NORDES 2021

CO-CITIZEN DESIGN LABS IN RESILIENCE MAKING

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ABSTRACT

In this paper we share our resilience making approach for a first year design program in which we work intentionally with scale – through the subject matters of resilience, and through our learning design. We respond to the provocation of matters of scale in design to progress our design research in two ways. The first contributes to discussion of design education's remit from within ecological and existential crises, relative to expanding (design) knowledge. We then give focus to the co-citizen design lab that students conduct to illustrate how the inter-scalar relations we explore manifest through students' design action. Here we draw on the 2019 and 2020 co-citizen design labs and evolve its learning design for a third iteration of resilience making in 2021. We conclude by suggesting resilience making as a purposeful way of practising hope and small, ecologically and socially viable transformations.

INTRODUCTION

We articulate in this paper a small approach in design learning and research – resilience making – that is entirely contingent on matters of scale. Viewing scale as relative size, our module is just five weeks in duration, or equivalent to one twenty-fourth of an international BFA program in design. This ratio, however, belies a nested approach to learning directed to re-making ecologically and socially just futures through design. Since 2019, the Resilience module that consolidates students' first year in the program has become an enactment of living curriculum and an evolving design research platform. To date, our explorations of resilience concepts with students have prompted:

- The articulation and iteration of a learning design through which students journey from the scale of the self, to community, to regional system in the lead-up to devising a design lab for a co-defined system scale;

- Expression of increasingly critical, pluralist and artistic perspectives on resilience and how they manifest ecologically and socially;

- Re-workings of key tenets of sustainability and design education that we have unsettled with the help of recent calls to decolonise design (e.g. Escobar, 2018; Tunstall, 2013), to practice different human-nature relations (e.g. Head, 2016; Ingold, 2020), and to strengthen ecological literacy in design learning (Boehnert, 2018); and

- Assembly of a systems-based, relational and embodied position toward design knowledge and learning (e.g. Capra and Luisi, 2014; Cooke et al., 2016; Wals, 2020).

Scale is at play in our work in two key ways. Scale and inter-scalar phenomena are core to the subject matters of resilience – grounded as they are in the ecological sciences and complex systems theory (Folke, 2016; Meadows, 2008; Walker and Salt, 2006). Resilience also has its origins in materials science and psychology (Olsson et al., 2015). Second, we use scale to structure a series of learning engagements that increase in scope and complexity over the five-week module. This expansion aligns with the nested scales underpinning the entire design program and which is made visible to students and teachers (Figure 1). Students progress from exploration of the local in Year 1, the regional in Year 2, through to practising design with global scale insight by completion of Year 3. In tandem, there is a shift in focus from design object/product and materiality through systems, networks and services, toward critical and norm creative design practices that grapple with power structures and paradigms.

https://doi.org/10.21606/nordes.2021.35

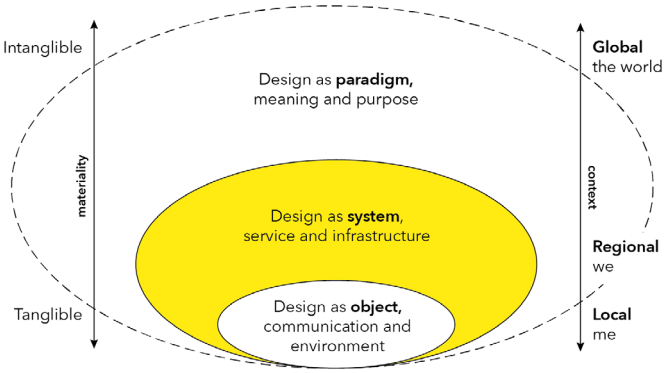

Figure 1: The scale of our module (yellow) rests within the nested scales underpinning the entire design program. Instead of seeing the scales as a linear process (from Year 1 to 3), we see all three scales at play to different degrees. (Adapted from Tham, 2019)

