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Reframing cityLabs: Worldbuilding as situated pedagogy for public design learning

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Abstract: Urban design education increasingly calls for methods that prepare designers to act within complex public systems. This paper reframes the Malmö CityLab, an experimental module within a master's program on post-industrial cities, as a situated pedagogy for public design learning. Combining worldbuilding, design fiction, and persona storytelling, the CityLab enabled students and stakeholders to collectively speculate on Malmö's futures across themes of regeneration, migration, and climate transition. Drawing on student artifacts and expert interviews, the study explores how speculative storytelling cultivates political sensitivity, collaborative reflexes, and systemic awareness, key capabilities for acting as public designers. Findings show that worldbuilding supports reflective, plural, and civic learning, positioning CityLabs as infrastructures for collaborative knowledge production and inclusive urban imagination. The paper contributes to emerging discussions on speculative pedagogies and their role in shaping the competencies, sensitivities, and methods required for public design education.

Keywords: Public Design Education; Speculative Pedagogies; Worldbuilding; Situated Learning; CityLabs; Civic Imagination; Design Fiction; Design Capabilities

1. Introduction

CityLabs have emerged since the 2000s as experimental infrastructures where students, educators, and urban stakeholders engage the complexities of post-industrial cities. As urban environments confront intertwined socio-economic, ecological, and cultural transitions, and "wicked problems" resistant to linear solutions (Rittel & Webber, 1973), there is growing demand for systemic, imaginative, and reflexive pedagogies. Traditional, top-down planning struggles to address these shifting conditions. While participatory and co-design methods broaden who shapes cities, speculative practices such as Design Fiction (Bleecker, 2009) and worldbuilding (McDowell, 2015) extend this potential by enabling participants to narrate and inhabit alternative futures. Related scholarship highlights the need for multi-scalar

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capabilities and adaptive design cultures (Morelli et al., 2021), as well as organisational conditions that sustain reflective practice (Kim et al., 2024).

This paper asks how speculative methods can reconceptualise CityLabs not only as pedagogical formats but as speculative infrastructures for public design learning, spaces where worldbuilding, design fiction, and persona development support collaborative inquiry. It also examines how experts assess the value, risks, and transferability of these approaches across educational and civic contexts. To address this, we present findings from the Malmö CityLab, held in September 2024 as part of the Re-Designing Post-Industrial Cities (RePIC) Master programme. The CityLab integrated persona development, ethnographic observation, storytelling, and speculative scenario building into a five-day field-based experiment. Malmö's layered histories of industrial transition, sustainability agendas, migration, and creative economies provided fertile ground for exploring plural imaginaries of urban regeneration.

Positioned within a broader tradition of public design education, this work views learning as emerging through making, reflecting, and negotiating values with diverse publics. Public design here refers to design practice operating within and across public-sector contexts, engaging with governance, infrastructure, and civic life. It involves working with institutional constraints, multiple stakeholders, and socio-political complexity, extending beyond service delivery toward shaping public imaginaries and futures. To extend the pedagogical analysis, we draw on 16 open-ended expert survey responses from urban designers, planners, experience designers, and educators. We analyse student work and expert reflections as parallel forms of situated inquiry to examine how speculative design can function as civic learning. This paper contributes to design research by (1) positioning worldbuilding as a situated pedagogy for collective imagination, (2) articulating how expert reflections reveal both opportunities and limitations of speculative methods in public-sector contexts, and (3) reframing CityLabs as infrastructures that cultivate reflective, relational, and systemic competencies in public design practice.

2. Related work

Urban environments are increasingly characterised by complexity, uncertainty, and "wicked problems" (Rittel & Webber, 1973) that resist linear planning. CityLabs have emerged as experimental, participatory platforms for co-creation and place-based learning, yet moving beyond short-term problem-solving requires methods that interrogate socio-spatial conditions and open space for alternative imaginaries. Within this context, speculative design, particularly Design Fiction and worldbuilding, offers frameworks for rethinking urban transformation while fostering reflection, agency, and civic imagination.

