment and Planning B, and Urban Design International. Onur's research has been awarded prestigious grants including the Fulbright Postdoctoral Research Grant (2025–2026) and the Marie Skłodowska-Curie Postdoctoral Fellowship (2026–2028). He received his Bachelor's in City and Regional Planning (2015) and Master's in Urban Design (2018) from METU, and his PhD from the University of Melbourne (2024). His doctoral research was recognized with the Melbourne Centre for Data Science Doctoral Academy Fellowship (2022), the Bharat Dave Prize for Novel Approaches in Design Research (2023), and the Dean's Prize for Research Excellence (2023). Prior to joining Bilkent University, he taught at Melbourne School of Design (2020–2024), coordinating Master of Urban Design and Architectural Design Studios and teaching specialised courses on urban morphology and design.

Justyna Karakiewicz is a Professor of Urban Design and Architecture at the University of Melbourne's Melbourne School of Design. Trained at the Architectural Association in London, she has held academic positions at the University of Hong Kong, UCL's Bartlett School of Architecture, and the AA, where she co-founded the practice PCKO. Her expertise lies in high-density urbanism, the subject of her doctoral thesis. She has exhibited work at the Royal Academy (London), New York, Kyoto, Barcelona and some twenty other venues. Her competition successes include First Prizes for Gateway to Mecca (1979), Crystal Palace Solar Housing (1981, built), Dunkerque Waterfront (1992, partially built), and Swansea Working Men's Club (1995, built), plus awards in the Royal Academy Summer Exhibition (2005), Central Glass International Competition (2004), and Modern Saudi House Competition (2004). She has published over 70 papers and book chapters, and three books: Making of Hong Kong: From Vertical to Volumetric, Promoting Sustainable Living: Sustainability as an Object of Desire, and Urban Galapagos: Transition to Sustainability in Complex Adaptive Systems.

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Constitutive conditions of transforming pedagogies in urban design: A critical reflection on METU MUD Studio (1996-2025)

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Olgu Çalışkan[**]

Abstract

This article investigates the constitutive conditions of urban design pedagogies through the case of the Middle East Technical University (METU) Master of Urban Design studios. Drawing on the distinction among pragmatic, normative, and exploratory pedagogies, the study moves beyond a typological classification to examine the contextual factors that shape these approaches in practice. Utilizing archival materials, course documents, interviews, and analyses of studio outputs, it constructs a periodization of pedagogical approaches and identifies the intrinsic and extrinsic factors that have informed their development. The findings highlight how urban design pedagogies are historically constituted through the dynamic interplay of these conditions, reflecting evolving contexts rather than fixed or static identities.

Keywords: urban design education, design studios, pedagogy, urban design thinking

1. Introduction

Urban design has long lacked a shared definition, unified theoretical foundation, or consensus on its scope and expectations. Positioned at the intersection of architecture, urban planning and landscape architecture, its intellectual grounding remains inherently hybrid with boundaries that are frequently contested and subject to appropriation by parent disciplines (Madanipour, 1997; Cuthbert, 2011; Gunder, 2011; Kamalipour & Peimani, 2019). The disciplinary position of urban design continues to shift among these related fields, whose trajectories have increasingly diverged. Over time, urban planning has anchored its legitimacy in the social sciences, often at the expense of its physical and spatial dimensions (Lang, 1983; Long, 2012). Architecture has reinforced its disciplinary authority through deeper engagement with the liberal arts, history, and critical theory (Dagenhart & Sawicki, 1992). Landscape architecture, meanwhile, has oscillated between its roots in agriculture and its design-oriented identity (Zeybek, 2025). Within this fragmented context, questions regarding the pedagogical foundations of urban design and what constitutes its distinctive hands-on educational practices remain unresolved.

Despite the steady rise in graduate programs worldwide, research on urban design studio education continues to lack a systematic understanding of its pedagogical characteristics. At the undergraduate level, urban design is often taught through pedagogies inherited from its parent disciplines of architecture and planning, drawing upon their established epistemologies. By contrast, graduate-level programs display a far greater variety and complexity in pedagogies. Each program tends to articulate a unique organizational framework shaped by contextual, institutional, curricular, and pedagogical settings, and design processes that vary according to scale, scope, theme, and method.

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Addressing this gap, our earlier research (Yavuz Özgür & Çalışkan, 2025) examined whether a coherent and unified notion of "urban design pedagogy" could be claimed. The study revealed that studio-based education, the core of urban design teaching, manifests multiple forms of structure and operation. Studios can be distinguished by their geographical focus, scalar range, thematic agenda, strategic orientation, and methodological approach, demonstrating that no single, universal pedagogy governs urban design education.

Within this diversity, three broad models can be distinguished in terms of their substantive and procedural frameworks. Pragmatic pedagogy emphasizes direct engagement with practice through real-life projects, service learning, and live design work. Normative pedagogy focuses on value-based design and research aimed at defining the qualities of the "good city" and desirable urban form. Exploratory pedagogy, by contrast, prioritizes speculative thinking and the imaginative exploration of alternative socio-spatial futures, often through representational experimentation.

Our earlier research examined these pedagogical types synchronically, examining them across different institutions at a single point in time. However, existing literature suggests that architectural and urban design education has been slow to adapt to broader transformations in design professions and societal contexts, if not actively resistant to them (Salama, 2015). This observation underscores the need for a diachronic perspective that investigates how pedagogical orientations evolve and what intrinsic or extrinsic factors drive such transformation.

In this light, the present study examines both the evolution of pedagogical approaches and the conditions shaping their transformation. (Figure 1)

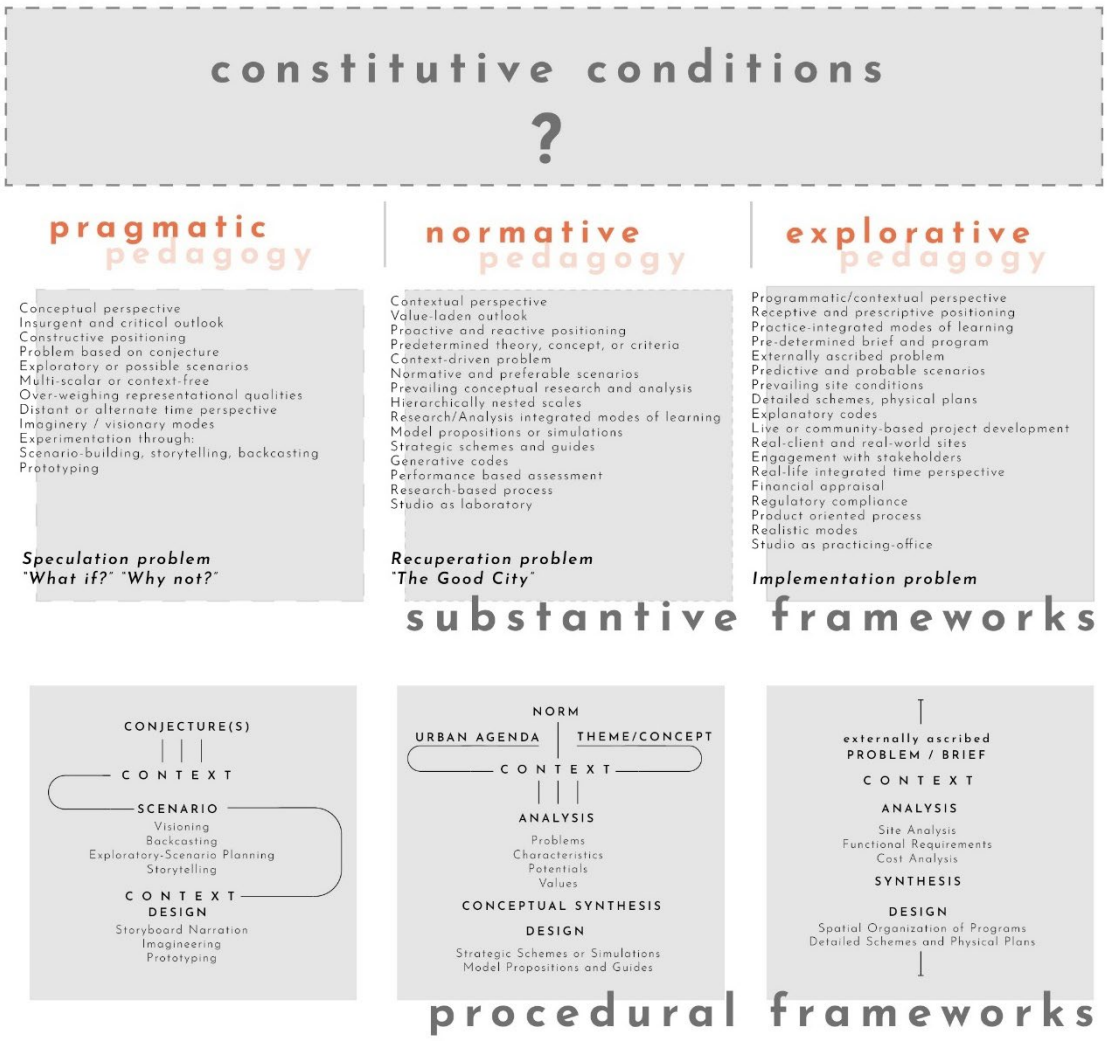


Figure 1 Substantive and procedural frameworks of urban design pedagogies and the search for their constitutive conditions

Adopting a case study methodology, it focuses on the Middle East Technical University (METU) Master of Urban Design (MUD) studios between 1996 and 2025. The program's thirty-year continuity, the availability of extensive archival and published materials, and its internal diversity make it a particularly suitable case for examining the evolution of urban design pedagogies. Drawing on archival records, course materials, and analyses of studio outputs, the study develops a periodization of pedagogical orientations and identifies the key factors that have influenced their transformation. In doing so, the study aims to reveal the dynamic formations characterizing urban design education as shaped by institutional, disciplinary, and contextual shifts. By situating these pedagogical transformations within their broader historical and institutional frameworks, the study contributes to a deeper understanding of how urban design education evolves as a reflective and adaptive field of practice.

2. Theoretical Background: Urban Design Pedagogies

In the context of the emerging pedagogies of urban design in which each program develops its own pedagogical orientation (Yavuz Özgür & Çalışkan, 2025), three distinctive models can be identified, both in terms of the substantive and procedural frameworks they employ.

Among these models, **pragmatic pedagogy** is most closely aligned with professional practice and tends to be structured around externally defined problems or goals. Studios adopting this approach typically engage in service-learning projects or practice-led studies, collaborating with actual stakeholders during the studio process. The design process involves identifying programmatic and spatial requirements, producing detailed design schemes, and preparing guiding documents, such as feasibility studies or financial appraisals, to support implementation as real urban projects. Since the studio responds to concrete demands arising from professional or community collaboration and feedback, the proposed design frameworks are inherently problem- or program-driven, oriented toward practical implementation and realizable outcomes within relatively short timeframes. Owing to its strong applicability and reliance on analytical and creative capacities, pragmatic pedagogy remains among the most prevalent approaches in contemporary planning and design education.

Within this framework, **normative pedagogy** prioritizes a context-based or thematic/conceptual inquiry aimed at articulating the principles of good urban form and engages with systemic or emergent urban issues. Studios adopting this approach function as laboratories for analyzing geographically and contextually specific challenges—whether urban, historical, peri-urban, natural, rural, or coastal—and for developing planning and design strategies to address them. Their outputs often take the form of strategic frameworks, design proposals, or guidelines that can be extrapolated to other contexts. Although normative pedagogy has less immediate application than its pragmatic counterpart, given its focus on structural issues requiring longer-term engagement, it holds growing relevance in light of today's social and ecological urgencies, which demand proactive and strategic responses from design and planning disciplines.

The third model, **exploratory pedagogy**, is characterized by its emphasis on speculation, imagination, and the development of hypothetical scenarios with strong representational depth. Studios following this model often emerge from a desire to challenge established paradigms, introduce innovation, and experiment with new design tools and methods. Their design processes are less constrained by existing contexts and instead explore alternative socio-spatial futures, sometimes projected into distant temporal horizons. In this setting, the studio operates as a scenario simulator, where "what if?" and "why not?" questions generate novel solutions and modes of representation. This approach reflects broader theoretical shifts in design, from analysis-led problem-solving to reflective, discovery-oriented processes. Although less common than the pragmatic or normative models, exploratory pedagogy is gaining relevance in an era characterized

by uncertainty, where urban societies and decision-makers increasingly depend on speculative and forward-looking design perspectives.

3. Methodology

This research aims to scrutinize, first, the organizational aspects of studio pedagogies and secondly, the underlying factors that characterize the pedagogical models. A qualitative method is adopted in researching studio practices in the case of the METU Master of Urban Design (MUD) Program, Ankara, Türkiye. Founded in 1996 as the fourth urban design graduate program in Türkiye, METU MUD provides a rich experimentational basis to follow the changing tracks of design pedagogies along with a relatively good record of works of the studios since then.

The paper, in this context, focuses on the following questions:

- In the specific context of METU MUD, what are the distinguishing **organizational frameworks and pedagogical models** in the historical trajectory of studio education?
- On a general basis, what are the **constitutive factors** that characterize these pedagogical models?

The data collection process is based on literature and archival research and interviews. The data was accessed from the program archive and from the secondary sources—i.e., Master of Urban Design Catalogue.01 (Çalışkan, 2016) and other studio publications (METU MUD, 2018; Akkar Ercan, 2019; Akkar Ercan 2020; Akkar Ercan, 2021; Çalışkan, 2018). Eventually, the trajectory of studio education has been discussed through examining through the assemblage of the course syllabi, assignment briefs, student works and coordinators' writings on studio experiences.

Based on the pairings within [tentative] criteria set extracted from international studio practices (Yavuz Özgür & Çalışkan, 2025) the organizational aspects of studio education have been specified and deciphered. (Table 1)

Table 1 Criteria Set to Identify the Organizational Frameworks

Context	Urban Peripheral Rural Historical Industrial Coastal Local National Global
Program	University campus design City Center Rehabilitation Housing development Industrial development Tourism development Post-recovery processes
Strategy	Conservationist Restructuralist Developmentalist
Aim	Problem-solving Problem-framing Research Setting a Model Exploration
Foothold	Realistic Innovative Imaginary
Method	Analysis-Synthesis-Design

	Conjecturing/ Scenario writing- Concept design
Frame of design interventions	Diversified Overlapping Complementary
Modes of thinking	Practical/pragmatist Descriptive Prescriptive Imaginative/speculative
Programming	Context and Scale-based Theme-based Strategy-based/Tactical Methodical
Object of design	Region Urban form and fabric Neighborhood Townscape Landscape Streetscape Public Space

After indexing the studio data in the form of a timeline, a periodic characterization of studio pedagogies and the constitutive factors changing pedagogical approaches was possible via a typological framework. (Figure 2)

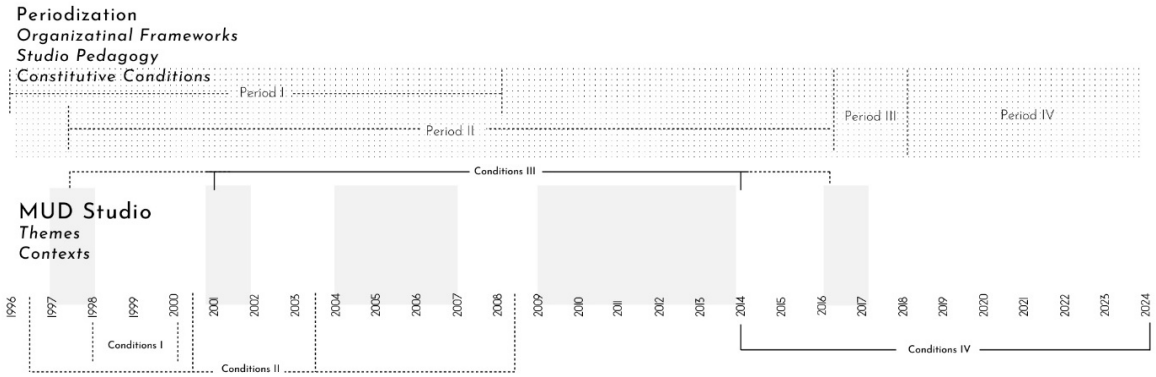


Figure 2 Diagram of the cross-reading of studio frameworks and the urban agenda

4. Findings: METU MUD Studio Education in the Last Thirty Years

The history of the education at of METU Urban Design Graduate Program presents two distinctive periods. The first period consists of the first two decades from the program's foundation in 1996 until 2014. The pedagogical scope of the urban design studio in this period included *pragmatic* orientation through service-oriented live project experiences for METU Campuses, limited yet foundational *explorative* experimentations and *normative* orientations based on coastal urbanism, and Ankara as an urban lab. The second period of the program presents a dual structure in studio organization on a semester basis with major themes and design processes.