Central to our work within the inter-scalar relations above, is the interplay between resilience concepts and design processes. In his synthesis of resilience thinking, transdisciplinary environmental scientist Carl Folke provides a popular definition of resilience: "... the capacity to persist in the face of change, to continue to develop with ever changing environments. Resilience thinking is about how periods of gradual changes interact with abrupt changes, and the capacity of people, communities, societies, cultures to adapt or even transform into new development pathways" (2016, no pagination). In resilience thinking and practice, social-ecological systems are indivisible – though their coupling is flagged as stubbornly binary and problematic (Cooke et al., 2016; Head 2012; Head 2016; Mancilla García et al., 2020). Resilience plays out differently in social-ecological systems over time and space, distinguished by Folke (2016) as 'persistability', 'adaptability' or 'transformability'. These distinctions also form the basis of a 'social resilience' framework put forward by Keck and Sakdapolrak (2013). As design teachers and practitioners, we see the adaptive and transformative dimensions of resilience aligning well with the generative and re-making possibilities of systemic design processes:

"Resilience whether for adaptability or transformability operates and needs to be addressed across levels and scales ... Shifting pathways or basins of attractions at one level or scale does not take place in a vacuum. Any transformation draws on resilience from multiple scales and diverse sources of actors, organizations, institutions, recombining experience and knowledge, learning with change, turning crises into windows of opportunity, and allowing space for or even governing transformations for innovative pathways in tune with the resilience of the biosphere ..." (Folke, 2016, no pagination).

Certainly, our approach with resilience since 2019 has been shaped by amplifying crises – global heating, earth systems degradation, biodiversity loss, widening inequality, fragile democracies – and as we write, an ongoing global pandemic. Our collective 'eco-anxiety' was palpable well before the Coronavirus ruptures, at times debilitating for students and teachers, at other times feeding our resolve for creative change. We therefore undertook to work with these existential fears through design research, and we share here what we experience as an inter-scalar, 'living curriculum' (Wals, 2020) and authentic practices of hope and care with our students (Head, 2016; Rodgers et al. 2019). Through co-writing, we have responded to the provocation of matters of scale in design to progress our design research at two linked scales. In the first we contribute to discussion of design education's remit from within ecological and existential crises, relative to expanding (design) knowledge. We then give focus to the co-citizen design lab that students conduct to illustrate how the inter-scalar relations we teach manifest through design action. Here we draw on the 2019 and 2020 co-citizen design labs and evolve the learning design for a third iteration of resilience making in 2021.

DESIGN LEARNING – FOR THE FUTURE OR PRESENT-AS-FUTURE?

Our purpose in discussing future design education is not to construct a comprehensive argument or proposal for its re-direction. Rather we enter ongoing discussions to align our work with key shifts toward re-directing higher education for reasons of urgency and pragmatism in the face of concurrent global crises. There is growing recognition of the inadequacy and dissonance of traditional, discipline-bound curricula that suppose to equip students for 'sustainable futures' (Barnett, 2017; Lotz-Sisitka et al., 2015; Sterling, 2014; Wals and Rodela, 2014; Wals, 2020). At the same time, we recognise higher education is where we can explore and challenge knowledge, skills, attitudes and values. The pervasive calls to prepare design graduates for increasing complexity and ever more 'wicked problems' (e.g. Wilson and Zamberlan, 2017) imply to some extent that it is within our power as teachers to align competency development with an anticipated yet 'unknown future'. The early foundation for our work was in confronting that we cannot continue to see the self, society, nature and the future as separate entities – and to teach this as such to our students. Instead we need to embrace more holistic, systemic and relational worldviews. The framing of reality via the process-relational perspectives in social-ecological systems of Mancilla García et al. (2020) offers new guidance to design education in our view. Foremost is their post-object understanding and its integrative potential:

"The social and the ecological only exist by virtue of the interactions between them, and can thus only be understood ontologically with respect to each other. In

this view of reality, relations have causal agency and stand prior to objects, whose identities are formed by relations" (2020, no pagination).