Design Fiction uses near-future prototypes (Bleecker, 2009) to expose the ethical and political implications of imagined decisions. Van Leeuwen and Singh (2024) position it as a form of worldbuilding tied to sociotechnical imaginaries and infrastructural change. In urban

contexts, such projections unsettle planning assumptions and reveal systemic tensions. Blythe et al. (2016) promote "anti-solutionist" design fiction that uses ambiguity to critique high-modernist imaginaries, while Darby's (2023) speculative heterotopias challenge dominant narratives. These perspectives align with critiques of top-down zoning (Watson, 2020) and institutional inertia (Ruming et. al., 2017), despite rising interest in participatory alternatives (Angelo & Wachsmuth, 2020). Within universities, Augsten and Harles (2024) highlight Design Research Labs as sites for speculative experimentation aligned with CityLab pedagogy. Design fiction's strength lies in diegetic prototypes (speculative policies, infrastructures, and narratives) that make ideas discussable. Foresight initiatives at Malmö's Media Evolution exemplify this practice and reflect Bina et al.'s (2020) call for speculative fiction and utopian theory to disrupt smart-city narratives and cultivate critical urban literacy.

Worldbuilding extends design fiction by constructing layered environments where systems and behaviours interact. Originating in science fiction and gaming (Abbott, 2007; McDowell, 2015), it now supports systemic thinking and situated inquiry within design research (Coulton et al., 2017; Çoban & Yantaç, 2025). Thibault, Idone Cassone and Ferri (2023) conceptualise fictional cities as semiotic assemblages, while Taboada et al. (2024) emphasise worldbuilding's capacity to ground pluriversal ontologies in co-created futures. Hoffman (2022) shows how it deepens civic imagination, and Yantaç et al. (2021) alongside Çoban & Yantaç (2025) demonstrate the Worldbuilding Mandala's potential for collaborative speculation across domains including healthcare and urban digital twins.

Futures thinking frameworks complement these approaches. Inayatullah's (2008) Six Pillars highlight deep cultural narratives and layered temporalities, while Communication Infrastructure Theory (Ball-Rokeach et al., 2001) shows how cities are discursively co-constructed through local storytelling. Citizen-authored narratives, as Lashermes et al. (2024) illustrate, can shape mobility futures. Speculative fiction thus serves as a laboratory for alternative imaginaries (Dunn, 2020), reflected in studies of architectural speculation (Majri et al., 2025), ecological foresight (Lemes de Oliveira & Mahmoud, 2024), and storyworld analysis (von Stackelberg & McDowell, 2015). These works show how speculative methods provoke creative foresight and challenge policy narratives (Bina et al., 2017).

Despite this expanding scholarship, the pedagogical use of Design Fiction and worldbuilding in CityLabs remains underexplored. This paper addresses that gap through a field-based case study of the Malmö CityLab, where worldbuilding functioned as a pedagogical infrastructure for exploring urban regeneration, migration, and creative economies.

3. CityLab context: Malmö as an experimental field study

As part of the Redesigning Post-Industrial Cities Master Program, Malmö was chosen for its transition from a post-industrial city to a hub of sustainability, migration policy, and creative industries, making it well suited for testing speculative urban methods. Once a Danish

territory and later a major shipbuilding centre, the city's late-20th-century decline prompted a broader reinvention. Bo01, the "City of Tomorrow," developed on the former Kockums shipyard, which showcased ecological urbanism through renewable energy, green infrastructure, and sustainable mobility. This project helped establish Malmö as a city that learns through experimentation.



Figure 1 Malmö as Living Laboratory: Malmö showcasing its experimental urban landscape, including sustainable development in Västra Hamnen and temporary public space uses.

Other districts continue this experimental ethos (Fig. 1). Nyhamnen, next to the central station, is undergoing long-term redevelopment that mixes housing, work, and leisure within a flexible, evolving framework. Temporary interventions often function as municipal testbeds, illustrated by the "Justin Bieber effect," where an unexpected concert exposed gaps in crowd management. Sege Park, a former hospital campus, likewise reflects Malmö's collaborative planning culture, becoming a climate-smart district centred on shared amenities, community gardening, and energy-efficient design. Together, these examples show how Malmö's commitment to participatory planning, temporary urbanism, and co-creative governance creates a fertile environment for pedagogical experimentation. The city acts as a learning ecosystem, a living laboratory where students and stakeholders explore how urban change intersects with narrative speculation.