4.1. The 1st Phase: Multimodal Foundations (1996-2014)

Pragmatic Pedagogy: Service Learning Through the Commissioning of Live Projects

The first decade of the urban design studio reflects a service-learning approach through university campus development projects commissioned by the administrators to the studio coordinators and faculty members. As the founder of the program in 1996, Baykan Günay played an active role in taking on these tasks within the scope of studio education. The fact that Günay was a member of the Spatial Planning Committee at METU had an influence on this. One of the events that led to the architect-planner co-working and co-creation culture at METU was elaborated (Günay, personal communication, 2023):

Lodgings were to be built at METU. First, a project was prepared by someone else. We didn't feel comfortable with it. We said, "Give us three months and we'll do it." And in those three months, together with architects Erhan Acar and Gönül Evyapan.[1] *That small group took on the job of designing the lodgings. And when that work was undertaken, it was a project in which architects and urbanists worked together. This is perhaps the first in the history of METU.*

Although ODTÜ Kent (METU Town) lodgment project was not undertaken in terms of the studio work, it created an environment where the design studio is operated to conduct real-world service-oriented projects in a professional multi-disciplinary setting. (Figure 3)

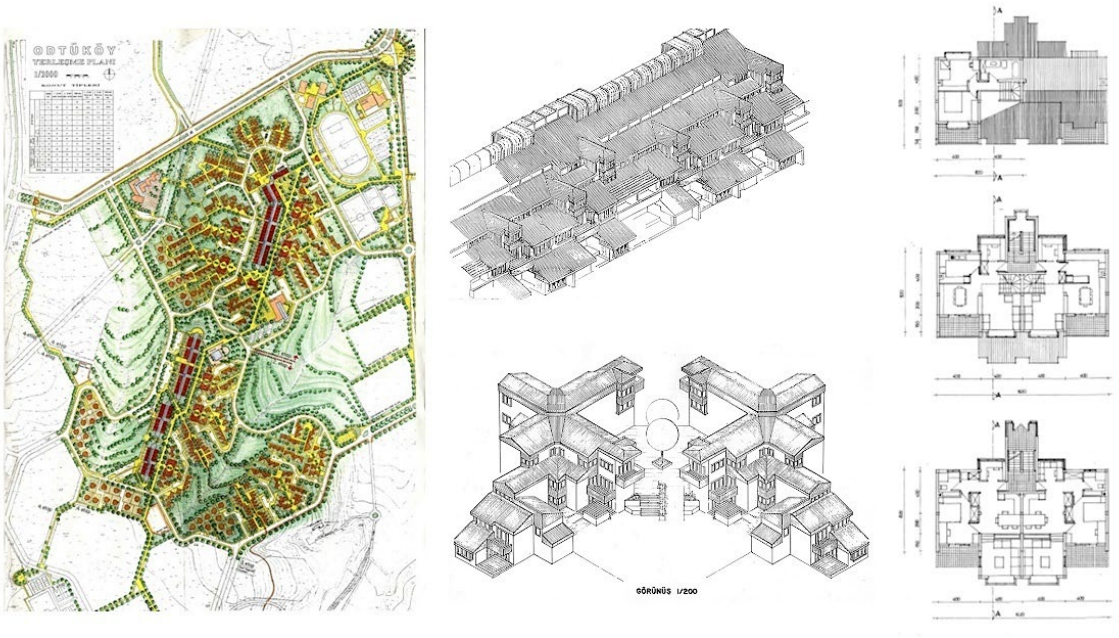


Figure 3 ODTÜ Kent (METU Town) lodgment plan layout, axonometric views of buildings and floor plans (Source: B. Günay, personal archive)

Then, METU Technopark Project (1996-97) and METU North Cyprus Campus (NCC) Planning and Design Project (2000-01) were conducted within the scope of the studio education in the following years based on this foundational basis. Taking on these tasks, the studio functioned as a practicing office in the realization of strategic projects of the university. Günay (Ibid) points out this as a kind of "practice, not theory, emerged from design studies."

The first year of the program's establishment in 1996 corresponds to the commissioning of METU Teknokent project by the program's founder, Baykan Günay implying the initial threshold for the program (B. Günay, personal communication, 2024). This project was integrated into the studio education, setting the first example of *service-oriented live project development experience* with the joint participation of architects and planners from inside and outside of METU. Architecture and urban planning students mixed in groups generated alternative design strategies and solutions based on structure, form and cost analysis and predictions of METU Technopark development. A typological design approach was adopted in the studio works in configuring plan-units for certain program requirements (Ünlü et. al, 2016). (Figure 4)

[1] The assisting design team included both architects and planners: Semih Halil Emür, Can Kubin, Tülin Özbiçer and Mustafa Dikeç as City Planners and Ayça Akçalı, Fatmagül Aslaner, Feruze Çetin, Erol Demirtaş, Didem Kılıçkıran and Yasemin Somuncu as Architects.

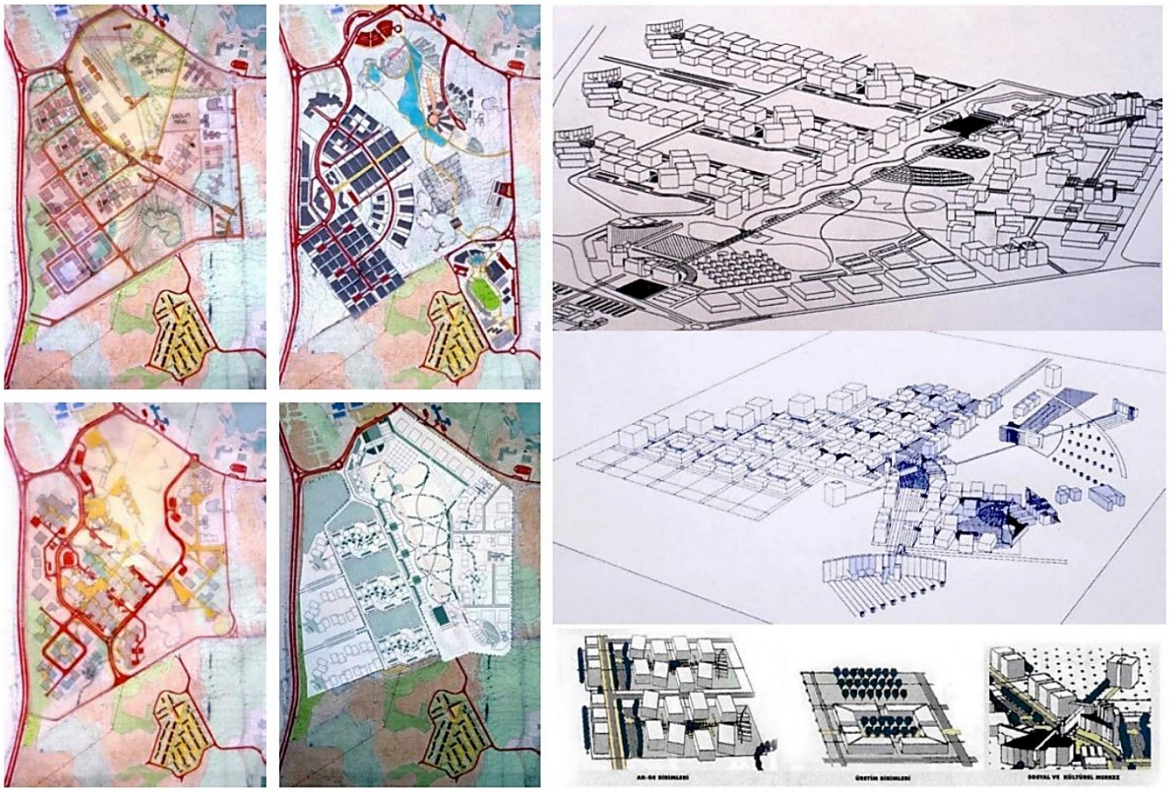


Figure 4 Alternative design strategies and solutions proposed by each student group for Teknokent development (above), typological design approach in configuring plan-units for certain program areas (below) (Source: Ünlü et. al, 2016)

The know-how on service-oriented and program-based studio education through development of university campus projects was reinforced with the commissioning of spatial planning and design of the METU Northern Cyprus Campus (METU NCC) to the faculty members who coordinated the urban design studio in 2000.[2] This opportunity was seized in the studio, which functioned as a design office whose major objective was to configure 'spatial organization of the program-based education' and utilization of 'urban coding as a tool for flexible and multi-actor planning and design process' (Baş et. al, 2016). To that end, different options were proposed as alternative plan layouts, and a unified master plan was developed as a synthesis of these alternatives. (Figure 5)

[2] These faculty members included Baykan Günay, Erhan Acar, Adnan Barlas, Özcan Esmer and Türel Saranlı.

Figure 5 METU Northern Cyprus Campus Planning and Design Project (2000-01) and the latest status of the implementation in the field within the framework of the plan as of 2024 (Source: B. Günay personal archive and Baş et. al, 2016)

A *typological approach* was adopted in *master planning* practice. In that regard, codes and guidelines on mass space relationships, architecture, landscaping, open space typologies based on topographic and climatic conditions, and program requirements were put forward.

Figure 6 Alternative design schemes (left and middle) and the final layout (right) of METU Kosovo Campus (Source: Acar, 2016)

The implementation of the METU NCC master plan produced within the studio setting marked a turning point for the program based on its 'practitioner' characteristics. This approach was further developed with the undertaking of the spatial planning and design project of METU Kosovo Campus in the studio framework. The major procedural studio strategy based on generating alternative development scenarios and model suggestions for the project at hand was reiterated. (Figure 6)

Normative Pedagogy: Emergency and Crises

Besides *practitioner mode* in the urban design studio, problem-oriented *care and remedy-oriented normative studio practices* were performed. This mode was activated for both developing solutions to long-standing problems and the cases of disaster. As one of the examples, the studio refocused on METU Campus in 1998, this time with a thematic framework on 'barrier-free urban design'. Reorganizing the campus pedestrian circulation based on universal and inclusive design principles and barrier-free comfort standards for all was the major objective of the studio. The student works included strategic plans identifying the overall design interventions on campus, and specific design solutions as detailed layouts for particular problematic outdoor spaces.

As another exampe of care and remedy practice, the studio concentrated on Gölyaka, a small historical settlement in the western Black Sea region which suffered heavily from the 1999 Gölcük Earthquake. The urban design task was required by the district governor. Generating ideas and proposals for post-earthquake urban redevelopment and recovery was the major objective of the design studio (Gürler, 2016). Developing earthquake-resistant architectural and urban morphological typologies as risk reduction strategies for the reconstruction of the settlement fabric and generating a regional strategy for the new urban character were aimed at (Figure 7). Design deliverables varied from an action plan, regional structure plan, master plan where strategic project areas are specified, as well as design codes and guidelines. An integrated urban planning approach and a holistic interdisciplinary perspective were adopted to develop *a model to be applied in similar contexts* in the search for earthquake resistance.

Figure 7 Alternative plan layouts and new typologies for Gölyaka urban fabric (Source: Gürler, 2016, and B. Günay, personal archive)

Interaction with the users, actors, stakeholders, or inhabitants have been one of the key avenues in gathering information for a systematic analysis. In the barrier-free campus design project, people

with disabilities were invited to the studio to learn the intrinsic features of their spatial perception from them and to address key problem areas. In the 'Gölyaka Studio', site visits, meetings with local government offices, and interviews with residents were conducted.

Explorative Pedagogy | The Need for Alternative Model Search

Alternative to the consolidated studio trajectory with program-based (campus) projects, *context-based* studio frameworks were launched, governed by the explorative mode of design thinking. As the program was established in 1997, Atatürk Forest Farm, a very significant natural and historical conservation site forming the green wedge of the city, was taken as a planning and design context. The decreasing coverage of the Farm, the incompatibility of new uses, and the underutilization of the existing areas and structures were addressed as major problems. Protecting the agricultural and cultural characteristics of the site, as well as generating a structural configuration for new programs, were the primary objectives of the studio. (Figure 8)

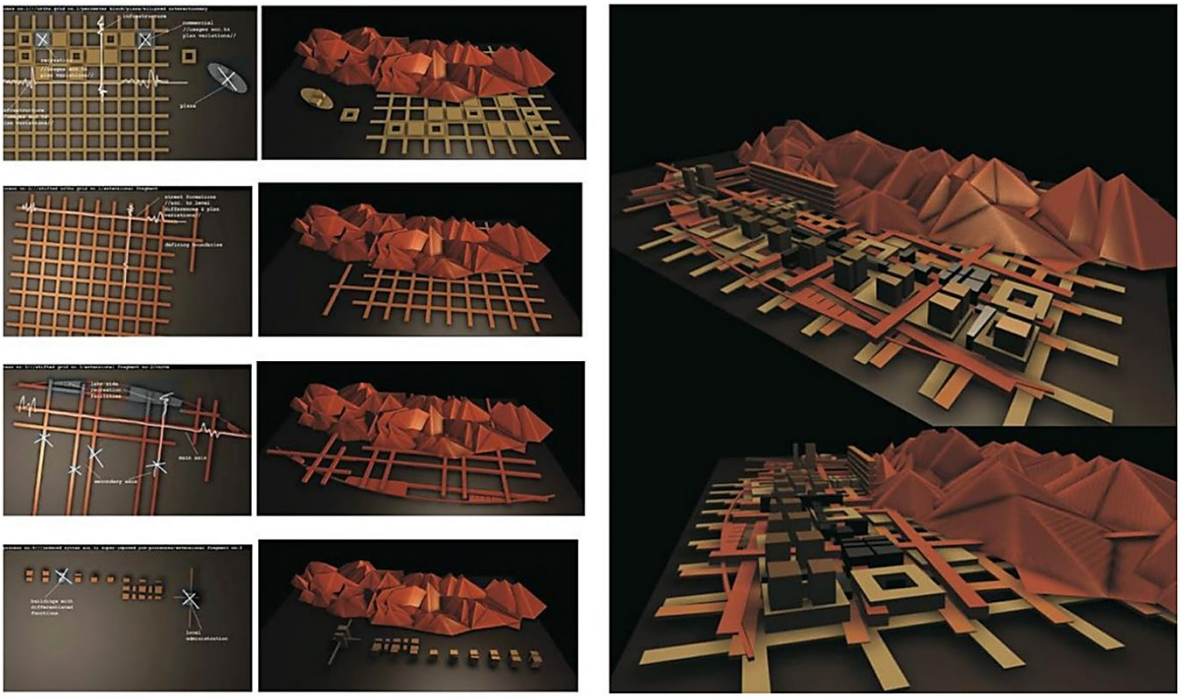


Figure 8 Structural formation of new compatible programs with the existing character of the design area (left), and the internal structure of the design proposal representing an avant-garde line of thought (right) (Source: Burat & Aksel Gürün, 2016)

Alternative strategies were developed as a structural plan in which main character areas were designated, and key policies and management frameworks were formulated (Burat & Aksel Gürün, 2016). It is noteworthy that an 'avant-garde' line of thought was adopted in studio works (Figure 6 below). Embarking on an experimental modality in the studio education after the Technopark design project with a realistic foothold signals an underlying flexibility in putting together an urban design studio framework in the following years.

This way urban design studio presented an explorative pedagogical orientation starting from its second year when the practicing mode was swiftly changed to an experimental modality taking Atatürk Forest Farm (AOÇ) the spatial context. AOÇ has been one of the most contested cases in Ankara that comes to the urban agenda frequently. The discursive theme of *'the disintegration of historical, cultural and natural land'* in the context of AOÇ unfolded in the News Bulletins starting from 2004 until present. In that sense, urban design studio preceded the public discussions in problematizing the decreasing coverage of the Farm, the incompatibility of new uses, and the underutilization of the existing areas and structures.

Between 1996 and 2001 the construction of urban design studio education had manifold premises. Starting with service-oriented and live project experiences in the beginning, the urban design studio later harbored problem-driven design processes and alternative representation modes. The studio frameworks shuffled between realistic and avant-garde footholds as well as programmatic, contextual or thematic orientations.

4.2. The 2nd Phase: The Dominance of Normative Pedagogy (2001-2014)

Influence of National Agenda: Coastal Design Studios: Peninsula Urbanism

The thematic focus of the studio education between 2001 and 2010 was coastal development in the context of small settlements located at the Aegean coast. Disintegration in coastal, urban-rural transect, uncontrolled developments, and the disruption of the unique spatial characteristics of the settlements were identified as the common problem areas in the context of Türkiye. Bozburun, Alaçatı, Eceabat Bodrum, and Ayvalık were some of the contexts that were integrated within this scope. Coastal design studios were not limited to Türkiye. *Overseas studios* were conducted on Pogradec, Doha, and Kyrenia as coastal towns, besides intrinsic contextual characteristics and problems. These overseas studios reflect an *internationalization* in studio education.

Through these coastal design studios, the relationship between the settlement and the sea, semi-rural characteristics, and the intrinsic features of urban fabric were scrutinized in the context of Türkiye. Conservation and consolidation of the existing urban fabric and establishing a planning and design framework for new development areas and waterfront development were adopted as major strategies. In Bozburun Studio (2001-2002), the conflict between spontaneous development and planning legislations was at the forefront. Design principles to guide the future development in consideration of the contextual characteristics of the town were proposed. Alternative planning and design schemes were produced by different groups accordingly.

Similarly, in Eceabat (2004-2005), transforming the Gallipoli Peninsula into a place of commemoration was identified as a context-driven theme. Integration of urban and rural areas, expansion of the existing settlement, and ecological sensitivity were aimed at besides waterfront development. The following year (2005-2006), Alaçatı located at Çeşme Peninsula was studied within the scope of the studio, taking integration of the center and the coastal area, consolidation of the urban identity, and cohesion between the different user groups were discussed by design.