Apart from helping us dismantle separationist thinking, this perspective helps us work our way out of practising design education in an integrity void, promising our students knowledge and skills that will prove useful only later in their lives (we hope) while they daily fear the weighty uncertainty of their future. Prompted by new orientations to understanding complexity, cross-scale dynamics (spatial and temporal) and the idea of a constantly reconfiguring 'possibility space' (Mancilla García et al., 2020), we ask then if we can also adopt a new temporality in which we seize the future as our present? And can our practice of the present through design be generative of a mosaic of new processes and relations that are more ecologically and socially integrative?

RESILIENCE MAKING

We approach the challenge of creating these generative conditions mindful that 'resilience' is not a unified or stable concept (Olsson et al., 2015). As such, its subject matters are explorable through design but we have to make this exploration viable for the scale of a five-week module. Using the scales of self, community and regional system sets up defined – yet porous – boundaries through which multidisciplinary perspectives on resilience can be engaged with. Resilience is often promoted for its relevance in addressing complexity and uncertainty in the face of social and environmental challenges. At the same time, it is critiqued for its tendency to reinforce existing social and ecological conditions (negative persistence), or to require people or other species to adapt while destructive power structures and systems persist and go unchallenged (Lotz-Sisitka et al. 2015; Olsson et al. 2015). These conceptual tensions have, however, helped us to develop a pedagogical response that rests within the learning objectives while at the same time fulfilling the focus of the semester, design processes and methods, and supports students to creatively direct design processes toward "developing new capacities to act and create ecologically viable ways of living over time" (Boehnert, 2018, 75).

In our approach to resilience making we prioritise the concept's transformative potential to explore and question alternatives, and to make visible possibilities to become positive forces in shifting relations and interactions between people and living systems. We are using 'resilience making' as an overt term-in-progress. It is an awkward coupling that nonetheless values the making of creative adaptations and transformations – no matter how small. 'Making' is also familiar to our students as their language of creative practice.

Resilience making is contingent on working mindfully with scale and context, and empathically with others (including non-human others). Its social-ecological systems lens allows us to work with non-linear and cross-scale dynamics, seeking out connections, patterns and feedbacks, and to experiment with redundancy and regenerative cycles. It also allows us to openly value diversity and multiple forms of knowledge and know-how, including latent vernacular practices.

We have come to see resonance between our resilience making approach and its openness to the current crises we are all experiencing, with Lesley Head's (2016) framing of the Anthropocene and simultaneous practices of hope and grief. Her emphasis is on climate change and the spatial-temporal scale of the everyday: "Hope is practised and performed; it is a sort of hybrid, vernacular collective worked out in everyday practice and experience. It amplifies and inverts some of the things we are already doing" (2016, 80). And further urging for practices of hope to be generative (through design in our case), Head argues:

"If there is work to be done in acknowledging painful emotions [including grief], there is also work to be done in exploring their generative, transformative potential. Anthropoceneans disconnect hope from emotions of optimism, and from an unfolding future. They find hope in practice and being. Disruptive frictions can be welcomed for the opportunities they provide to effect transformation. Prolonged drought has shown the potential to transform water usage. Disasters [and pandemic] generate networks of care and sharing" (2016, 168).

KNOWLEDGE AND KNOW-HOW IN RESILIENCE MAKING

The design practices we are seeking to equip students for operate in an expanding and dynamic design field, within overlapping and escalating ecological and existential crises. Based on the urgency and gravity of the challenges we are living with and through, we needed to develop a learning design that supports students in becoming reflective and caring practitioners who are not only able to embrace more holistic, systemic and relational worldviews, but to act within them. Therefore, our deliberations here are focused on what kinds of knowledge, competencies and understanding actually support the process of exploring and proposing ecologically and socially viable ways of living, through design.

As an interdisciplinary knowledge domain, resilience qualifies regarding its relevance, responsibility and opportunity – three criteria Barth (2015, 78) sets out for the selection of themes and topics supporting learning for change. At the same time, the ambiguity of the term resilience makes its use ineffective without a

conversation around what needs to be preserved and developed as well as a cross-scale understanding of the context and inhabitants. In addition to the fact that only simple problems have simple answers, the deep complexity of our challenges – often related to systemic failures and conflicting values and worldviews – require us to bid farewell to the idea we can teach knowledge and facts that automatically lead to the 'right solutions'. Similarly, knowledge that views the world in terms of fragments, categories and ever smaller parts is of limited use. The knowledge we need views the world as a plurality of relations and connections, coupled with a humility for our always partial understandings and the fallibility of dominant Western knowledge canons (Escobar, 2018; Sterling, 2014; Tunstall, 2013).