4. Methodology, procedure, and outputs

To explore alternative urban futures and critically engage with complex challenges, we adopted a multi-layered methodological framework that combined speculative design pedagogy with expert evaluation. Within the Malmö CityLab, Design Fiction, Worldbuilding, and Persona Development operated as complementary tools: personas grounded empathy and everyday experience, while worldbuilding enabled systemic speculation and collective foresight. An open-ended expert survey extended this pedagogical experiment by assessing how practitioners and educators perceive the value, risks, and transferability of these approaches.

4.1 Implementation: Malmö CityLab in September 2024

As part of the RePIC MSc, students participated in the first Malmö-based CityLab, designed to help them observe, interpret, and communicate layered post-industrial urban conditions across neighbourhoods, institutions, and organisations. Held from 2–6 September 2024, the field-class treated the city as a living laboratory, a dynamic site of production, innovation,

dwelling, and contestation. After preparatory seminars introducing key concepts and speculative techniques, students conducted stakeholder mapping and field observations. Using qualitative and ethnographic methods, they identified local challenges and best practices in sustainable and inclusive development.

CityLab themes

Students explored Malmö through four thematic lenses: urban regeneration, climate neutrality, migration and superdiversity, and the creative/knowledge city (See Fig 2). The first theme focused on the transformation of post-industrial areas such as Western Harbour, Nyhamnen, and Sege Park. The second addressed Malmö's 2030 climate goals through spatial and policy innovations. The third examined demographic shifts and integration efforts in districts such as Rosengård and Möllevången. Finally, the fourth explored Malmö's growing role as a hub for cultural production and game design.

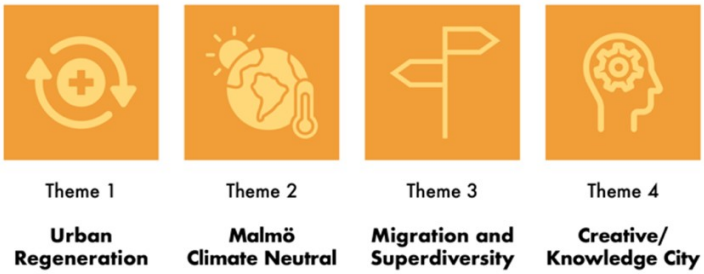


Figure 2 CityLab Themes.

Tool 1: Urban personas

Drawing on participatory design traditions, including The Glass-House's UK workshops and Ireland's Town Centre First initiatives, students adapted user-persona methods for urban speculation (See Fig 3). Rooted in design thinking and service design, this tool encouraged participants to construct fictional yet plausible characters interacting with Malmö's evolving urban fabric.



Figure 3 Urban Persona Development Steps.

The process followed a structured three-step framework that scaffolded learning from empathy to systems reflection. Students began with empathy mapping to articulate what

their persona sees, says, does, thinks, and feels, anchoring their reflections within one of the CityLab themes. They then expanded these into detailed character profiles, including attributes such as age, occupation, values, goals, and spatial habits (See Fig. 4). Finally, each persona's interactions with neighbourhoods, infrastructures, and institutions were mapped, revealing friction points and latent inequalities. Through this iterative process, students learned to articulate multiple perspectives, translate abstract policy agendas into lived narratives, and expose systemic tensions embedded in Malmö's transformation.