Form exploration and new typological solutions derived from the existing building codes of the settlement were at the core of the design processes. Decoding urban identity and encoding spatial components into a new system of relations were the major design tactics. (Figure 9)

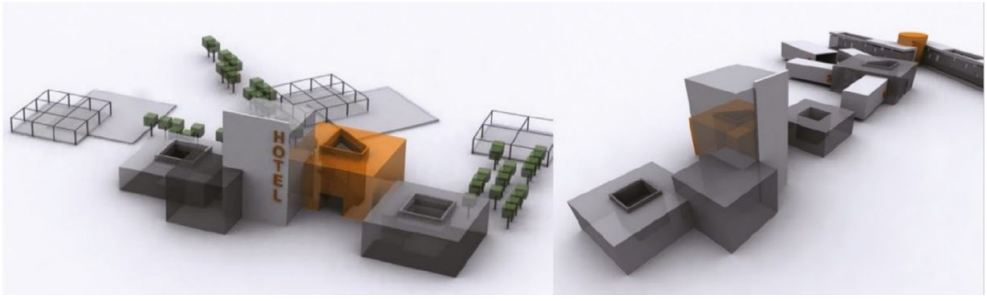


Figure 9 Form exploration based on decoding of existing form relations and encoding as new spatial configuration (Source: Şentürk, 2016)

Next year, in 2006, the major strategy of coastal development shifted towards *development control* in the context of Bodrum Peninsula. Natural and historical characteristics of Bodrum were delineated in developing a harmonious settlement pattern against the sprawled secondary housing development. Speculative mode of the design studio was reactivated, generating alternative thematic projects from either utopian or dystopian perspectives. (Figure 10)

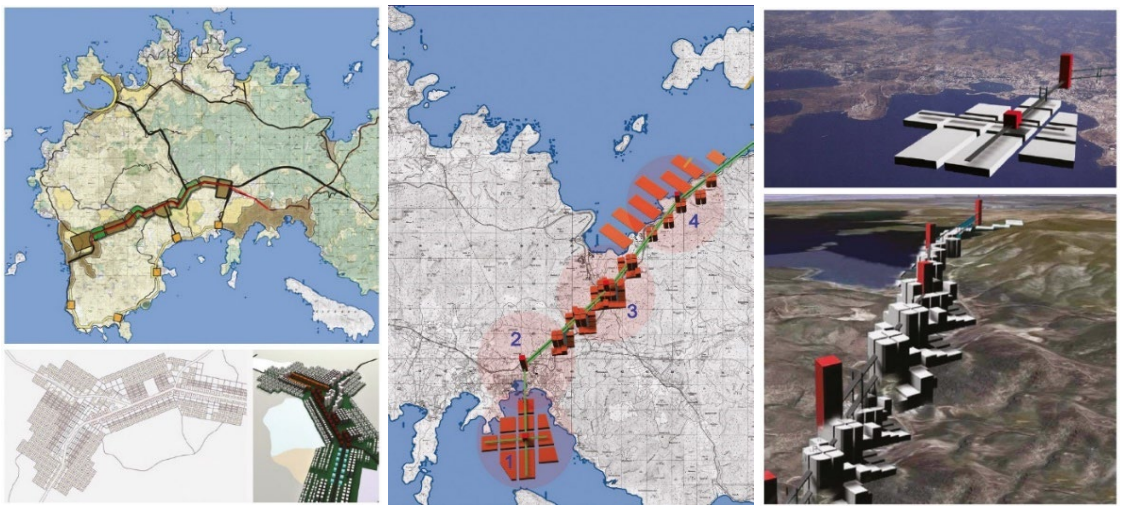


Figure 10 Selected works on structuralist approach (left) and mega structural approach (middle and right) as alternative development patterns produced with speculative design mode (Source: Kesim & Celep, 2016)

The northern Aegean region was later (2013-2014) taken as a design context as a continuation of the previous experiences on coastal urbanism. The overarching theme of the studio was identified as 'urban interface' as a state of transition in space. (Kesim Aktaş & Güldal, 2016). To that end, designing interfaces between the old organic traditional fabric and the new with modern high-rise buildings, between the derelict post-industrial sites and the surrounding urban fabric, and between various uses in the city were major objectives of the studio. A typological approach to urban form and design was reiterated as a design method in restructuring disconnected coastal fabric towards an integrated seaport district. (Figure 11)

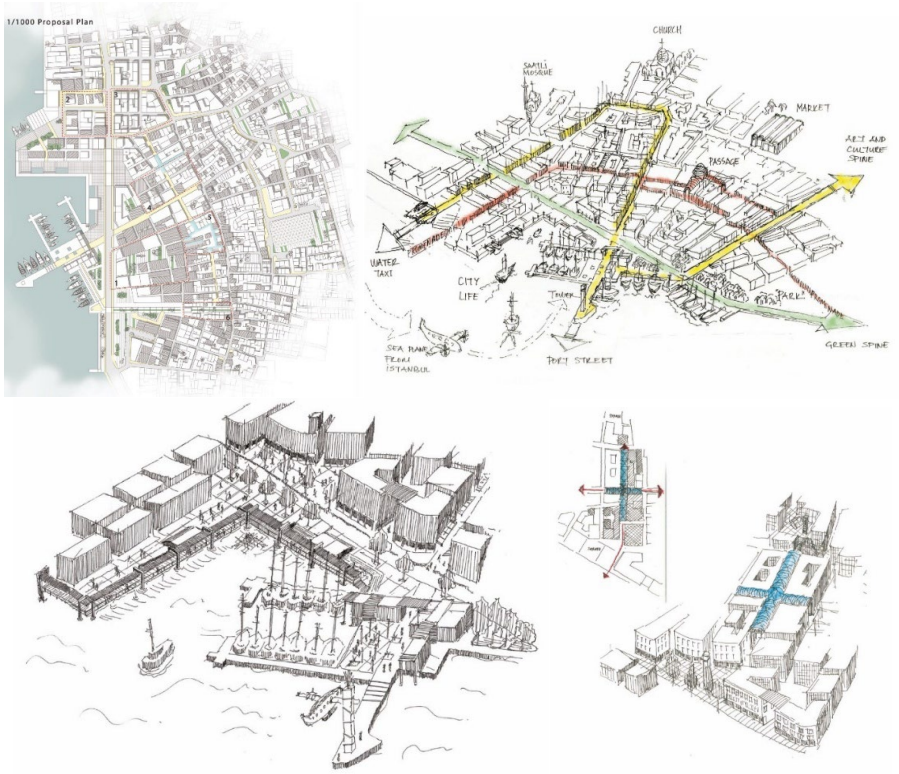


Figure 11 Integration of disconnected core urban fabric through the design of interfaces (above) and utilizing a typological approach in the physical configuration of urban interfaces (below) (Source: Kesim Aktaş & Güldal, 2016)

The same thematic focus was also pursued through overseas urban design studios in international contexts. Among them, the Pogradec Studio (2002-2003) reconsidered the post-socialist urban landscape and the problems emerging from this transition in the cities of Albania

(Alpan, 2016). Land privatization, uncontrolled development, migration, insufficient infrastructure, and unsatisfactory living standards were considered major design problems. Re-organization of the property structure, conservation of the historical core, and redevelopment of a new town center and a new residential district, and transformation of the fragmented urban block pattern to create an integrity via a series of codes and guidelines were studied by design. (Figure 12)

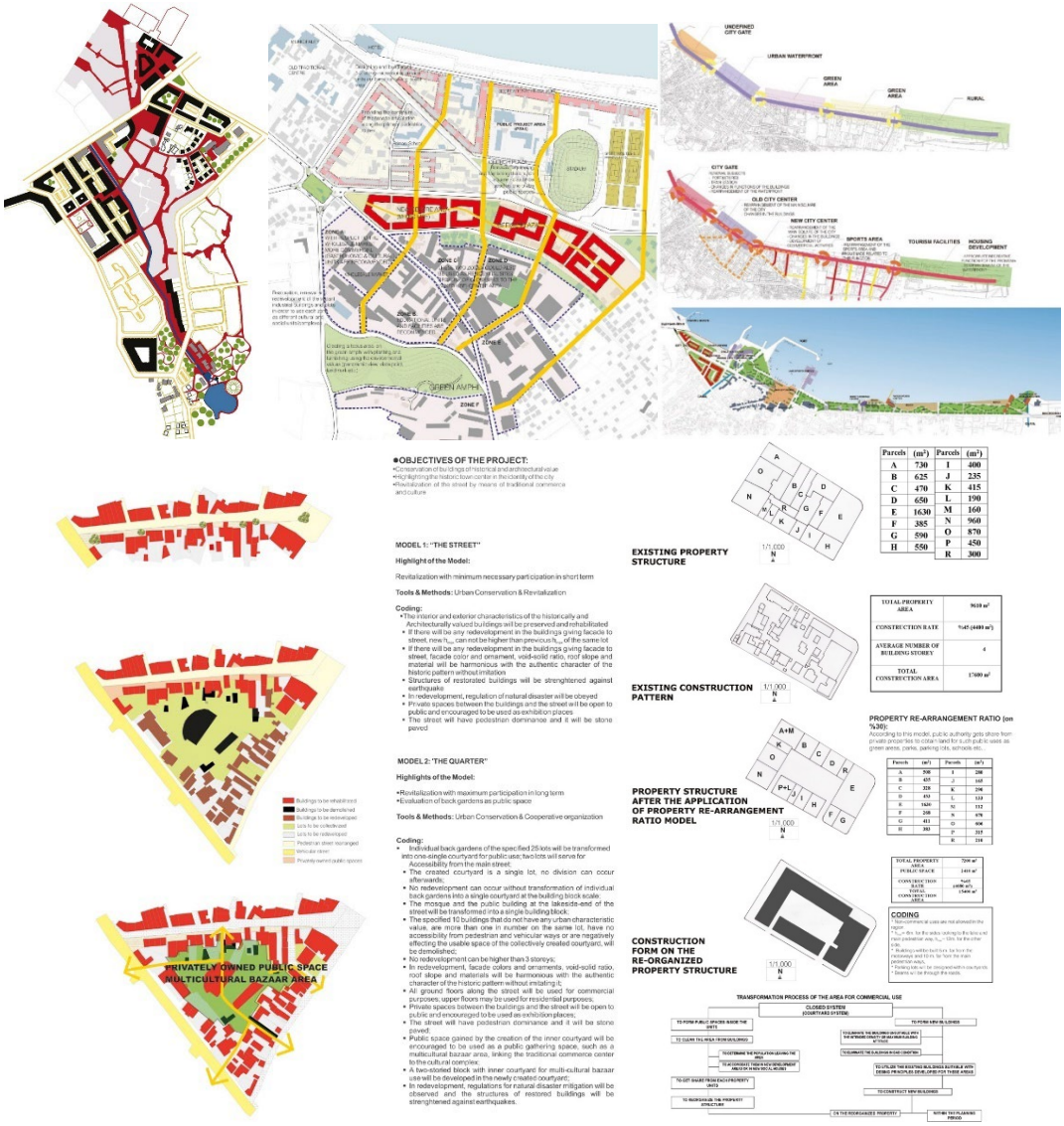


Figure 12 Design proposals for character areas such as the historical core, the new city center, and the lakefront strip (above), and design codes and guidelines for the transformation of the historical core and fragmented urban block formation in an integrated manner (below) (Source: Alpan, 2016)

The following year (2003-2004), another overseas coastal design studio was conducted in the context of Doha, Qatar. The selection of this city was due to the generation of design inventory and brief by the studio coordinators for the international competition organized by the Government of Qatar to transform Doha Corniche into an international center of arts and culture in the Gulf region (Severcan, 2016). Design of a pedestrian strip through the redevelopment and regeneration of the waterfront, enhancing the quality of urban life, and creating a cultural and visual identity were the major design tasks of the project.

As the last example of an overseas coastal urban design studio, Girne, a historic port city in the Turkish Republic of Northern Cyprus, was taken under scrutiny in 2009-2010. A comprehensive design study was conducted, including alternative regional structure plans displaying various visions, and a strategic plan on which strategic design project areas were designated. (Figure 11, above) Re-utilization of traditional building typology and infill development in restructuring urban

fabric, as well as configuration of new linear development pattern, were the major planning and design strategies. Detailed design layouts of these designated project areas as well as design codes and guidelines, were provided by the studio. (Figure 13)

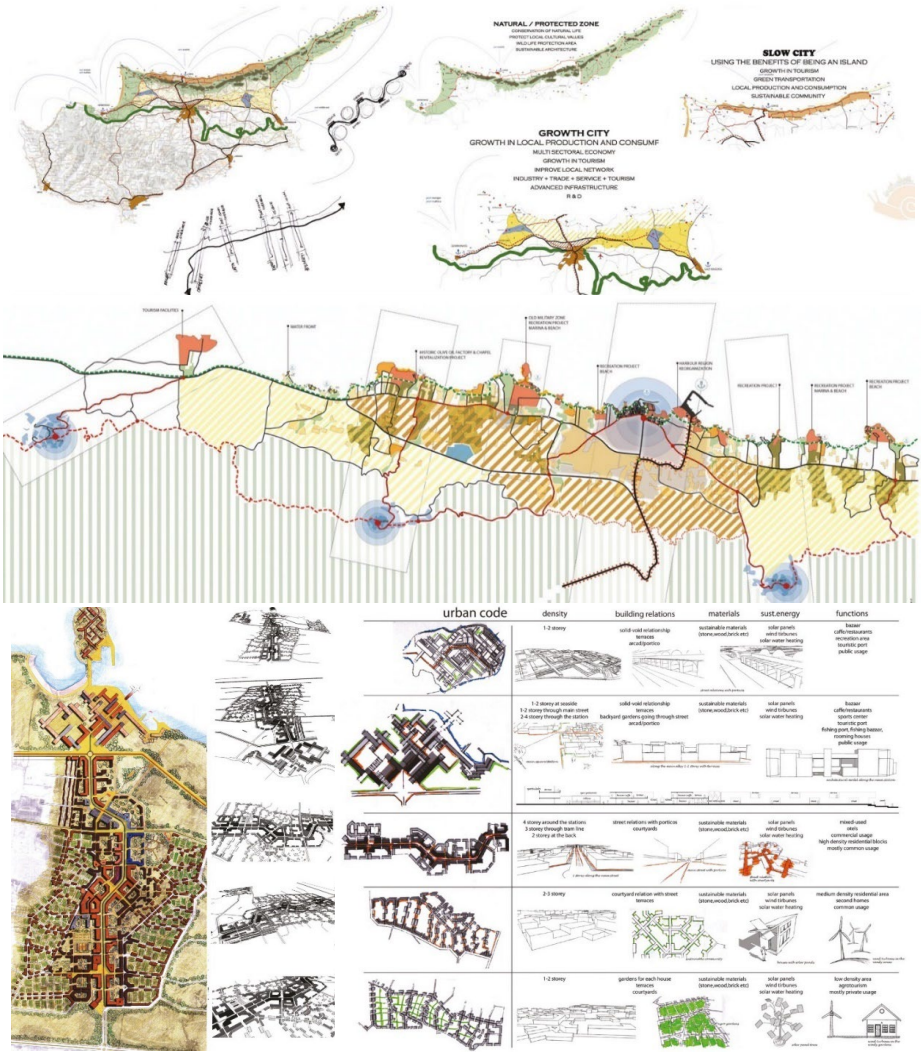


Figure 13 Regional structure plans demonstrating alternative spatial scenarios and strategic plan of Girne on which strategic design project areas were framed (above), and a detailed plan layout of one of the strategic project areas (bottom left) and urban guidelines and codes for developing specific character areas (bottom right) (Source: Memlük et. al, 2016)

In conclusion, an accumulated design knowledge on coastal design and 'peninsular urbanism' was methodically created between 2001 and 2010 through explorations into thematic coastal contexts by developing planning and design frameworks in various scales, through utilizing various methods, instruments, and representation modes. This essentially could be considered as a response to the actual urban agenda in Türkiye, where intensive tourism developments have taken place through changing rules and regulations as well as incompatible practices, creating disintegration of the rural and urban contexts, leading to rupture in ecological, archaeological, and cultural conservation since the 1970s.

Influence of the Emerging Urban Agenda: Ankara as an Urban Lab

The focus of the studio shifted towards Ankara from the coastal settlements between 2010 and 2013. The commercial center of the city (Kızılay), the planned new town (Batıkent), and Ankara's railway strip were the focus as design contexts. Among the studios that take Ankara as an 'urban lab', the reactive reflex was the most explicit in Kızılay Studio. Between 2000 and 2005 Kızılay and its close vicinity were located at the center of the public discussions in terms of its changing

functional and spatial qualities. Under the discursive theme of *'urban decay'*, the processes through which the city center lost its identity and characteristics of a central business district were problematized in the urban agenda. At this juncture, Kızılay was analogized to a 'heart' which needs to recover in the urban design studio (Cihanger, 2016). The ways to reproduce Kızılay as a CBD and art district through refunctioning and redevelopment were sought within that context.