Resilience making therefore treats knowledge as something that is not pre-constituted and cannot be transferred by the teachers. Rather, it is knowledge that students co-generate in an active engagement with the context and participants within in a particular system that they co-define. It is only within those relations where relevant knowledge can be assembled and used. According to Stephen Sterling (2014), a long-time researcher in ecological thinking, systemic change, and learning at individual, institutional and social scales, any educational response to the challenges of our time must address how we perceive, think and act in this world:

"Notwithstanding the negative effects and potency of greed, ignorance, abuse of power, fundamentalism and so on, there is a critical mismatch between deeply engrained patterns of thought resulting from our Western cultural and intellectual legacy of reductionism, objectivism, dualism, materialism and so on, and the dynamic and systemic nature of the Earth and the human world" (Sterling, 2014, no pagination).

He proposes a model based on three interrelated dimensions of human knowing and experience: *seeing* (perception), *knowing* (conception) and *doing* (practice). All three need to be activated for a sufficient and whole system response to sustainability (which we qualify as meaning ecologically and socially viable ways of living over time, after Boehnert (2018)). Sterling identifies the following key problems in the three areas:

"In the area of *Seeing*, the key problem currently is one of narrow boundaries, of egocentrism, of lack of awareness or care for 'the other', and limited spatial and temporal inclusion. In the domain of *Knowing*, the key problem is over-specialism, and lack of understanding of, and thinking congruent with, systems, pattern, connectivity, consequence, interdependence, and so on. In the domain of *Doing*, the key issue is lack of ability to design, decide, and influence in a way which promotes integrative and synergetic behaviours and actions that add to overall systemic wellbeing rather than the reverse" (Sterling, 2014, no pagination).

This connects to our second concern which spurred us to re-design the module in 2018-19: how can this understanding of the interrelated dimensions of human knowing and experience be addressed and turned into an authentic and transformative learning opportunity? Reconsidering the process of learning with Kolb's experimental learning cycle (2014, 51), learning arises from the creative tensions among activities of concrete experiencing, reflective observation, abstract conceptualisation and active experimentation. What makes the model of seeing-experiencing, knowing and doing so appealing is that it corresponds with our understanding of design processes and practices of design. Following the thinking of Nelson and Stolterman (2014), design distinguishes itself by bridging the practical and theoretical knowledge divide, consisting therefore of a particular form of learning that is not fully comparable with other disciplines. It is first in the combinations of knowing and doing that design learning shows its full potential.

Resilience making unfolds then as an open and collaborative learning environment in which we translate the three interrelated dimensions of human knowing and experience, visualised via this learning design (Figure 2):