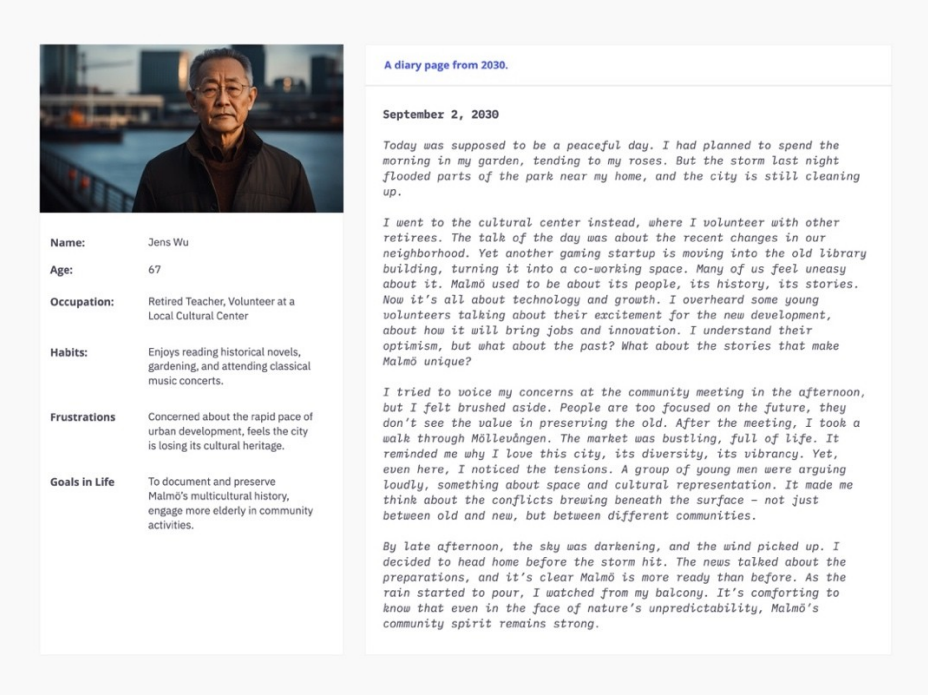


Figure 4 Fictive Persona; Jens Wu: A speculative persona developed to embody tensions.

Tool 2: Worldbuilding with the mandala

Worldbuilding was introduced as a collective design method for systemic speculation. Using the Worldbuilding Mandala developed by McDowell and Diaz (2015), participants collaboratively constructed interconnected futures through thematic and scalar mapping. The process unfolded in four stages: a speculative scenario envisioning Malmö in 2030; engagement with three pre-designed fictive personas; development of new student-generated personas informed by fieldwork; and two facilitated Mandala sessions to map possible urban futures (see Fig. 5). The opening scenario synthesised stakeholder insights and CityLab themes related to inclusion, climate adaptation, and creative economies. The three sample personas; Aisha Khalil (community organiser), Erik Johansson (game developer), and Jens Wu (retired teacher), each included a diary entry dated 2 September 2030, providing narrative cues for empathy and temporality. Students then conducted site walks and created their own speculative personas embedded in these future contexts. During the Mandala workshops, students populated six thematic domains; Learning & Occupations, Urban & Environment, Wellbeing & Recreation, Governance, Society & Culture, and Technology, across four ecological scales: individual, family, societal, and global/city. Colour-coded keywords representing technologies, risks, and values helped them visualise

relationships and tensions across domains. In the second session, four wildcard prompts were introduced to deepen speculation and critical reflection. Examples included imagining Nyhamnen as a fully self-sustaining district, Malmö as a global hub for climate refugees, or a city where every resident has universal access to augmented reality for daily life and creative expression. These provocations encouraged students to iterate their Mandalas, challenge assumptions, and rehearse civic futures collectively. The resulting mappings formed the narrative foundation for the final design fiction artefacts.