The concept of 'heart' took up space in the agenda of the urban design studio for a while between 2010 and 2012 through the morphological study of sub-center development at Batıkent, one of the planned peripheral neighborhoods of Ankara. The studio set its thematic framework as 'urban morphology' based on the intrinsic and diverse spatial characteristics of the planned new town (Kerti & Özinanır, 2016). In this framework, first, a design framework was generated in a broader scope on which the whole studio agreed, then, alternative design proposals were generated via corresponding guidelines for new architectural forms and spatial typologies within each character area in the site. (Figure 14).

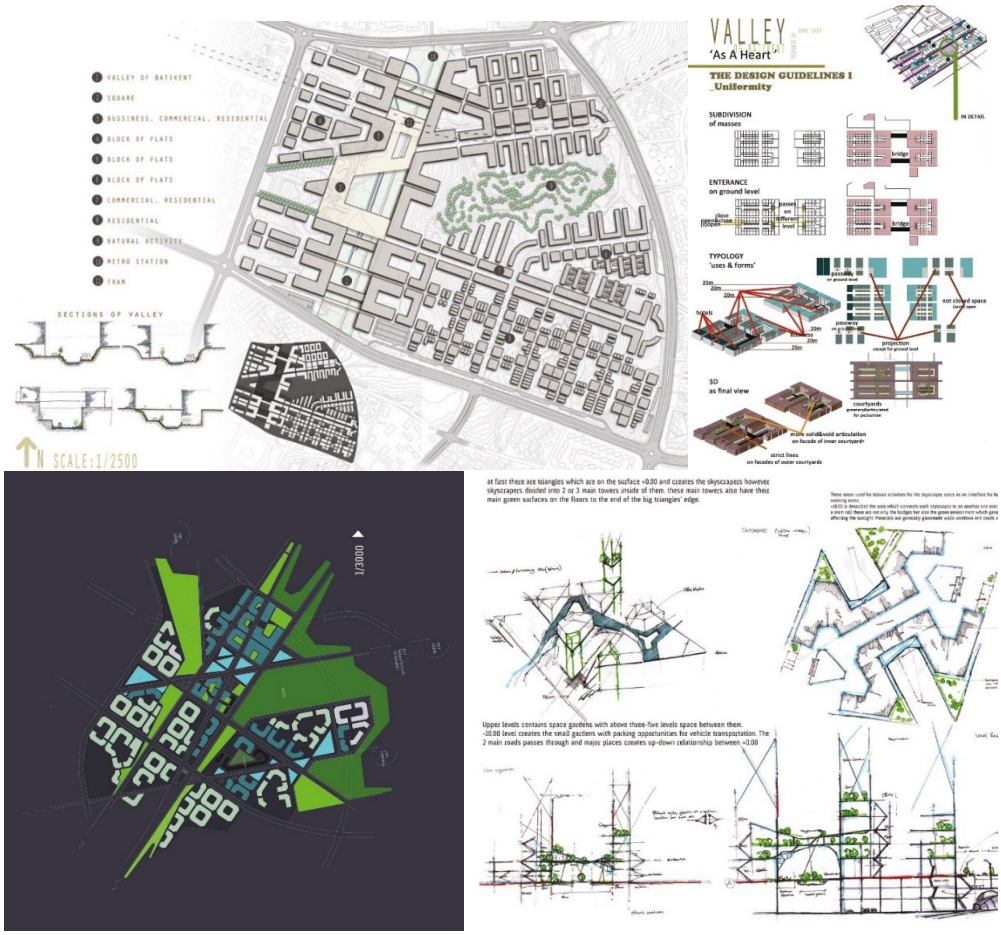


Figure 14 Detailed design proposals for the selected project area (upper left), urban codes for guiding the development (upper right) and conceptual design explorations through architectural forms and spatial typologies (below) (Source: Kerti & Özinanır, 2016)

In 2012-2013 Academic Year, the spatial context of the design studio was identified as the axis of Ankara Railway remained within the settled urban zones of Ankara. Though not explicitly mentioned in the projects, the selection of the theme as a design concept could be considered as a response to the problem of *destruction of industrial heritage* started in the 2000s. In this context, following research on different types of transformation within industrial sites in relation to railway infrastructure, a structure plan for the areas located around the railway line was provided to guide a series of focused design proposals for the designated sites corresponding to certain programs (Şanlı et al., 2016). (Figure 15).

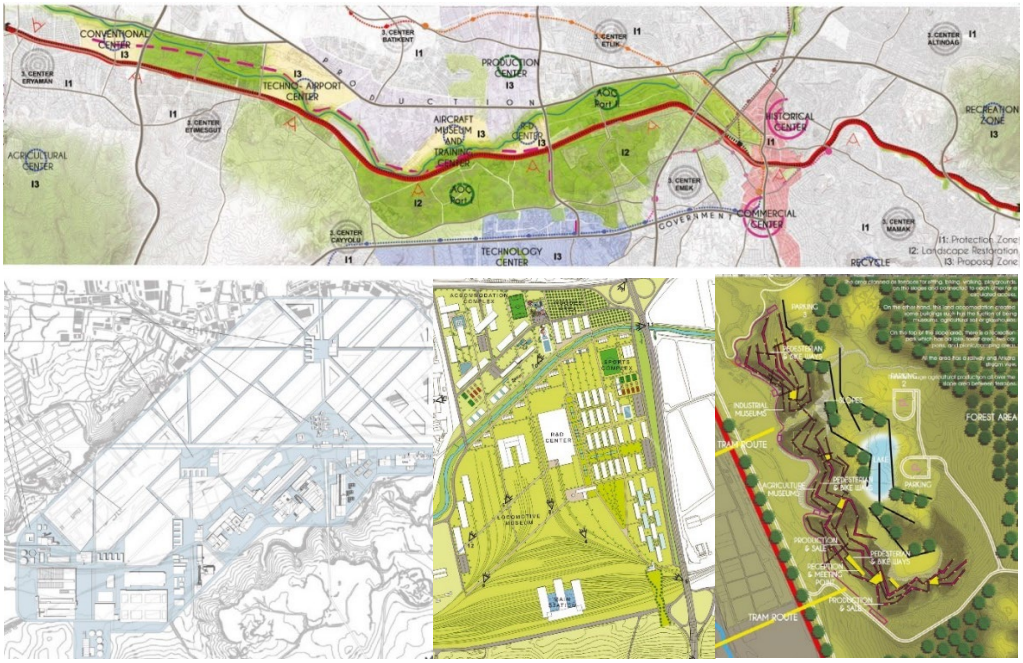


Figure 15 Structure plan including the areas of influence orbiting around the railway (above) and urban design project proposals for the designated program and character areas (below) (Source: Şanlı et al., 2016)

The focus on different parts of Ankara as the spatial context of the design studio indicates an *urban laboratory approach,* which could be traced back to the time when Atatürk Forest Farm was studied in the program's initial years. Finding solutions to 'real world' problems in Türkiye based on the reality of a specific context through situated and experiential knowledge has been a major endeavor in this period (Akkar Ercan & Barlas, 2016). It is noteworthy that in each design studio within this period, a certain reaction is developed to certain actual urban problems and practices. The studios functioned to generate conceptualizations and explore different scenarios and possibilities through fundamental planning and design implications instead of producing reparatory solutions. The major modus operandi of the studio was not roleplaying a practicing office but engaging in new explorations and conceptualizations. This approach paved the way for some radical shifts in the following decade of studio education.

4.3. The 3rd Phase: Explorative Pedagogy Revisited: Meta-Themes (2014-2018)

Via new participations in the studio staff, a certain shift in the organizational aspects of urban design studio education has occurred starting from 2014. The change in the organization of studio education presented both continuities and ruptures. In this regard, the basic approach of studio education and research tradition institutionalized in the first period was harnessed. This included the perpetuation of various tried and tested modes, including speculative design, generation of a knowledge basis on urban form, and formation through design exploration as the major task of the studio. On the other hand, significant changes were introduced in terms of thematic organization and methodological avenues adopted in the studio pedagogy. Within this context, 'design research' as the basic mode of studio education has transcended into 'research by design' within this period.

In this context, Parametric Urbanism Studio' (2014-2015) was the first attempt at setting up a studio framework with highly experimental content and methodology. The studio took the generation of urban form and explored underlying complex yet measurable relations in its morphology. To that end, while *decoding* was utilized to understand the morphology, *coding*, which had already been experimented with during the previous period, was implemented to control the design of urban form (Akman et al., 2016). Following this, form indicators were identified, such as visual and physical accessibility, compositional variety, passive heating, comfort and safety, and functional diversity, to assess diverse relations on a performative basis. One of the novelties

introduced in this period was that the research by design was not conducted based on a specific context or a project site. The abstract language of (de)coding had a very generic character, independent of a certain spatial context. (Figure 16)

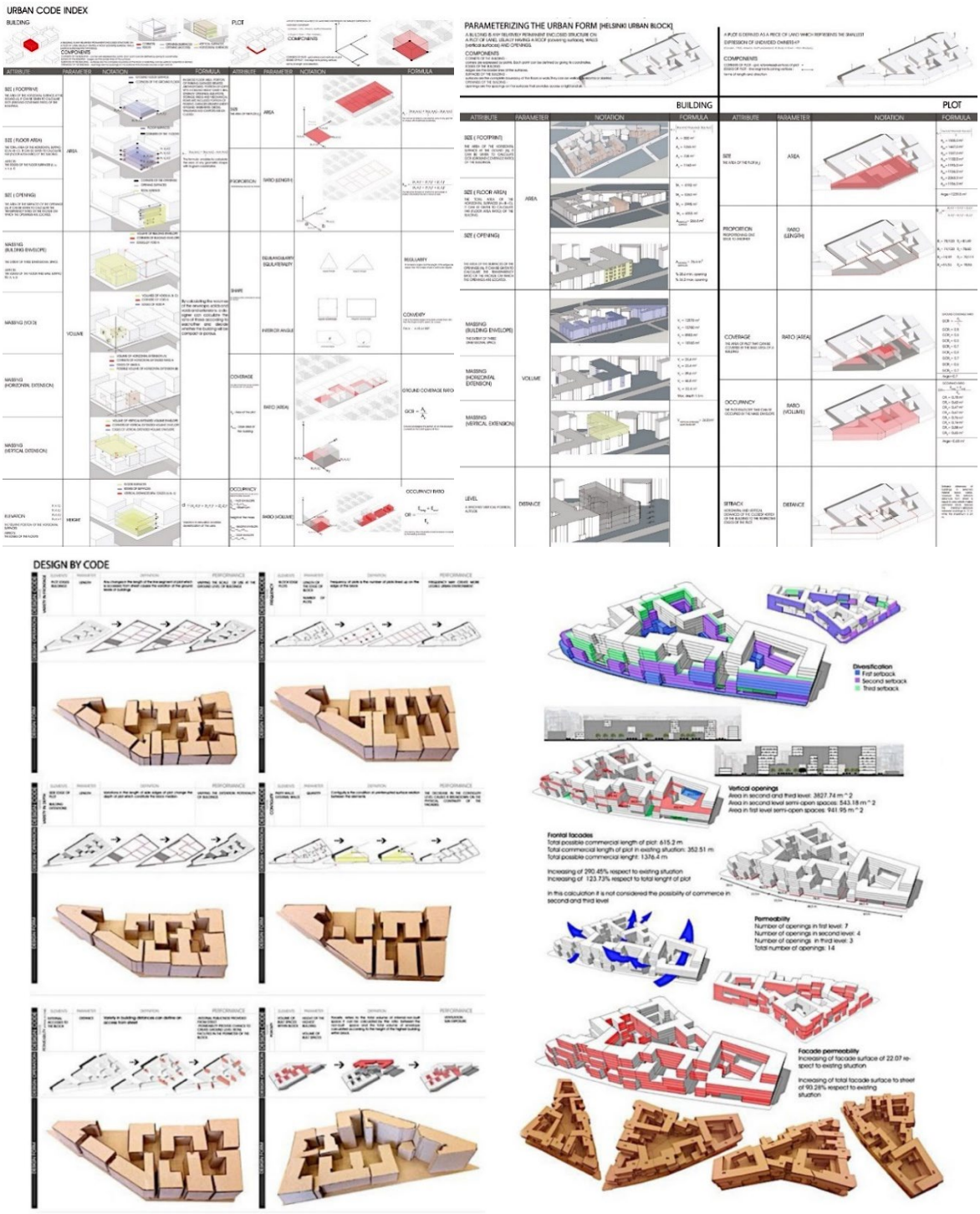


Figure 16 The 'code index' constituting the parametric components of the urban block, plot and the building (above) and some design explorations through parametric operations and form indicators defined in the previous semester (below) (Source: Akman et al., 2016)

In the second semester, certain urban block formations on multiple property patterns in İstanbul were selected to test the developed codes. (Figure 17) In this case, the design context (urban ensemble) was considered just an experimental framework without delving into its socio-cultural or environmental characteristics. The major aim, in this scope, was not to develop site-specific design proposals on programmatic, problematic, or thematic bases, but to test the generative

capacity of the code through 'form exploration. This implies a non-structured (open and flexible) and *methodology-based* urban design studio pedagogy, integrating design into research.

The following year, through the setting of 'Futuristic Urbanism Studio' (2015-2016) the experimental organization of urban design studio was pursued with a twist. In this case, the organization of the studio was *theme-based.* On the 500th anniversary of Thomas More's Utopia (1516), the utopian tradition in urbanism was reexamined through the lens of urban design. The overall process in the studio was conducted as a form of researching the possible conceptions of future human settlements by futuristic design. In this framework, 'futuristic thinking' in design was organized in two phases. In the first semester, students were invited to experiment with the imagination of utopian settlements through fictitious designs situated in an indefinite space and time, approached in a highly flexible manner. In the second semester, however, they were asked to develop speculative design scenarios for the Ankara city-region in 2055. In this case, the specific temporal framework guided the designers toward more tangible spatial forms, which, in turn, could be systematically presented from a morphological perspective. (Figure 18)

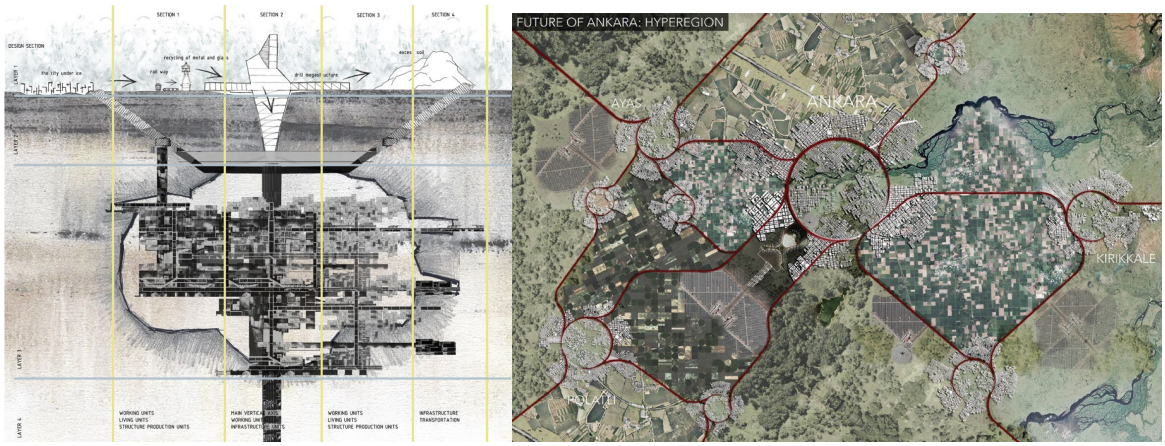


Figure 17 As an example of imaginary design, an underground settlement responding to the future scenario of catastrophic climate change on Earth (above), and the proposed future form of Ankara in 2050, decentralized by the new transportation system of 'hyperloop' at the regional scale (below) (Source: Tümtürk, 2016)

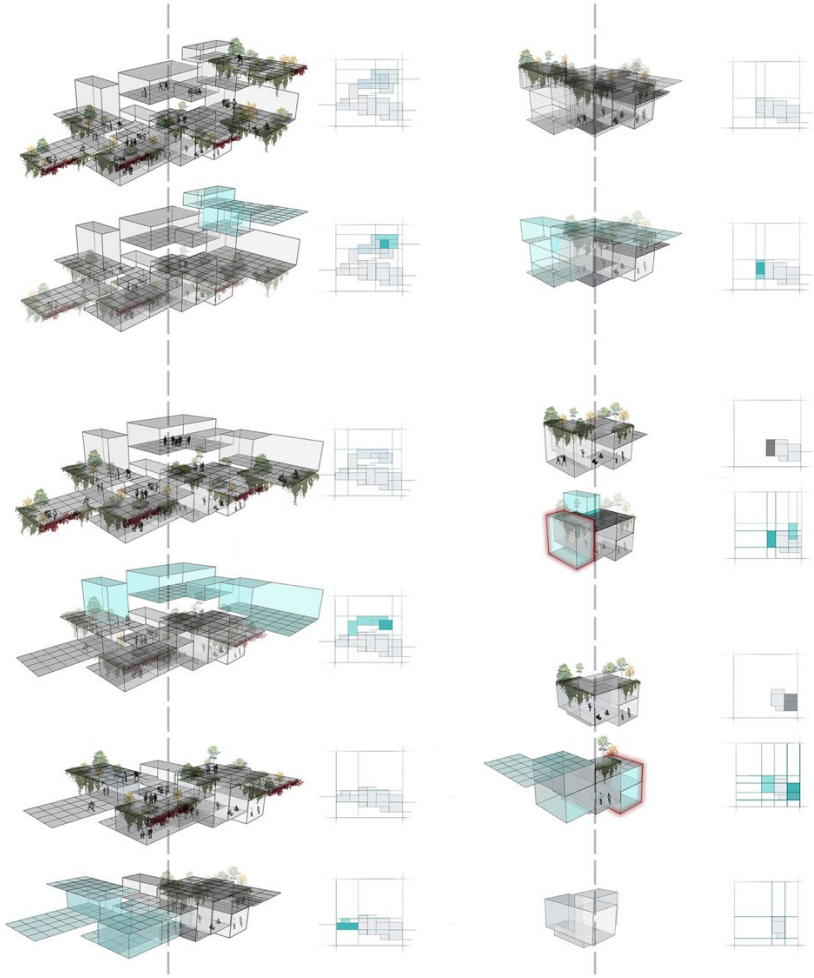


Figure 18 The visual collage, as a conceptual image of an envisioned scenario for Ankara, provided by the designer at the very beginning of the design process (above), and the modular growth of the settlement fabric simulated in progressive phases from the end to the first stage of the formation process (Source: I. Yavuz Özgür's personal archive, 2016)

The alternative mode of thinking, which was not a common convention in contemporary urban design education, has been realized by an alternative procedure based on the 'backcasting' technique. Accordingly, having recognized the difficulty of coming up with a concrete idea of a future form of the city in the far future, the students were asked to generate a visual collage, first, as the conceptual image of the envisioned scenario for Ankara in 2050. (Figure 18 above) Then, the imagination of alternative compositions of the future settlement cognitively would be more practical. In this way, the imaginary form of the city could be re-presented through all the morphological components involved. (Figure 18 below) This method, in turn, has been conceptualized as ***imagineering***, a model approach for futuristic design thinking in urbanism (Çalışkan et al., 2020).