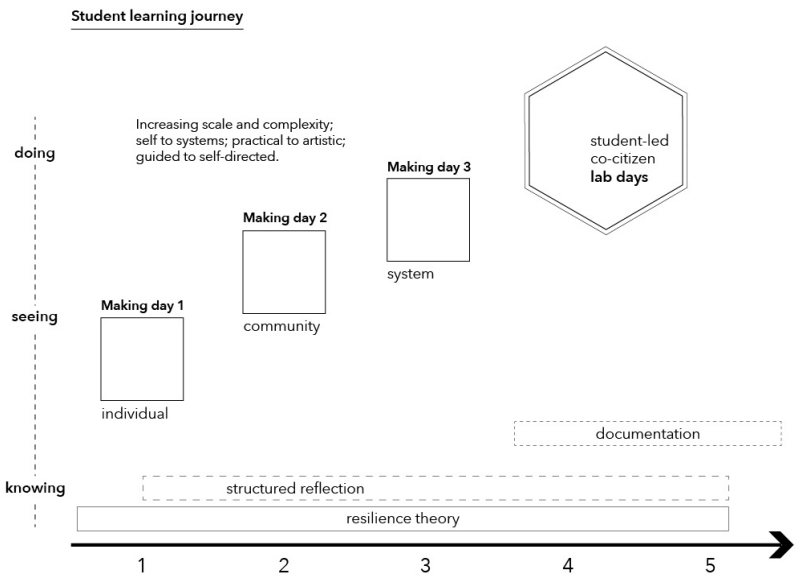

Figure 2: Student learning journey over five weeks for the integration of knowing, seeing and doing via making activities with increasing system complexity and scale

Through a series of lectures, seminars, weekly workshops in the form of 'making days', and short reflective texts, the students consider how resilience manifests and can be practised before phasing into their 'co-citizen design labs' (elaborated below). By choosing

their own opportunity space in which to explore resilience, the students are largely self-directed in collaborating with other students and the inhabitants of their focus system. Within this framing of the design lab, students can develop an awareness or care for 'the other'. Indeed, we use the term 'co-citizen' (adapted from Rockström, (2018)) as a provocation to consider interdependence and multispecies thinking in identifying their 'others' – beyond Rockström's human co-citizens. The small system scale students are asked to co-define allows them to identify relations, connectivity, patterns and interdependence between all involved. Having said this, it is important for us to problematise the role of the designer in this context and the tendency to make decisions on behalf of the other, and to influence causes of action without being fully aware of the consequences that may eventually result.

There is an irony, we acknowledge, in guiding students along this seemingly linear progression in scale from the self/individual to the community, through to a regional scale system (see Figure 1) when systems are unfailingly characterised as non-linear, dynamic, complex networks with spatial and temporal dimensions (Capra and Luisi, 2014; Meadows, 2008; Walker and Salt, 2006). What has been revealed in this co-writing process, however, are the uncritical ways in which we at times privilege 'scaling up' and 'going global' in our teaching. We attribute this in part to having internalised the typical 'starting-up to scaling' trajectories of design thinking (e.g. IDEO, 2016) and design for social innovation (e.g. Reypens et al., 2020) – both of which have become key sites of design practice and graduate employment. In light of the 2020 pandemic exacerbating multiple crises in multiple regions, we are now questioning whether we can unburden students of the implied responsibility for effecting change at the global scale. Can they in fact build resilience through design, sooner, at the local or grassroots scale? We suggest many already are, and that we can now collectively understand these cross-scale systems we inhabit as sites of the 'living curriculum' outlined by Wals (2020), with nodes of action distributed across campus, study spaces, homes, townscapes, landscapes and online spaces. 'Small-scale' for us then denotes everyday habitation and proximal dilemmas, and crucially a scale where there exists genuine scope for students to effect change. We actively encourage students, however, to seed cross-scale actions through design actions that invoke and respond to regional through to global challenges as a way of practising design agency.

THE CO-CITIZEN DESIGN LABS

The co-citizen design lab is central to the module. After three weeks of exploring resilience as per Figure 2, the students devise, conduct and document (via low-fi video) their co-citizen design lab over 10 days or so. The design challenge for the labs, which are always conducted in small groups, is to actively foster greater resilience within a system the students already inhabit. During the process, they connect the previously explored theory and making days to carry out resilience making as adaptive and/or transformative action, exploring different strategies for effecting change in relation to scale – of the self/individual, community and/or the broader regional system in which they are located. There are alternative delineations of scale we could use, such as the 'micro/niche, meso/regional, macro/landscape' adapted by Wals (2020), but to date students have related with ease to those above.