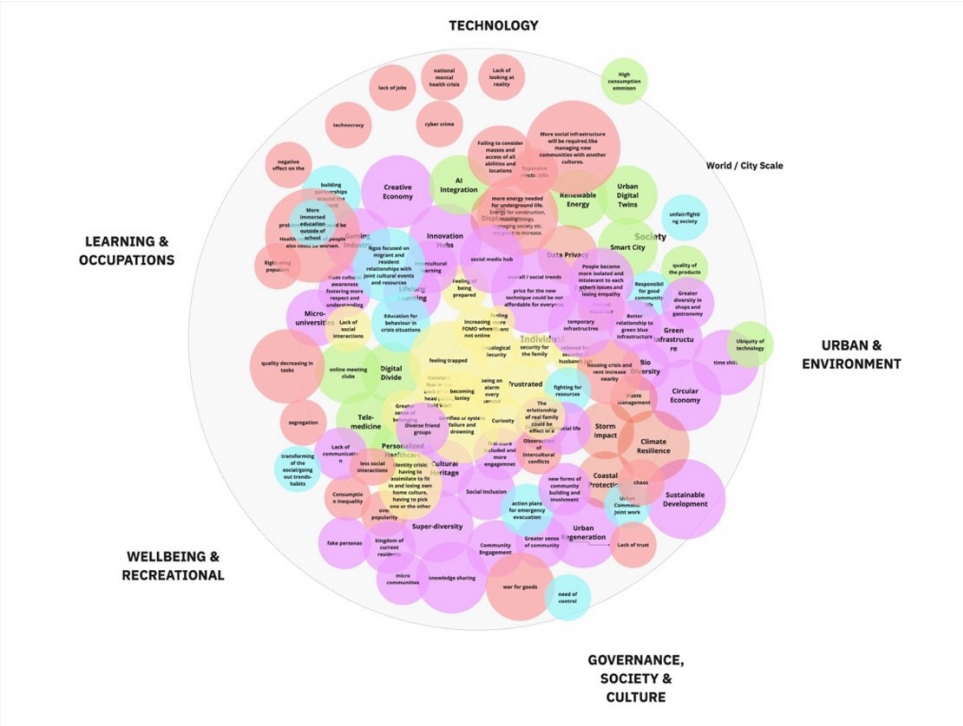


Figure 5 Worldbuilding Mandalas filled in by the students during workshop: Students collaboratively mapped speculative futures of Malmö.

Exemplar student design fiction outputs

At the culmination of the CityLab, student teams translated their speculative mappings into tangible design artefacts that materialised their imagined futures. Two examples illustrate the diversity of approaches and the pedagogical value of speculative storytelling. The first project, Postcards from Rosengård, responded to persistent media stigmas surrounding the neighbourhood by creating a fictional time capsule of illustrated postcards from residents of 2030 (See Fig. 6). Each postcard offered an ethnographic vignette, reframing the district as a site of resilience and everyday plurality. The characters included Youssef, a local shopkeeper reflecting on anti-immigration rhetoric; a migrant trainee at Botildenborg seeking to strengthen community networks; a youth centre teacher navigating intergenerational exchange; a child exploring dual identities; and a father contemplating his daughter's future.



Figure 6 Postcards from Rosengård: Excerpts from fictional postcards created by students, presenting ethnographic vignettes of daily life in Rosengård.

The second project, Creative City Instagram Persona, asked how Malmö nurtures the creative ambitions of its post-industrial population. Students developed a speculative Instagram persona, Alvin Svenson, a local game developer navigating Malmö's creative sector (See Fig. 7). Through posts and captions, Alvin documented the city's gaming clusters, cultural spaces, and generational contrasts. His reflections revealed a city in transformation, where digital storytelling becomes both archive and agent of identity.



Figure 7 Creative City Persona – Alvin: Screenshots from a speculative Instagram persona created by students to explore Malmö's creative economy.

4.2 Expert survey and evaluation

To complement the pedagogical observations from the Malmö CityLab, an open-ended qualitative survey was conducted to evaluate the perceived value, transferability, and pedagogical implications of speculative methods used in the CityLab. The survey consisted of six open-ended questions inviting participants to reflect on: (1) the kinds of learning and reflection CityLabs foster; (2) the effectiveness of speculative methods for addressing complex urban issues; (3) how worldbuilding differs from participatory or co-design approaches; (4) the transferability of these methods to contexts such as higher education or public-sector projects; (5) what they would keep, change, or add in a future CityLab; and (6) the broader potential of the CityLab model for public design education.