The conceptual design skills that the studio experienced during this period were presented to the general public through the Future Ankara | Zukunft Ankara Exhibition, held in the city center in collaboration with the Goethe-Institut Ankara[3]. (Figure 19)

[3] Curated by Duygu Cihanger Riberio and Olgu Çalışkan, with advisors M. Adnan Barlas, Z. Müge Ercan Akkar, Cansu Canaran, and Serdar Özbay, the exhibition's participating designers were Y. Baver Barut, Süleyman Demirel, Eren Efeoğlu, Ecesu Eşmen, Astera Galali, Berçem Kaya, Duygu Kalkanlı, Ali Emre Karabacak, Merve Özen, Begüm Sakar, Ebru Şevik, Hatice Taş, Onur Tümtürk, Irmak Yavuz, and Mert Can Yılmaz.

Figure 19 Future Ankara | Zukunft Ankara Exhibition, prepared by METU Urban Design Graduate Program and opened on January 14, 2017

In the 'Recovery Urbanism Studio' (2016-2017), the theoretical and conceptual problem framework of the studio had to be replaced with real and acute urban problems. Following the destructive military conflicts taken place within some city centers in the southeastern region of Türkiye during 2015, the subject matter of the design exploration and research was identified as the recovery of the torn living fabrics during the post-conflict processes. In this context, Suriçi, the historical core of Diyarbakır, harshly destroyed after the intensive conflict and systemic 'clearance' of the site, constituted the context of the research by design. The major concern of the studio was "regeneration of the dynamism of the everyday life within the intrinsic complexity of the traditional urban fabric, and development of the responsive approaches on physical design and programming in the way of generating proper spatial solutions to enable the productive and creative capacity of the local community" (Çalışkan, 2018). To that aim, conceptual research on conflict and urban warfare was conducted at the outset of the study. Later on, strategic transformation and regeneration models were developed. (Figure 20)

Figure 20 A conceptual model for the recovery of the torn fabric from a contextualist perspective (Source: Çalışkan, 2018)

The semesterly organization of the studio education was unique in terms of developing a conceptual model approach first, then improving this model by delving into the corresponding socio-economic and morphological structure of the peculiar traditional context. Based on everyday life and spatial practices, not only *form* but also *formation* processes as constituents of the urban space were considered as design inquiries.

At the end of the academic term of the 'Recovery Urbanism' Studio took an opportunity to discuss such a politically sensitive issue publicly from an urbanist perspective via a panel titled, 'Destruction, Planning and Design' at METU Faculty of Architecture on 12 May 2017 (Çalışkan, 2018).

The following year, the theme of the 'Peripheral Urbanism' Studio (2017-2018) did not imply an urgent urban agenda, but an actual problematique of sprawl within many rapidly developing cities in Turkey. Among them, Döşemealtı, the emerging peripheral development of Antalya, in this context, was specified as the case study of the studio. Development control on the hybrid settlement forms emerging at the urban and rural interface and defining alternative urban-rural transects to achieve spatial coherency in an ecological setting were the major objectives. Utilization of the property pattern on the cadastral land formed a concrete basis guiding planning and design decisions (METU MUD, 2018). (Figure 21)

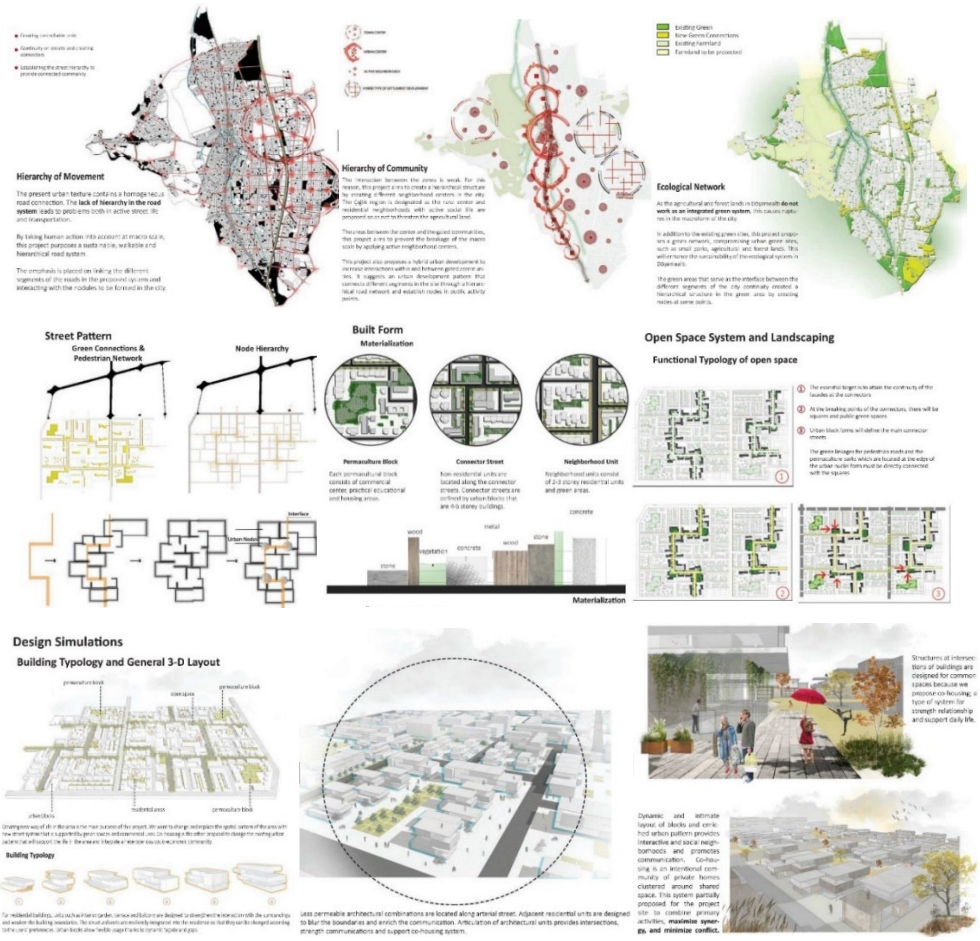


Figure 21 A strategic spatial framework for the urban-rural fringe and selected design principles guiding the alternative development patterns in the periphery (Source: METU MUD, 2018)

In that sense, the studio framework had a realistic standing that could be regarded as a *context-based* urban design pedagogy. Although the intrinsic characteristics of the context led the design conjecture, the predominant design task was form exploration rather than proposing ultimate solutions to the given context. Therefore, the major outcome of the studio was specified as a guideline for the peripheral formation of Antalya's northern metropolitan fringe (METU MUD, 2018). Within this framework, each urban project ultimately defined the design guideline, comprised of a strategic perspective, design codes, and design simulation demonstrating the proposed quality to be achieved by the codes and guidelines.

This second period of METU MUD Studio displayed divergent characteristics. The design context shifted between the real and the hypothetical; the design mode shuffled between the imaginary-utopian and pragmatic design; the geographical framework varied from the historical core to the urban fringe; the design scale diverged from the urban block to the region; the representation mode differed between the artistic expressions and technical drawings; and the studio organization differentiated between *method-*, *theme-*, *strategy-* and *context-based* processes. This period, in this regard, could be characterized by the utilization of the meta-themes along with a series of organizational, procedural, and representational experimentations.

4.4. The 4th Phase: Pedagogies Diversified (2018-2025)

In the following years of the studio, the separation of the general framework of studio courses and the multiplicity of the studio course coordinators on a semesterly basis have led to a formulation of a dual structure. Every semester, the studio focused on a different theme and context with the application of a different methodology. This short-term studio experience could be conceptualized as an "intensive studio" (Çalışkan & Yavuz Özgür, 2023). Despite the divergence

in style, certain continuities and similarities are possible to address based on the thematic organization in the two semesters. As the common characteristics, the use of meta-themes as the overarching studio framework was adopted in both semesters. While the Fall semester[4] predominantly scrutinizes morphological and temporal characteristics of urban design regarding both form and formation, the Spring semester[5] has elaborated on the notion of *regenerative urbanism* and sustainability within different contexts during the current period.

Intensive Fall Studio: Explorative Pedagogy | Academy-Stakeholder Partnerships

The Intensive Fall Studio displays some similarities and differences with its counterpart in terms of the thematic construction of studio education. Similar to the Intensive Spring Studio, the studio organization was governed by a meta-theme that mostly focused on problematic urban contexts such as industrial zones, cities after the earthquake, or derelict post-industrial brownfields. One of the differences is that this thematic framework entailed a *programmatic weight* in the formulation of the design framework. Rather than suggesting a comprehensive planning and design perspective to the specified context, the Fall MUD Studio aims to develop alternative programs from a morphological perspective. In this regard, the context is not considered as a subject matter to work on, but a relevant ground responding to the specified problematic content (i.e., productivity, creativity, ephemerality, or adaptive capacity of the city). Such a perspective categorically rejects the idea of a pre-defined scalar framework and determines the scale levels (frame and grain) according to the specified problematique and program in the urban context. Therefore, the works of the Spring Studio are called 'design research' rather than 'design project' since the studio aims to generate generic design ideas that would work as 'design toolkits' to other similar contexts, rather than producing optimal *solutions* to the given specific context.

Organizing the studio collaboratively with other graduate programs and research institutions has been a characteristic factor of urban design education within the MUD Spring Studio. Starting from 2019, three studios were run as a *joint studio* that was established with the institutional partnership of METU MUD (UD501) and METU March (Architectural Design Research) Studio (ARCH505). Additionally, Policy Analytics Lab (PAL), a consultancy and think-tank based in Ankara, established a multi-disciplinary collaboration to inform urban design with social and economic policies and participated in studio discussions. In this way, an interdisciplinary setting required for urban design education was aimed to be provided (Çalışkan & Yavuz Özgür, 2023).

From this perspective, between 2019 and 2021, three different organized industrial zones (OIZs) were taken as the focus area of the studio. As the first design experiment, two industrial districts located in Ankara (OSTİM and Başkent OIZs) were taken as a context to discuss the next generation of techno-industrial districts by design in Fall 2019. While one of them represented the industrial development integrated into the city fabric, the other was problematized as the segregated type of industry generating new urban developments in the periphery. The same thematic perspective was further elaborated for Manisa OSB, which is one of the oldest and largest OIZs in Türkiye, located adjacent to the city. (Figure 22)

[4] Coordinated by Prof. Dr. Olgu Çalışkan.

[5] Coordinated by Prof. Dr. Müge Akkar Ercan.

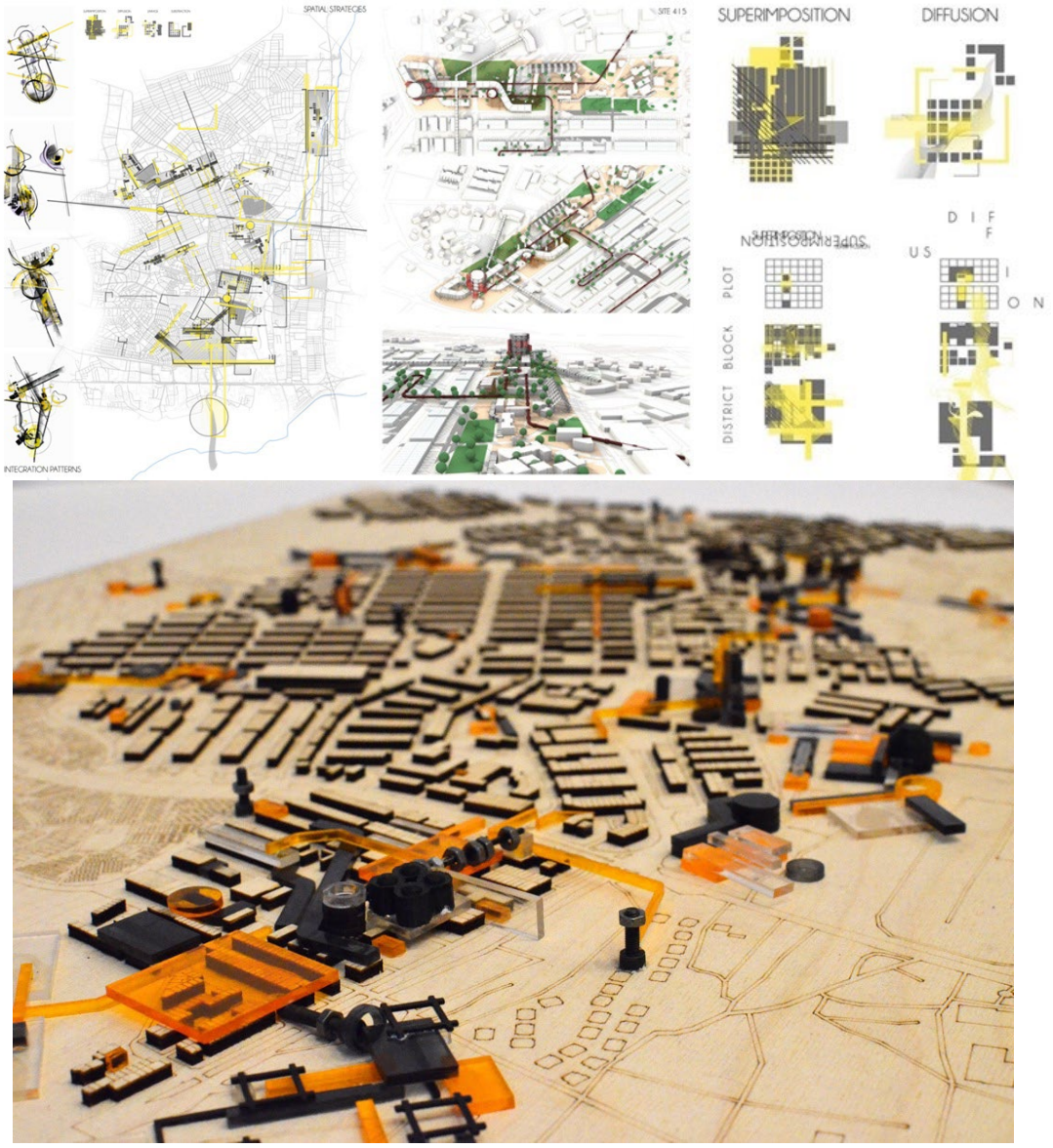


Figure 22 A selected project from the MUD Fall 'Industrial Urbanism' Studios: Morphological design tactics to generate hybrid (mixed-use of manufacturing, office, and living space) form-complexes to blur the boundaries between the organized industrial zone (OIZ) and the surrounding residential fabric (Source: Çalışkan & Çağlar, 2023, p. 183-188)

Within the Industrial Urbanism Studios, some responsive program approaches were formulated on how the productive capacity of the industry could be evaluated in a way that would also regenerate the city under the title of 'productive urban space'. In response to the complex nature of manufacturing within OIZs, characterized by multi-property patterns and dynamic modal transformations, the design research aimed to develop alternative models of intervention based on controlled incremental changes and hybrid spatial–programmatic configurations. The task of generating design frameworks was combined with developing policy perspectives in the multi-disciplinary setting of urban design studio to not only ensure higher economic productivity but also create new life-patterns (re)incorporating the urbane and the industrial in the same context (Çalışkan & Çağlar, 2023, p. 175-269).

The overall discussion on the issue studied during two semesters within the studio was extended into the public domain with the *International Symposium on Industry, Spatial Planning and Design for Productive Cities*, held online in collaboration with AURA Istanbul on November 20, 2021 (AURA Istanbul, 2021).

In Fall 2022, a similar theme, Post-Industrial Urbanism, was adopted in the context of Alsancak, İzmir. Taking old post-industrial heritage sites located in the back sites of Alsancak Harbor as a design context, the studio mainly searched for a new programmatic structure to generate a productive cultural district for creative industries in İzmir. Then again, the studio mainly focused on designing alternative programmatic frameworks fitting to the peculiarities of the context, rather than designing a spatial fabric as the main 'design outcome'. In this regard, the proposed collective fabric was not considered the starting point for the design process, but a result of the search for responsive programs of the creative industry. (Figure 23)

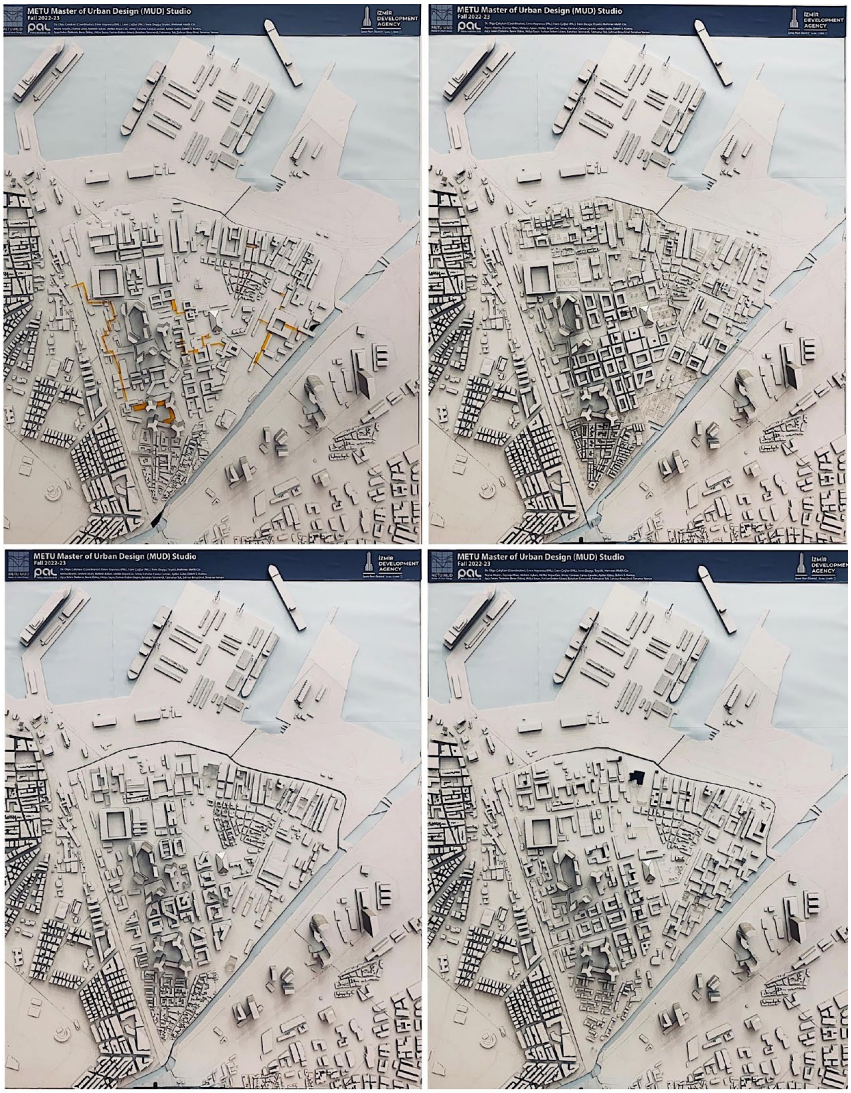


Figure 23 'Post-Industrial Urbanism Studio' (Fall 2022-23): The solid models of four alternative development scenarios suggested after programmatic urban coding studies (Source: O. Çalışkan's personal archive, 2023)

Intensive Fall Studio: Normative Pedagogy | Emergency and Crises (Re-activated)

Despite a series of crises and emergency conditions during the last few years, requiring urgent and focused interventions rather than holistic perspectives, the determination of a meta-theme for each semester's design research has always been the case for METU MUD Studio. During the Fall 2020 Semester, in this sense, 'Transient Urbanism' Studio tackled the issue of temporality of the urban programs and space in the search for economic and social resilience in the very context of very high uncertainties due to COVID-19. Pandemic, therefore, provided an opportunity for exploration of the concepts of ephemerality and spontaneity from an urbanistic viewpoint.

The second crisis was a natural disaster. Following the 2023 Kahramanmaraş Earthquakes, which affected 11 cities destructively in the region, 'Recovery Urbanism' was reintroduced by the studio

in Fall 2023, in continuity with its counterpart experimented in the context of Suriçi, Diyarbakır in 2026-17 Academic Year. In the first design research for the post-disaster recovery, the modern center of Antakya that had been severely damaged after the earthquake was taken as the case study area in coordination with METU Master of City Planning Studio in the 2023-2024 Academic Year. Inheriting a long urban history dating back to the Roman period, the city faced a stark dichotomy between preserving its urban tradition and meeting the urgent need for rapid reconstruction following the destruction of its core.

Figure 24 Code-based experiments on how the urban block can form a ground for social gathering, reproduction, and sharing through the post-earthquake recovery process (above) and the corresponding collective form simulated based on the palette of the predetermined typologies for a resilient urban fabric (Source: Çalışkan, 2024, p. 63-64)

To respond to this problematic condition, the MUD Fall Studio aimed to generate a dense and both morphologically and functionally diverse fabric of the city center of Antakya. To that end, a typomorphological approach was adopted to generate a coherently varied urban fabric, in contrast

to the uniform mass housing schemes implemented in post-earthquake cities. The proposed design of the quarters was guided by codes derived from established behavioral patterns once embedded in the traditional fabric. (Figure 24)

Figure 25 A new morphology for Kahramanmaraş City Center, in the search for diversity within unity through standard modularity of the 'mass-production' / total design approach (middle), and a bottom-up perspective based on a series of local building codes (below), simulated by design as a critique of the current state of the art in Kahramanmaraş (top) (Source: O. Çalışkan's personal archive, 2025)

Systemic exploration of the built fabric alternative to the mainstream production of urban land during the post-earthquake period in Türkiye continued following a critical reflection of the first post-earthquake 'Recovery Urbanism' Studio. In 2024-2025 Academic Year, the studio re-iterated the same question in the context of Kahramanmaraş City Center, where its fabric was seriously torn down after the earthquake. To transcend the standardized character of the new fabric, the studio suggested two strategic perspectives for alternative modes of production and explored their possibilities within the context. Accordingly, 1) *total design Approach* by the corporate production of a mega-structural fabric, and 2) pluralistic approach: collective production of the 'multiple fabric' through plot-based design control. (Figure 25) Both alternatives were articulated in the research on the programmatic codes of the central services in the downtown area. The alternative models have

been utilized as a critique of the actual plan implementations within the site in Kahramanmaraş (METU MUD, 2025a, b, c).

Intensive Spring Studio: Normative Pedagogy Under the Influence of Global Agenda

The intensive Spring studio had a multiple contextual focus while introducing certain thematic and methodological frameworks. Between 2018 and 2023, Cappadocia was identified as the main spatial context of the design studio. In the earlier study (Spring 2019), an *agent-based* planning and design approach was adopted in the context of this natural heritage setting under the theme of 'Regenerative Urbanism'. One methodological difference in this study was focusing on the needs, assets, resources, and values instead of problems of space as a starting point in the design process (Akkar Ercan, 2019, p. xi). Within this framework, the research and design process sequentially entailed (I) the selection of human or non-human generic regenerative agent applicable to any context; (II) making a research on the regenerative theme or agent; (III) identification of the ways to accommodate the agent in a given locality; (IV) identification of the local values and needs; (V) developing design vision and strategies based on a scenario; (VI) developing design proposals; (VII) generating design rules. (Figure 26)

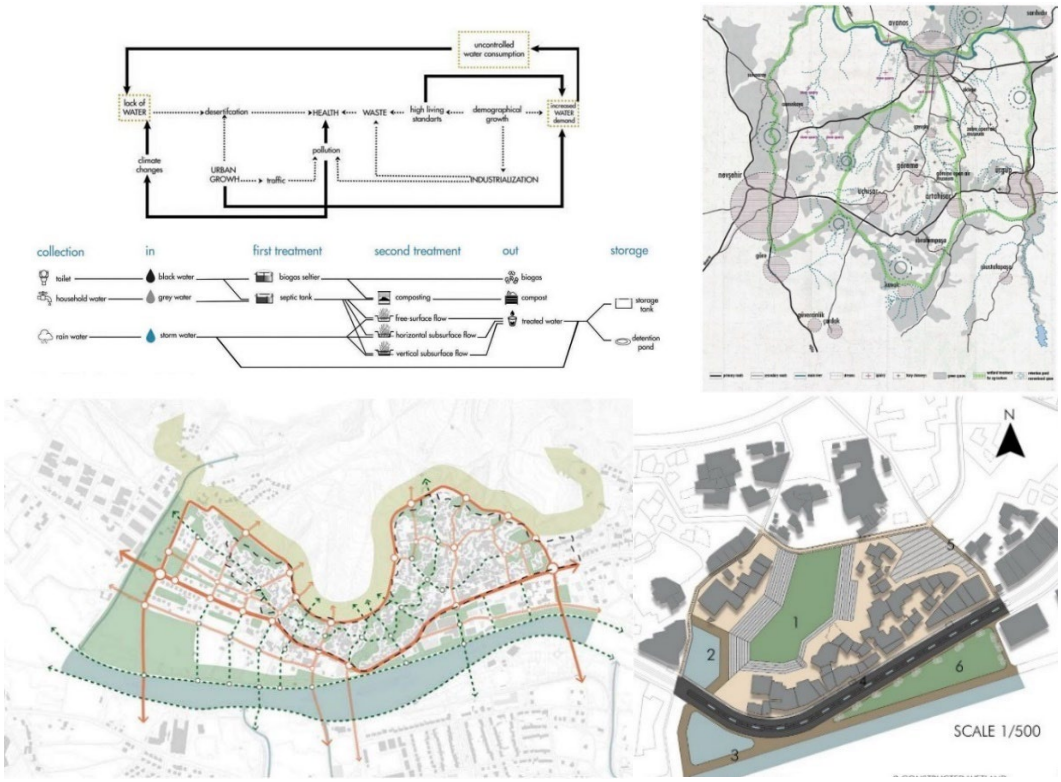
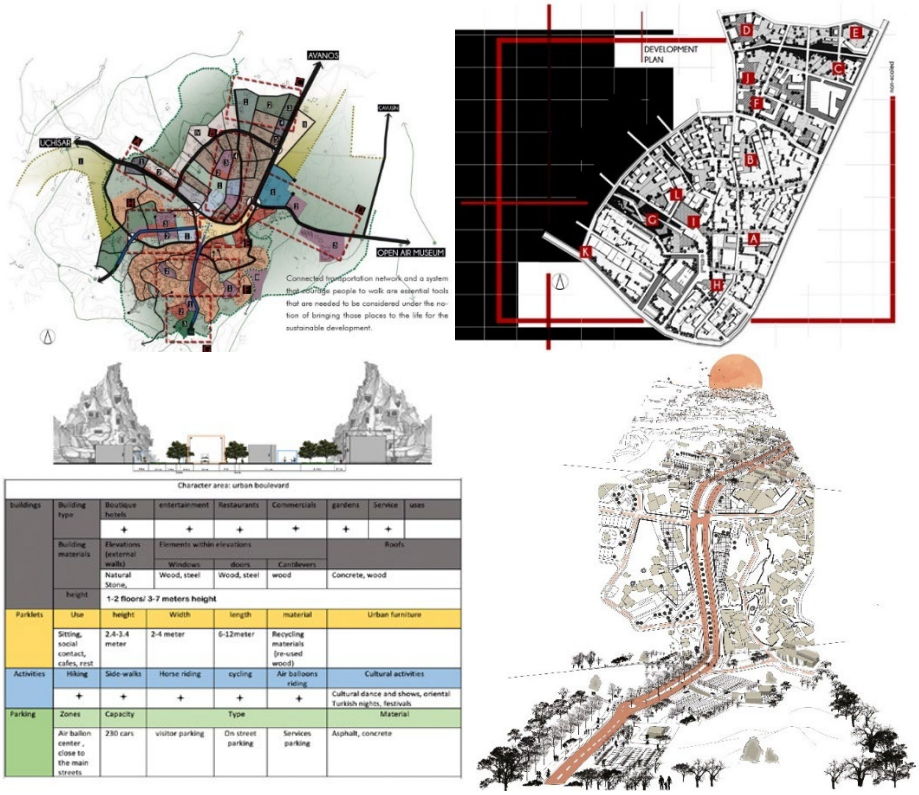


Figure 26 The thematic and contextual research on the generative agent (above) and strategic design proposals (below) (Source: Akkar Ercan, 2019)

The selection of a generic regenerative agent at the outset of the design process reflects a *theme-based* organization. Therefore, design scales and outputs of the design process for each study were based on the specified 'generative agent'. Therefore, each study created its own perspective within the established thematic framework.

In the following years, the Intensive Spring Studio exclusively focused on the theme of 'Sustainable Urbanism', mainly in the context of the Cappadocia region. Nevertheless, the agent-based approach and the design methodology were maintained. Within this framework, it was aimed to think about new ways of living and developing sustainable urban and rural systems and practices. In detail, the major design tasks included researching sustainable living and working environments, designing public and private spaces drawing on sustainable tourism, and developing conservation and regeneration strategies (Akkar Ercan, 2020). (Figure 27)



Character area: urban boulevard								
buildings	Building type	Boutique hotels	entertainment	Restaurants	Commercials	gardens	Service	uses
		+	+	+	+	+	+	
	Building materials	Elevations (external walls)	Elements within elevations			Roofs		
			Windows	doors	Cantilevers			
		Natural Stone,	Wood, steel	Wood, steel	wood	Concrete, wood		
	height	1-2 floors/ 3-7 meters height						
Parklets	Use	height	Width	length	material	Urban furniture		
	Sitting, social contact, cafes, rest	2.4-3.4 meter	2-4 meter	6-12meter	Recycling materials (re-used wood)			
Activities	Hiking	Side-walks	Horse riding	cycling	Air balloons riding	Cultural activities		
	+	+	+	+	+	Cultural dance and shows, oriental Turkish nights, festivals		
Parking	Zones	Capacity	Type			Material		
	Air ballon center , close to the main streets	230 cars	visitor parking	On street parking	Services parking	Asphalt, concrete		

Figure 27 The methodological continuity as to specification of the generative agent and contextualization on the macro scale (above), the generation of a strategic design proposal along with design codes (below) (Source: Akkar Ercan, 2020)

Alternatively, the spatial framework was re-identified in the context of Ankara (Spring 2021) under the theme of 'Sustainable Green Urbanism' (SGU) and İzmir (Spring 2024) with a thematic focus of 'Sustainable Resilient Urbanism' (SRU). Although the design context changed, the emphasis on sustainability as the overarching globally relevant thematic framework was pursued in these studios with nuances.