The survey was distributed online through email and professional networks to individuals with experience in CityLabs, design pedagogy, civic innovation, and participatory urban design. Responses were collected through an open-ended online questionnaire. Sixteen experts were selected through purposive sampling to reflect diverse perspectives across

urban design, planning, interaction design, and design education. Participants had varying degrees of familiarity with speculative methods and public-sector design, enabling a heterogeneous set of reflections. The sample included professionals from urban planning, interaction design, architectural education, service design, and public-sector innovation, ranging from early-career practitioners to senior educators and researchers with over a decade of experience. Twelve participants had previously engaged with CityLabs as facilitators, collaborators, or alumni, while four contributed external perspectives grounded in municipal planning, public-sector design, and higher education. Data were analysed using a two-cycle inductive thematic approach. The first cycle involved descriptive coding, followed by pattern coding to identify relationships across responses. Codes were iteratively refined and grouped into higher-order categories aligned with the paper's analytical framework: worldbuilding as situated pedagogy, becoming public designers, plural public design learning, and transferability and adaptation.

5. Findings

The findings from the Malmö CityLab emerge along two complementary dimensions; (1) the pedagogical and methodological lessons observed during the CityLab; (2) the expert reflections gathered via the follow-up survey.

5.1. Lessons learned from Malmö CityLab

Developing Design Fiction through worldbuilding and persona-making does not simply speculate on what cities might become; it equips emerging designers to question who imagines those futures and under what conditions. In the Malmö CityLab, students produced diverse speculative framings that underscored the role of dialogue and artefacts; maps, policy briefs, character profiles, in structuring inquiry. As Edward T. McMahon reminds us, "The question is not whether your part of the world is going to change. The question is how." The futures created in Malmö similarly acted as situated, emotionally resonant reflections on urban transformation. Yet the CityLab also revealed risks: without careful framing, Design Fiction may romanticise scenarios or create symbolic inclusion that obscures structural inequalities. Fictional personas can flatten lived experience or overshadow community realities; echoing critiques that caution against speculative work drifting from socio-political conditions (Bina et al., 2017; Blythe et al., 2016; Thibault et al., 2023). Ethical scaffolding is therefore essential to prevent worldbuilding from aestheticising inequality or masking power asymmetries.

Reflections from Malmö highlighted both strengths and limits. Students found speculative tools useful for empathy-building, critical awareness, and interdisciplinary exchange, though some struggled to bridge ethnographic observation and narrative speculation. The abstract nature of worldbuilding sometimes led to drift, signalling the need for clearer prompts and firmer grounding. As Darby (2023) and Taboada et al. (2024) emphasise, speculative heterotopias gain impact when rooted in co-created, situated knowledge. Future iterations could involve community members earlier in persona development and integrate ethical reflection throughout the process. Overall, the CityLab marked a shift from solving

predefined problems to navigating complexity through perspective-taking and critical storytelling. Unlike traditional problem-based learning, worldbuilding and persona-making ask students to interrogate assumptions, hold multiple futures in view, and design with multiplicity in mind. This shift prioritises resonance over resolution. As Hoffman (2022) and Inayatullah (2008) note, cultivating such awareness is essential for imagining plural, just, and inclusive urban futures.

5.2. Expert reflections and survey insights

To extend the pedagogical insights of the Malmö CityLab, we conducted an inductive thematic analysis of 16 open-ended expert survey responses. Coding unfolded in two cycles, descriptive followed by pattern coding, and was then clustered into higher-order categories. Table 1 summarises the main emergent codes, highlighting how respondents described the learning value, methodological distinctions, risks, and contextual factors shaping speculative practice. Across the 16 practitioners, educators, and CityLab alumni, several recurrent patterns emerged.

Table 1 Emergent Codes from the Expert Survey.

Code Category	**Emergent Codes (Descriptive)**
Learning & Reflection	mindset expansion; reframing; “thinking beyond the immediate”; whole-system view
Affective & Relational Capacities	empathy building; stepping into others’ shoes; narrative immersion
Worldbuilding	open-endedness; imaginative freedom; low commitment; not constrained by feasibility
Risks & Ethical Concerns	detachment from reality; aestheticizing inequality; misrepresentation; over-speculation
Facilitation & Scaffolding Needs	careful framing; contextual grounding; structured prompts
Transferability	time constraints; organisational limits; legitimacy challenges; need for adaptation
Public Design Learning	futures literacy; cross-sector dialogue; civic engagement

Across the 16 experts consulted, speculative methods were consistently described as catalysts for reflection, empathy, and systemic awareness. Worldbuilding was characterised as a way of “stepping outside the immediate problem,” enabling participants to think across temporal and spatial scales, aligning with Morelli et al.’s (2021) multi-scalar design capabilities. Experts framed this elasticity as mindset expansion: recognising complexity and exploring relational entanglements before converging on solutions. Respondents also drew clear distinctions between worldbuilding and participatory design. While participatory methods remain tied to feasibility and present constraints, worldbuilding was viewed as a

more “open, permission-giving” space that supports narrative experimentation, plurality, and collective sense-making. Several noted that speculative story worlds invite encounters with unfamiliar perspectives and alternative modes of coexistence, resonating with Hoffman’s (2022) civic imagination and Taboada et al.’s (2024) pluriverse worldbuilding. Yet experts also stressed that this expansiveness carries risks. Without ethical grounding, speculative work may slip into aestheticized or decontextualised futures; concerns raised by Darby (2023) and Bina et al. (2017). Respondents emphasised the need for careful facilitation, contextual anchoring, and community involvement to prevent speculative narratives from reproducing dominant imaginaries or glossing over structural inequities. They also noted the difficulty of transferring speculative methods into institutional settings shaped by time pressure, bureaucratic norms, and narrow definitions of legitimate design practice, paralleling Kim et al.’s (2024) account of the fragility of embedding design in government. Despite these tensions, experts viewed CityLabs as promising infrastructures for public design learning: spaces where participants can rehearse roles, negotiate values, and cultivate futures literacy. Many highlighted the model’s potential to support cross-sector dialogue and bring diverse publics into shared conversations about urban futures. Taken together, the survey reinforces the CityLab’s capacity as a civic platform for collective imagination and a meaningful contributor to public design education.

6. Discussion

Drawing on student work and expert reflections, this section examines how speculative methods reframe CityLabs as infrastructures for situated, plural, and reflexive public design learning.

6.1 Worldbuilding as situated pedagogy

Findings show that worldbuilding operated as a mode of situated inquiry, enabling students to anchor speculative futures in Malmö’s lived narratives, policies, and material transformations. This aligns with McDowell’s framing of worldbuilding as systemic storytelling and with Darby’s (2023) “speculative heterotopias,” where real and imagined city layers inform one another. Experts viewed this situatedness as essential; one remarked that speculative work “helps people step outside the immediate problem” and develop a whole-system view. By linking ethnographic insight with narrative building, the CityLab bridged cognitive and affective learning processes, echoing Hoffman’s (2022) claim that civic imagination deepens when speculation remains tied to place-based realities. The emphasis on multi-scalar thinking resonates with Morelli et al.’s (2021) articulation of design capabilities spanning interactional, infrastructural, and systemic levels; capabilities the Mandala scaffolded through its layered structure. Worldbuilding operates here not only as a speculative technique but as a mediating practice that makes complex public issues discussable. By externalising competing narratives and futures, it supports the negotiation and stabilisation of design practices within institutional contexts.

6.2 Becoming public designers

The CityLab’s iterative processes of persona development, Mandala mapping, and narrative synthesis positioned students as emerging public designers who navigate uncertainty,

negotiate values, and work relationally. Rather than treating urban issues as technical problems, students engaged with their political, affective, and ethical dimensions. Expert reflections affirmed this shift. One respondent described speculative methods as a shared "playground where everyone can contribute without the pressure of being 'right'," illustrating how worldbuilding can soften hierarchies and support inclusive collaboration. Another emphasised the value of "connecting ideas with emotion," pointing to empathic capacities needed in civic and public-sector contexts. These insights echo critiques by Blythe et al. (2016) and Bina et al. (2017), who argue that speculative design must resist solutionism by foregrounding ambiguity, ethical reflexivity, and plural values. In Malmö, moving between observation and fiction required students to question whose futures were being imagined, how narratives encode power, and what responsibilities designers bear when shaping public imaginaries.