The origin of the problem was attributed to global crises, including "growing population, consumption, production, migration, environmental degradation, global warming, biodiversity loss, sprawling land consumption patterns, and the COVID-19 pandemic" (Akkar Ercan, 2021, p. 19). Within that scope, Çayyolu, a peripheral neighborhood that grew rapidly with mass housing, commercial service facilities, and isolated large educational campuses through a fragmented pattern, was examined in the context of Ankara during Spring 2021. Based on the same conceptual framework, the student groups generated alternative spatial restructuring scenarios for the designated macro-scale plan frameworks. Later, detailed design proposals were developed for the strategic parts designated within the larger context. (Figure 28)

Figure 28 Spatial development scenario at the macro scale and the specification of strategic sub-design area (above), detailed design proposals, agent-based design codes and simulations (below) (Akkar Ercan, 2021)

Grounded on this problematic framework, Çiğli, a peripheral neighborhood on the northwestern part of the İzmir Bay, was specified as the design context of the studio in Spring 2024. In this regard, sustainability and resilience in the design of residential districts and public spaces were considered as integral components of the regeneration process. (Figure 29)

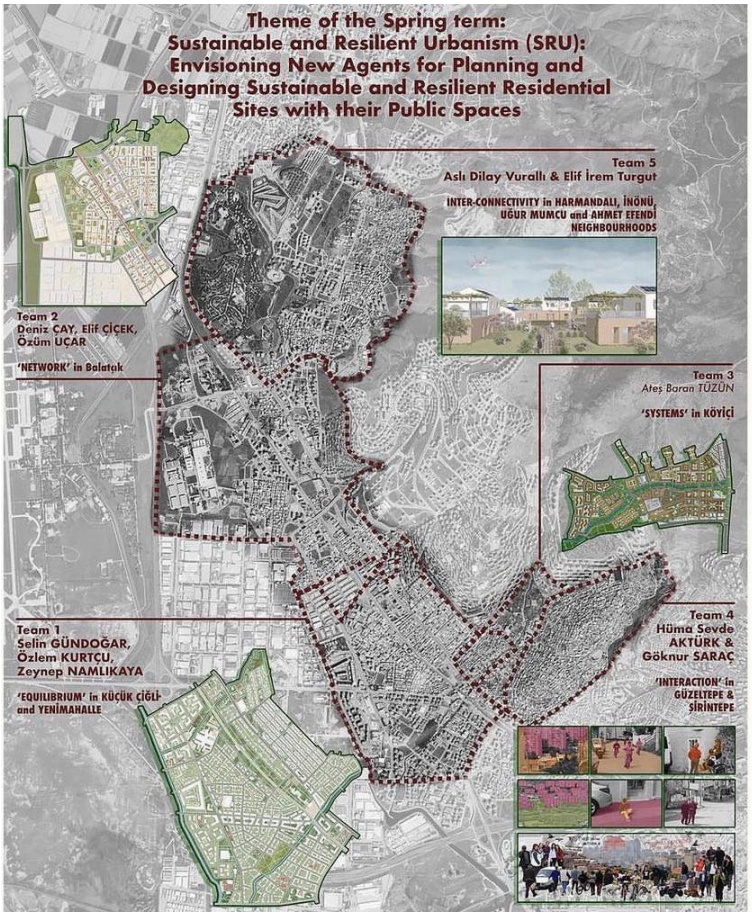


Figure 29 Designed residential districts as segments of the macro design context of Çiğli, İzmir, in SRU Studio[6]

The Intensive Spring Studio presents the execution of a settled thematic and methodological framework in various contexts, with a special focus on Cappadocia. While values, assets, and resources of this natural heritage region were considered as the basis for developing an agent-based sustainable design framework, the problems associated with the peripheral areas of the rapidly growing Turkish metropolis, such as Ankara and İzmir, constituted the ground for this approach. A top-down comprehensive perspective aiming to control the context holistically from large-scale to smaller, focused areas, and prioritizing the systemic analysis for design, in this sense, could be specified as the basic characteristics of the design pedagogy of the studio.

Within this context, although the overall pedagogical organization of studio education is diversified between explorative and normative pedagogy, the underlying factors of normativity varied between *academy-stakeholder partnerships* (i.e., industrial and post-industrial urbanism), *global thematic influences* (i.e., recovery, regeneration), and *emergency and crises* (i.e., transient and recovery urbanism) at both the national and international contexts.

5. Discussion and Conclusion

Our previous research (Yavuz Özgür & Çalışkan, 2025) identified three broad pedagogical orientations in urban design education—*pragmatic, normative,* and *exploratory*—which reflect the field's inherent diversity. Building on this foundation, the present study argues that pedagogical approaches are not fixed but evolve in response to changing contexts and institutional dynamics. Contrary to the assumption that design education is inherently slow or resistant to change, the findings from METU MUD reveal a relatively rapid and adaptive transition among different modes of studio teaching. Each pedagogical orientation is supported by distinct organizational frameworks shaped by the interplay between the prevailing urban agenda, the stakeholders involved, the

[6] See: https://crp.metu.edu.tr/en/announcement/mud-20232024-final-jury, accessed in September 2024.

agency derived from the background, expertise, and orientation of the studio coordinators, as well as the design process itself.

At METU MUD, studio education has evolved through four distinct phases, each reflecting shifts in institutional priorities and pedagogical intent. In its formative years, the program was closely aligned with the practical demands emerging from within the university, particularly from administrative units and affiliated offices in which the coordinators themselves were actively involved. This alignment fostered a pragmatic pedagogy, characterized by live projects and direct engagement with real-world problems. Initiatives such as the Technopark and university campus development projects exemplified this mode, bridging academic inquiry and professional practice while equipping students with applied design skills.

Nevertheless, this pragmatic orientation did not characterize the program exclusively. In the subsequent period, pedagogical focus shifted toward *normative orientations*, shaped by broader urban challenges and the repercussions of crises such as natural disasters. In some instances, collaborations with local governments in post-disaster contexts led to the organization of design studios; in others, coordinators' critical engagement with pressing urban issues—such as coastal transformation or contested development processes in Türkiye—guided studio agenda and pedagogical direction.

Within these contexts, exploratory tendencies also emerged, particularly as studios shifted their focus from problem-solving to envisioning alternative urban futures. Studios operating in exploratory mode functioned as critical and reflective responses to real urban conditions, generating conceptual frameworks and speculative scenarios rather than immediate design solutions. Over time, the studio's principal modus shifted from emulating a professional office to cultivating a space for experimentation and conceptual development, paving the way for significant pedagogical shifts in the following decade.

The second phase of the program was marked by expanded experimentation in design context, scale, and method. Studio work alternated between real and hypothetical settings, blending pragmatic and utopian design approaches. Geographical foci ranged from historical cores to peripheral territories, and scales extended from the urban block to the regional level. Modes of representation diversified—from artistic expression to technical documentation—and the design process oscillated among method-, theme-, strategy-, and context-based frameworks. This period is therefore characterized by a strong emphasis on meta-themes and a willingness to explore new organizational, procedural, and representational forms.

In the third phase, studio education developed a more pluralistic and flexible structure. The separation of studio courses into distinct frameworks and the rotation of coordinators each semester resulted in a dual system. Each semester centered on a specific theme and context, employing varied methodologies within what could be described as intensive studio practices. Despite these variations, certain continuities persisted, most notably the consistent use of meta-themes as overarching frameworks. Typically, the Fall semester addressed the morphological and temporal dimensions of urban form and formation, while the Spring semester focused on the role of agency within regenerative urban processes across diverse contexts.

Within this structure, pedagogical orientations oscillated between exploratory and normative modes, depending on partnerships and contextual priorities. Collaborations extended across multiple scales and domains—from academy–industry and academy–local government partnerships to engagements with cultural institutions, think tanks, and other academic programs. These collaborations not only enhanced students' representational and analytical capacities but also opened studio work to broader public discourse through exhibitions and joint research, reinforcing the exploratory dimension of the pedagogy.

The findings suggest that neither external expectations nor real-world collaborations alone determine pedagogical orientation. Partnerships with public or private actors did not automatically yield pragmatic modes of education. Instead, the interplay of the mode of collaboration and the agency of the studio coordinators, their intentions, expectations, and pedagogical philosophies, played a decisive role in shaping the direction of the studio. For instance, collaborations with institutional bodies in the early period produced pragmatic, practice-oriented studios focused on deliverable outcomes, whereas similar partnerships in the later phase were reframed through an exploratory lens without immediate real-world implications. This demonstrates that pedagogical modes are contingent upon the interpretive and strategic choices of educators as much as on external conditions.

It should also be emphasized that these pedagogical modes are not entirely discrete or mutually exclusive. Elements of normative thinking may surface within pragmatic frameworks, just as exploratory thinking can emerge within normative approaches. Rather than fixed categories, these modes represent dominant orientations shaped by the overarching aims of the design process, its intended outcomes, and the evolving contexts in which they are situated.

Ultimately, the evolution of METU MUD's studio pedagogy demonstrates that urban design education operates as a dynamic system continually reshaped by changing urban agendas, institutional frameworks, and intellectual orientations. Its pedagogical shifts—from pragmatic to normative to exploratory—reflect the program's capacity to engage critically with practice, to reinterpret the role of design in addressing urban complexity, and to sustain an ongoing dialogue between experimentation and application.

Future research could extend this study by comparing pedagogical shifts across other urban design programs to test the generalizability of the patterns identified here. Further work might also examine the influence of student agency in shaping, negotiating, and reinterpreting pedagogical frameworks. Investigating how these interactions affect student learning outcomes would provide a more reciprocal understanding of design education. Moreover, future work could address how evolving institutional partnerships, community-based collaborations, and hybrid digital environments shape alternative pedagogies in urban design education.

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Irmak Yavuz Özgür: Research Design, Methodology, Investigation, Data Analysis, Conceptualization, Visualization, Writing—original draft. Olgu Çalışkan: Research Design, Supervision, Conceptualization, Data Provision, Validation, Writing—review and editing.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data Availability

Data will be made available on request.

Ethics Committee Approval

Ethics committee permission is not required.

Resume

Irmak Yavuz Özgür is currently a Dr. Lecturer at TED University Faculty of Architecture and Design. She received her BSc degree in City and Regional Planning (2015), MSc degree in Urban Design (2018) and PhD degree in City and Regional Planning (2025) at Middle East Technical University (METU). She worked as a research assistant at İzmir Institute of Technology in 2016 and at TED University between 2016 and 2023. Since 2023, she has been working as a Lecturer at TED University, Faculty of Architecture and Design. To date, she has participated in various seminars, symposia, workshops and exhibitions both as a contributor and organizer at METU and TED University. After the completion of her doctoral thesis titled "Urban Design Education: Institutional Models, Curricular Formations and Studio Pedagogies," she continues to expand her research on urban design pedagogy and thinking at an international scope.

Having completed his PhD in Urbanism at TU Delft in 2013, Olgu Çalışkan has since served as a professor of urban design and morphology in the Department of City and Regional Planning at METU. His publications include guest editorials for Built Environment (2011, 2022) and articles in leading journals such as the Journal of Urban Design (2010, 2022), Urban Design International (2012, 2020), Urban Morphology (2017), Habitat International (2023), and Cities (2024). His research focuses on physical planning and design, urban morphology, urban design theory and methods, parametric urban design, and industrial urbanism. As coordinator of METU's Master of Urban Design program, he leads the MUD Studio in the Fall semester and teaches courses such as Creative Thinking for Planners, Parametric Urban Design, and Collective Housing Planning and Design. Since returning to Turkey in 2014, he has served on numerous national and international design juries and contributed to award-winning projects, including the Konyaaltı Waterfront in Antalya (2015) and Taksim Square in Istanbul (2020).

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Book Review

Urban Design Education: Designing Pedagogy for an Evolving Field
Hesam Kamalipour and Nastaran Peimani
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1. Introduction

Urban Design Education: Designing Pedagogy for an Evolving Field by Hesam Kamalipour and Nastaran Peimani addresses a persistent gap in urban design scholarship. Since it emerged as a distinct field in the 1950s, urban design has generated extensive debate about its definition, scope, and position between architecture and planning. Yet while definitional discussions have proliferated, systematic attention to urban design pedagogy has remained largely confined to academic circles, circulating through annual workshops and conferences but rarely translated into comprehensive pedagogical frameworks. This book marks a significant intervention by shifting attention from what urban design is to its pedagogy: how urban design should be taught.

The challenge of defining urban design is not merely semantic but reflects ambiguities around the field's core concerns and methods. As Madanipour (1997) observed, there exists a broad agreement on the ambiguity of urban design, even as consensus on its definition remains elusive. Over the past two decades, scholars have increasingly characterized Urban Design as an evolving field (Carmona et al., 2003; Kamalipour & Peimani, 2025), one that has expanded from initial preoccupations with building masses and spatial aesthetics toward broader concerns with the quality of the public realm in both physical and sociocultural terms; and the making of places for people (Carmona et al., 2003, p.3).

This evolution has been characterized by two distinct broad traditions that stem from different ways of appreciating design and the products of the design process. 'Visual-artistic' tradition emphasizing the visual qualities of buildings and space, 'Social usage' tradition primarily concerned with the social qualities of people, places and activities. In recent years, the two have become synthesized into a third broad tradition of 'Making places' (Carmona et al., 2003, p.6). The UK's DETR/CABE definition exemplifies this broader conception, characterizing urban design as 'the art of making places for people': a formulation that explicitly includes how places work and matters such as community safety, not merely how they look, while addressing 'the connections between people and places, movement and urban form, nature and the built fabric' (DETR & CABE, 2000, p. 8).

Recent attempts to establish common ground have yielded more operational definitions. Cozzolino et al. (2020) describe urban design as "a creative and purposeful activity with collective and public concerns that deals with the production and adaptation of the built environment at scales larger than a single plot or building" (p. 8). Their emphasis on scales beyond the individual building, on visualization and rulemaking as dual modes of practice, and on both analysis and implementation distinguishes urban design from adjacent fields while acknowledging its interdisciplinary character.

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Yet these definitional efforts, however refined, leave unresolved the question of how such an evolving, multifaceted field should be taught. Kamalipour and Peimani explain the purpose of the book as to offer an approach to education and teaching in the evolving field of urban design and to fill the gap in urban design education. Furthermore, the book aims to serve as a resource for educators, students, and practitioners, offering practical guidance and scientific insights.

The book's approach is unapologetically systematic and transparent. Each chapter documents not only the theoretical underpinnings of a module but also its practical architecture: weekly schedules, assessment criteria, reading lists, feedback mechanisms, and pedagogical adaptations across multiple academic years, including responses to the COVID-19 pandemic. This level of operational detail distinguishes the work from more abstract discussions of design pedagogy, offering a resource that educators can meaningfully adapt while also raising critical questions about the assumptions embedded in such curricular choices.

Chapter 2 examines the process of how the basic course module in urban design is designed and delivered. It is designed to help students acquire the basic concepts of urban design and develop their analytical thinking skills. Chapter 3 then moves on to the design studio module built upon these fundamental concepts, demonstrating how the knowledge gained in the basic module is transferred to the design process, creative problem solving, and studio-based research. In this context, it examines the theoretical foundations and practical applications of design studio pedagogy. Chapter 4 discusses the methodological and pedagogical approaches necessary for urban design students by addressing how urban design research methods are taught. Chapter 5 focuses on the design, implementation, and evaluation of the urban design thesis module, assessing the thesis process in its pedagogical and theoretical dimensions. The aim of the final chapter is to bring together the insights gained throughout the book to develop a critical, holistic, and forward-looking pedagogical framework for what and how to teach urban design education. The book concludes with a synthesizing Chapter, in which the authors distil eleven core pedagogical principles and situate them within critical discussions of contemporary higher education's structural constraints.

The book's architecture thus mirrors the pedagogical sequence it describes, with each chapter serving dual purposes: as documentation of actual teaching practice and as critical reflection on that practice. What distinguishes this work from typical pedagogical guides is the exceptionally systematic level of detail provided combined with acknowledgment of challenges, adaptations (especially to COVID-19 and shift to online teaching), and unresolved tensions.

2. Chapter 2: A Pedagogy for Urban Design Thinking and Comparative Analysis: Constructing a Foundation

Chapter 2 offers a detailed account of how the Urban Design Foundation module within Cardiff University’s MA Urban Design program is designed, delivered, and progressively adapted over time for postgraduate students entering the field. Positioned as a key stepping stone in the program, the module introduces students to modes of urban design analysis and thinking. At the core of the chapter lies the Urban DMAIT framework (density, mix, access, public/private interface, type), developed by extending Dovey and colleagues’ “urban DMA” approach. The authors underline that this framework provides a coherent basis through which students can systematically conceptualize and reinterpret the complex problems of urban space.

The chapter first concentrates on the overall design and delivery of the module, followed by an examination of the theoretical underpinnings of the core lectures, the assessment and feedback framework, and the incremental adaptations implemented over several academic years. Although the module has undergone a series of gradual adjustments since 2019–2020, the discussion primarily centers on its 2022–2023 academic year. Within the module’s design and delivery framework, the lecture–workshop structure, timetable, and pedagogical choices are examined in depth. This part of the chapter addresses practical questions such as when the module starts and ends, why sessions are scheduled on specific days, and how lecture and workshop hours are

organized. Together, these considerations clarify the rationale behind the temporal flow and organizational logic of the module. Alongside the lectures, the module is supported by workshops, seminars, selected readings, small-group discussions, progress presentations, and individual feedback processes, all of which are clearly defined and carefully structured in advance.

In discussing the theoretical framework of the teaching content, this part of the chapter explains which concepts are covered in the six core lectures, which bodies of literature inform them, and how the material is structured. The literature base is predominantly Western-centered and supports an urban design approach that synthesizes morphological analysis with social and cultural dimensions, strongly shaped by the Dovey school of thought. A further emphasis of the chapter is the clarity and transparency of assessment. The assessment and feedback structure—centered on an individual report that requires a comparative analysis, both graphic and written, of two 16-hectare sites in London through the DMAIT concepts—is examined in detail. Every component, from case-study selection and analytical tools to page layout, use of sources, and formative feedback mechanisms (tutorials and progress presentations), is specified, demonstrating a highly structured and transparent assessment framework.

A recurrent theme throughout the chapter is the flexibility and resilience of the module in response to the COVID-19 pandemic. The authors systematically trace how the module evolves across three academic years—2019–2020, 2020–2021, and 2021–2022—moving from an intensive four-week format to blended and hybrid arrangements. In doing so, the chapter explains how the teaching–learning structure is reconfigured each year, which adaptations are introduced, and how delivery modes, assessment formats, and scheduling respond to shifting institutional and external conditions.