6.3 Plural public design learning

The CityLab surfaced a wide spectrum of imaginaries; across personas, Mandala futures, and design fiction artefacts, reflecting Malmö's superdiverse urban conditions. This pluralism aligns with Taboada et al.'s (2024) concept of pluriversal worldbuilding, where multiple ontologies and social realities coexist without premature convergence. One expert noted that worldbuilding "makes discussions about abstract or political issues more tangible and inclusive." Student artefacts such as Postcards from Rosengård and Creative City Persona show how narrative devices can humanise systemic tensions, counter institutional narratives, and foreground underrepresented voices. Such polyphonic outputs echo Thibault et al.'s (2023) characterisation of fictional cities as semiotic assemblages; spaces where material, social, and symbolic elements are reconfigured through collective meaning-making. Grounded in place and informed by lived tensions, this plural learning mode broadens what Bina et al. (2020) describe as the imaginative horizons needed to envision just and inclusive futures.

6.4 Transferability and adaptation

The survey highlighted strong appreciation for the pedagogical value of speculative methods, alongside caution about their fragility in institutional contexts. Respondents noted risks such as aestheticising inequality, drifting from lived experience, or misrepresenting communities. Several emphasised the importance of facilitation and contextual grounding, noting that "trust and framing are key conditions; without them, speculative methods can seem too abstract." This resonates with critiques by Darby and Blythe, reinforcing the need for ethical scaffolding, structured prompts, and community involvement. Experts also pointed to institutional barriers when applying worldbuilding beyond academia, particularly in municipal settings where legitimacy, time constraints, and bureaucratic norms shape what counts as design. These challenges echo Kim et al.'s (2024) observations on the difficulty of embedding reflective practices within government contexts. Despite these constraints, participants identified the CityLab model as a promising framework for public design education. As one expert noted, CityLabs "help future designers understand the complexity of governance and the politics of everyday space," suggesting that speculative methods can act as boundary infrastructures linking civic, educational, and institutional worlds. For educators and practitioners, this suggests three practical orientations: grounding speculative

work in place, structuring it through guided facilitation, and framing it as collective inquiry rather than a solution-driven exercise.

7. Conclusion

This paper examined the Malmö CityLab as an experimental pedagogical and civic infrastructure for exploring how speculative design methods; worldbuilding, design fiction, and persona development, can foster collaborative, reflective, and plural learning in urban design. Embedded in a real-world context, these tools helped students and experts read Malmö's post-industrial transitions not as fixed problems but as evolving narratives of coexistence, reframing design learning as a civic act where imagination becomes inquiry and speculation fuels dialogue across institutional and social boundaries.

Findings show that worldbuilding works as a situated pedagogy linking observation with imagination, helping learners navigate uncertainty and interdependence. Echoing Darby's (2023) speculative heterotopias and Hoffman's (2022) civic imagination, the CityLab demonstrated that grounded fiction becomes a medium for reflection. Students questioned whose futures are represented and how values materialise in spatial narratives; resonating with Inayatullah's (2008) layered futures thinking and Morelli et al.'s (2021) service design capabilities across scales essential to public design learning.

Expert reflections highlighted both promise and precarity. While speculative methods can cultivate critical and empathetic learning, they require ethical scaffolding to avoid aestheticisation or symbolic inclusion, reinforcing arguments by Bina et al. (2020) and Taboada et al. (2024). Experts also stressed that public-sector adoption demands organisational openness and legitimacy-building, aligning with Kim et al.'s (2024) account of the cognitive, moral, and pragmatic challenges of embedding design in government.

Though limited in duration and stakeholder depth, the Malmö experiment shows how CityLabs may evolve into living infrastructures of public design learning. While student artefacts were analysed, the study does not include direct student reflections, and interpretations of learning outcomes are therefore based on observed outputs rather than self-reported experiences. Future versions could involve multi-phase engagement, community-led personas, and longitudinal reflection, allowing speculative narratives to circulate more deeply between academia, municipalities, and local publics. In a time of accelerating urban and ecological precarity, collective imagination becomes a foundational public design competency. If cities are shaped by the stories communities tell (Ball-Rokeach et al., 2001), then reimagining those stories through worldbuilding and design fiction is both an educational and ethical imperative; an enduring act of future city-making.

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