Building on these experiences, the discussion section reflects on the key pedagogical challenges revealed through the module's delivery and the strategies proposed to address them. The authors engage with issues such as group work, adaptation to pandemic conditions, increasing cohort size, assessment workload, skill-development needs, the limits of intensive teaching models, and tutor capacity. They use these observations to articulate broader reflections on the complexities of navigating urban design pedagogy. In conclusion, the chapter synthesizes the main pedagogical insights emerging from three years of module delivery, highlighting the importance of managing group dynamics, ensuring adaptability under pandemic conditions, addressing questions of resource and assessment management, and foregrounding skill development and staff expertise. It also offers concrete recommendations for future modules—such as integrating flexible teaching methods, strengthening digital literacy, fostering supportive learning communities, streamlining assessment processes, and investing in staff development—thereby outlining a clear roadmap for shaping a more inclusive, sustainable, and effective urban design education.

Overall, Chapter 2 moves beyond documenting a single module to offer a critical and transferable framework focused on teaching foundational urban design concepts, designing structured learning experiences, and adapting pedagogy to changing conditions. In doing so, it makes a meaningful contribution to ongoing debates on how best to prepare students for the challenges of designing more sustainable places and thriving urban environments. As the first case study in the book, the module also provides an epistemic and conceptual foundation for the subsequent chapters on studio teaching, research methods, and the dissertation.

3. Chapter 3: Designing the Urban Design Studio: A Design Studio Pedagogy in Practice

Chapter 3, "Designing the Urban Design Studio", endeavors to stimulate discussion on the key questions of "what to teach?" and "how to teach?" within the context of design studio pedagogy. Authors explore the capacities and challenges of urban design studio pedagogy, highlighting the intricate balance between pedagogical objectives and the pragmatic realities of teaching design studio in higher education. Through a discussion of the design and delivery of two constructively

aligned and blended urban design studios (Autumn and Spring Urban Design Studio modules) within the MA Urban Design program at Cardiff University, highlighting their interrelations and associated learning and teaching activities, complemented by insights from an empirical study on student perceptions and experiences which resulted in significant alterations and adaptations in the mode of delivery following the Covid 2019 Pandemic, the authors contribute to the emerging literature on urban design education. They point out that it is important for academia to engage in critical reflection on its pedagogical practices, as well as their associated capacities and challenges in times of uncertainty.

It starts with a discussion of urban design studio as an "integral component of built environment pedagogy". It reviews the existing literature and theoretical perspectives on design studio pedagogy, focusing on key thematic issues of digital technologies such as digital studios and virtual design studios, field study visits, urban policy review, student diversity, design studio topic and locality, learning from urban design precedents, and community engagement; and offers a roadmap for educators and students to enhance its benefits.

It discusses two constructively aligned and closely interconnected urban design studio processes in a very detailed way including module schedules and weekly activities, key learning and teaching activities (Field Study Visits, Small-group Studio Tutorials and Reading Seminars, and Lectures/Guest Lectures), requirements, submission formats and assessment briefs as well as providing samples of analysis and projects. They argue that designing two consecutive design studios can yield better outcomes compared to designing two entirely separate studios addressing different topics and sites, especially for postgraduate students with non-design backgrounds.

Their two studio modules, which focused on a consistent site and overarching topic, incorporated diverse activities, such as analyzing the urban design topic and the context in relation to specific urban design aspects, identifying and analyzing relevant literature and urban design projects through small discussion groups and formative feedback from paired studio tutors, and developing contextually responsive and spatially grounded design interventions, since it is significant to justify design decisions in light of relevant literature and construct well-informed arguments.

Kamalipour and Peimani emphasize that Urban Design pedagogy would benefit from a stronger focus on conducting a critical analysis of relevant policies that acknowledges effective urban design interventions, which aligns with the heightened policy interest in urban design issues in the UK (Chiaradia et al., 2017) and with the pressing requirement "for interventions in the design and development processes that reflect the potentially proactive role of the public sector in shaping places" (Carmona et al., 2017, p. 45).

The chapter's findings about blended learning reveal an important pedagogical insight: student satisfaction correlates more strongly with the depth and quality of tutor-student engagement in small-group settings than with delivery mode or group size. This suggests that debates about online versus face-to-face delivery may overlook more fundamental questions about interaction quality and pedagogical intimacy.

The reaffirmation of field study visits' irreplaceable value merits particular attention. While digital technologies enable virtual site exploration, the authors demonstrate that embodied, face-to-face encounters with urban environments remain crucial for developing the situated knowledge necessary for contextually responsive design interventions. This finding has important implications for programs considering fully online delivery.

The discussion of community engagement reveals pragmatic tensions inherent in postgraduate pedagogy. The authors acknowledge limitations imposed by cohort scale and program duration, while suggesting that selective integration of external practitioner and community stakeholder perspectives might offer feasible alternatives to extensive participatory processes. This honest assessment of constraints is refreshing, though the chapter might have explored innovative approaches—such as partnerships with ongoing community planning processes—more fully.

4. Chapter 4: Learning and Teaching Research Methods: A Pedagogy for Urban Design Research

Chapter 4 systematically explores how research methodologies can be effectively taught within urban design education, one of the most challenging pedagogical undertakings due to the field's inherent complexities of interdisciplinarity and hybrid nature. Indeed, often various empirical and theoretical approaches can be overwhelming for postgraduate students encountering research methodology for the first time. They may also struggle to frame their initial observations and questions into a coherent research design. Peimani and Kamalipour address these challenges by documenting their experiences in designing and delivering the Urban Design Research Methods module. Parallel to the book's broader narrative, the chapter documents their experiences from 2018 through 2023, paying particular attention to the challenges and opportunities that arose from the emergency transition to online learning during the COVID-19 pandemic in 2020-2021 academic year.

This chapter offers a comprehensive and well-documented overview of the module's design and delivery, a feat that arguably fits to the content of the module. The authors begin by establishing the theoretical foundation for teaching research methods in urban design, emphasizing the field's inherently multidisciplinary and multidimensional nature. They acknowledge that urban design research requires non-reductionist methodological frameworks, as no single research method can adequately capture the complex, multiscalar dynamics of urban environments. Their approach also acknowledges that the students need to be informed, critically position themselves and develop arguments, and get timely and formative feedback.

The authors provide extensive detail about their module design, including complete weekly schedules with indicative activities, a reading summary template for students to critically engage with, and a detailed assessment proforma outlining the structure and expectations for research proposal. One other key element mentioned is the Weekly Module Maps (WMMs) that 'provide students with an overview of the weekly learning and teaching activities' including 'indicative time commitments', which is favored by 96.4% of students according to survey data reported in the chapter. Unfortunately, no example of these maps is included.

The narrative of the chapter involves foundational content, pedagogical strategies, assessment frameworks, and adaption strategies. Their account of 'Core Module Lectures' : the eight-lecture series beginning with foundational concepts of research design and the crucial distinction between design and research thinking (Lecture 1), moving through literature review strategies and research designs, with particular focus on case study/combined strategies (Lecture 2), introducing observation and visual recording methods (Lecture 3), exploring interview methods for understanding spatial experience (Lecture 4), providing hands-on experience with qualitative data analysis through content and thematic analysis (Lecture 5), examining urban mapping's multiple forms—behavioral, morphological, and space-time—as both analytical method and knowledge production while emphasizing multiscalar thinking (Lectures 6-7), and concluding with research ethics (Lecture 8). Each account of the lectures is concluded with a set of reflective questions.

The module structure balances multiple pedagogical modes. Beyond core lectures, students participate in small group reading seminars where they critically engage with empirical studies using a provided template, fostering analytical skills before seminars. Discussion sessions offer additional opportunities for students to raise questions about assessment and methodological challenges. This multi-modal approach recognizes that methodological learning requires both conceptual understanding and practical application, though the chapter could more explicitly theorize how these different modes work together pedagogically.

The extensive treatment of the shift from face-to-face to online delivery during COVID-19 provides important documentation of adaptations across three academic years. Student survey data offers particularly valuable insight: while 88.9% expressed satisfaction with live online instructor interaction, only 46.4% were satisfied with student-to-student interaction, highlighting

persistent challenges in facilitating collaborative learning online. The authors' nuanced analysis acknowledges both benefits (flexibility, accessibility, text-based communication options) and costs (difficulty with eye contact, reduced spontaneity, 'monologue rather than dialogue' tendencies) of digital delivery.

Overall, in this chapter, Peimani and Kamalipour produce an exceptionally detailed overview that demonstrates the challenges of navigating students' methodological choices in the inherently interdisciplinary waters of urban design. Key contributions include: (1) the emphasis on methodological pluralism and non-reductionist frameworks as essential for urban design research; (2) the disciplinary grounding of methods in urban design concepts rather than generic social science approaches; (3) the integration of multiscalar thinking as both analytical framework and pedagogical principle; and (4) valuable documentation of pandemic-era adaptations.

5. Chapter 5: Designing the Dissertation: A Pedagogy for Research-based Urban Design

Chapter 5, "Designing the Dissertation: A Pedagogy for Research-Based Urban Design", offers a comprehensive account of how the dissertation module within Cardiff University's MA Urban Design program is designed, delivered, and underpinned by specific pedagogical principles. The dissertation module builds on the conceptual, analytical, and methodological foundations of the earlier modules and helps students define their research focus. It then supports them in developing a well-grounded urban design dissertation through engagement with relevant literature and ongoing supervisory guidance. The chapter offers insight into this field by reflecting on the authors' experience co-leading the 2020–2021 dissertation module. In this respect, it addresses the relatively underexplored terrain of dissertation design and delivery through a holistic pedagogical lens that foregrounds the intertwined nature of research and design.

The chapter takes the dissertation module delivered in the 2020–2021 academic year as a case study, examining in detail its design and delivery. It sets out the core components of the module, the process of supervisor allocation, the key readings, the dissertation structure, format and layout principles, the assessment framework, and illustrative examples from student work. The opening section clarifies the stages that make up the dissertation process and the clearly structured timeline. It also explains the rationale for sequencing activities in this way and how students' prior knowledge of research methods—developed in the research methods module—is integrated into the dissertation module. In doing so, the text shows that the academic expectations and requirements of the dissertation are defined in a comprehensive and explicit manner. It then emphasizes the alignment between students' research topics and supervisors' areas of expertise as a key dimension of the module's design. While the supervision allocation process is presented as systematic and transparent, the authors also acknowledge that, due to high demand and uneven distributions of expertise, full alignment could not always be achieved.

The chapter also discusses the key reading list developed to support students' academic research and to encourage deeper engagement with the relevant literature. The readings are organized into two categories: "essential" and "background" readings. While the essential readings focus on research design and methodology, the background readings aim to cover the shared body of urban design knowledge. This structure is intended to equip students with both methodological and conceptual tools. In line with the structural framework presented for other modules in earlier chapters, the chapter sets out a detailed and systematic roadmap for the structure and format of the dissertation. Following this structural outline, the authors turn to the assessment framework and marking and feedback form, which specify how dissertations are to be evaluated. The transparent and highly structured character of the process is further illustrated through curated examples of dissertation submissions.

In the discussion section, the authors reflect on the nature, structure, and pedagogical implications of the dissertation module within urban design education. It advances the academic debate by presenting three models of urban design dissertation: the studio-based model, the theoretical exploration model, and the hybrid model. This framework is used to evaluate different

learning outcomes associated with each model, as well as to address issues such as consistency across dissertation types, institutional constraints, time-management challenges, and the pressures created by increasing cohort sizes. Particular attention is paid to the risks of reduced depth and quality in the context of short dissertation periods typical of one-year postgraduate programs, the difficulties of aligning student interests with supervisory expertise, and the challenge of balancing supervision workload during the summer.

In conclusion, the authors underline the need for a broader debate on the educational aims and outcomes of urban design programs, and bring the chapter to a close by highlighting several key points and implications. The conclusion draws particular attention to the hybrid model as a way to support the balanced development of research, critical thinking, and design skills in research-based urban design education. It stresses the importance of support mechanisms for time management and the enhancement of supervision processes and supervisory alignment. The chapter also highlights the need to strengthen consistency and fairness in assessment and to address resource and workload management in the face of growing student numbers. Furthermore, the chapter puts forward practical tips for future dissertation modules: encouraging early planning and engagement with dissertation topics, balancing theoretical and practical elements, providing support for time management, fostering openness to feedback and revision, and making effective use of diverse forms of expertise.

Taken together, Chapter 5 closes with a critical reflection on the authors' own experience, drawing out key implications and offering guidance for the design and delivery of dissertation modules in urban design. It adds to the book a systematic and critical case study of a dissertation module, thereby making a significant contribution to the emerging discourse on research-based urban design pedagogy.

6. Chapter 6: Visioning a Pedagogy for the Future of Urban Design: A Concluding Discussion

The sixth chapter of the book brings together the results of the modules and case studies discussed in detail in the previous chapters, presenting a broader, critical discussion of urban design pedagogy. The focus shifts from how individual modules "work" to a general vision of urban design education that seeks answers to the questions "what should be taught?" and "how should it be taught?" based on these experiences.

This chapter addresses a broader range of actors shaping urban design education and situates the discussion within the wider institutional and political context of contemporary higher education. In this context, the chapter critically discusses the contemporary higher education landscape—neoliberal governance, the commercialization of education, the perception of international students as a source of income, and the disconnect between administration and academia—showing how urban design programs have become increasingly fragile under these pressures. Nevertheless, the authors do not consider political economy criticism sufficient on its own, emphasizing that urban design's unique knowledge domains and professional competencies must be strongly preserved in the curriculum.

The chapter also addresses the questions of "what should be taught?" and "How should it be taught?" from both theoretical and practical perspectives. Surrounding the question "What should be taught?", it is argued that urban morphology and typology, design governance and urban codes, critical engagement with the common urban design literature, defensive-level knowledge acquisition from related disciplines, and real project/case analyses should be fundamental components of urban design education. The discussion of "How should it be taught?" is conducted through the balanced use of studios, lectures, seminars, and workshops; establishing a balance between individual and group work; fieldwork and experiential learning; sequential studio series; multi-scale thinking; systematic development of communication skills; and the principles of

"learning by doing." The quality and motivation of instructors are particularly emphasized as factors that are as decisive as the curriculum.

Section 6 thus serves as a synthesizing conclusion that complements the book and broadens its scope by placing the foundation, studio, research methods, and thesis modules, which are described in detail in sections 2–5, within a broader institutional and pedagogical framework.

The authors articulate several key pedagogical principles that collectively form a coherent vision for urban design education: balancing theoretical knowledge with practical design skills; centering research-based, evidence-informed approaches; positioning urban morphology, typology, and design governance as disciplinary anchors; developing multiscalar thinking systematically; strengthening experiential learning through fieldwork and studio practice; employing blended teaching models that consciously integrate multiple pedagogical modes; cultivating diverse communication competencies; designing sequential, constructively aligned program structures; nurturing critical theory without disconnecting it from spatial design competencies; defending academic autonomy and transparency against commercialization pressures; and recognizing passionate, engaged educators as central rather than incidental to pedagogical quality.

7. Concluding Remarks

The Urban Design Education: Designing Pedagogy for an Evolving Field makes a substantial contribution to the limited scholarship on urban design pedagogy through an in-depth unveiling of the educational and research journey of the one-year Urban Design MA program in Cardiff. The book systematically documents the program's pedagogical architecture from foundation module through dissertation, providing detailed accounts of each component alongside its pedagogical approach and positioning. Its longitudinal perspective across four academic years, including careful documentation of pandemic-era adaptations, offers valuable insight into pedagogical resilience and flexibility in emergent situations.

The structured approach to student submissions and educator assessment enhances clarity, transparency, and pedagogical consistency; however, this degree of structure may also limit students' capacity for creative exploration and constrain their ability to move beyond established expectations. By demonstrating that pedagogy is shaped not only by student–educator relationships but also by institutional frameworks, higher education policies, and wider social dynamics, the authors successfully advance both the theoretical grounding and the practical implementation of urban design education. In doing so, they provide a model that future educators, students, and researchers can meaningfully draw upon. For a discipline still negotiating its identity and scope, such rigorous, self-reflective pedagogical scholarship is as critical as substantive research on urban design itself, since how future generations are taught to think about cities will inevitably influence what urban design as a field becomes.

At the same time, the book's intensive focus on one program raises questions regarding transferability: while some contextual variability is acknowledged, further discussion on how the Cardiff model can be adapted in different educational, cultural, or institutional settings would deepen its practical relevance. The documentation of student satisfaction surveys provides useful insight into teaching performance and immediate experience, yet it does not fully capture whether the pedagogical approaches achieved their intended longer-term outcomes or professional competencies. Moreover, although the book recognizes the diverse educational backgrounds and international origin of postgraduate students, it provides limited critical engagement with how diversity is addressed within the program or how students' varied epistemic traditions inform design thinking. Similarly, student voice and agency remain only partially visible: while feedback surveys offer a snapshot of general satisfaction, the book gives less insight into how students navigated internal choices, negotiated expectations with supervisors, or shaped their research pathways.

Finally, greater attention to epistemic diversity—including exposure to urban design paradigms emerging from non-Western contexts—would enrich the pedagogical dialogue and expand the conceptual toolkit available to students. Such engagement is especially relevant for an increasingly globalized field where graduates are expected to work with multiple forms of knowledge and diverse community contexts.

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Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data Availability

Data will be made available on request.

Ethics Committee Approval

Ethics committee permission is not required.

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