We see the design lab as a structured, participatory approach to generate insights and bottom-up responses to complex issues, driven by the interest and concerns of the students. Various design lab models have proliferated in recent decades, but the advantage of the basic lab format for us, as described by Binder and Brandt (2009, 119-121), is for enabling collaborative inquiries in the form of experiments without pre-defined materials, methods or places. Further, students are encouraged to iterate how they articulate their particular design challenge. The design lab format offers a way of connecting seeing, knowing, and doing via a small-scale and emergent design action. Parallels exist between the design lab as a pedagogical approach and both inquiry-based learning (IBL) (e.g. Aditomo et. al, 2013) and problem-based learning (PBL) (e.g. Savin-Baden and Major, 2004). All three approaches prioritise student-led inquiry or investigation which is instigated by challenges or problems, though the origin of the challenge or problem may vary considerably. The latter form - PBL - is often adopted in learning contexts approximating professional and clinical practices with their inherent human and technical complexities.

Our design lab format, by way of contrast, places emphasis on the students framing and re-framing their chosen challenge through an iterative and generative process contingent on situating themselves in a specific social-ecological system. The design lab contexts and challenges are therefore not pre-defined; each group lab is process driven and an open but supported learning space in which students apply and test out explicit design methods they have learned in the preceding modules. Students' motivations and values can be channelled into a conscious exercise of agency – individual, collective and arising from the artefacts and relations they design. This prompts reflective conversations about agency not being conferred by others, but needing to be practised relative to different system scales.

In documenting the experiences of students each year (with their consent), some shared in their reflections that the design labs were the first time they felt they were

exercising agency, or came to view their earlier activism as a system intervention. The work generated by students is documented through collecting process materials (sketches, images, reflections, maps etc.) in their group project books, a short documentary film of the design lab and written reflections. Together with insights from student de-brief sessions, and student and staff evaluations, this cumulative archive forms the base of our research.

The design labs carried out by students in the past two years span design challenges within the university/ campus system (related to student well-being), to engaging with local social-ecological systems. While some labs grapple with our relations to the ecological, several others focus on the social, including participation and democracy, care and vulnerability (noting these emphases are our interpretation, not a conscious bifurcation by the students). Most labs combine exploration (exploring the conditions of resilience in a particular system) with a design process that focuses on facilitating activities and engaging others.

The co-citizen design lab "*Food Hiking*" (May-June 2020), for example, encourages the practice of foraging in the campus locality focusing especially on international students unfamiliar with the ecology, sharing stories about foraging in their home countries, and eventually creating a direct cooking and tasting experience of the collected food for the participants (within Covid-restrictions at the time).

Figure 3: Students foraging wood-sorrel during "*Food Hiking*"

Figure 4: "*Food4thought*" provides an excellent example of adaptation and students' adaptive capacity with food systems, culture and integration – within Covid-19 restrictions.

In the "*The Big Build*" design lab (May-June 2019) the students decided to become 'free space agents' and to try to engage peers via skill-sharing and building activities in the middle of campus (using reclaimed and borrowed materials). The goal of this lively, exploratory and open-ended design process was to engage diverse students in an activity towards a common goal, discussing public space, needs and care in the process. The students elicited new insights with their random collaborators by 'trying to meet them where they were' (culturally, politically etc), and experimenting with keeping their own 'group think' at bay. The connection between resilience, knowledge and agency clearly manifested in the documented activities.

Figure 5: 'Random' students building together on campus open space (using reclaimed and borrowed materials) during "*The Big Build*" design lab.

In critically reflecting on the design labs to date, and drawing in new insights around change processes, we suggest there are crucial connections at play between embodiment, agency, co-citizenship and scale. We see embodied experiments in the labs arising from what Fountain et al. describe in learning design as "conditions for a lived approach to capability development that challenges students' beliefs through action within the messy complexity of the systems they are inhabiting" (2019, 87). This provides the students with possibilities for an engaged and lived experience of transformative praxis, as an example of "transformative, transgressive forms of learning … that involve multi-voiced engagement with multiple actors" and touch on co-learning, cognitive justice, and the formation and development of individual and systemic agency (Lotz-Sisitka et al., 2015, 78). Conversely, this highlights that the instrumental relationship between learning, citizenship and democracy, or the idea of learning as a way to provide solutions for numerous social and political problems, is not unproblematic (Biesta et al., 2013).

It is essential for the design labs that students' design processes move out of the studio space and involve others inhabiting a particular system. This does not unfold by applying participatory design methods per se,

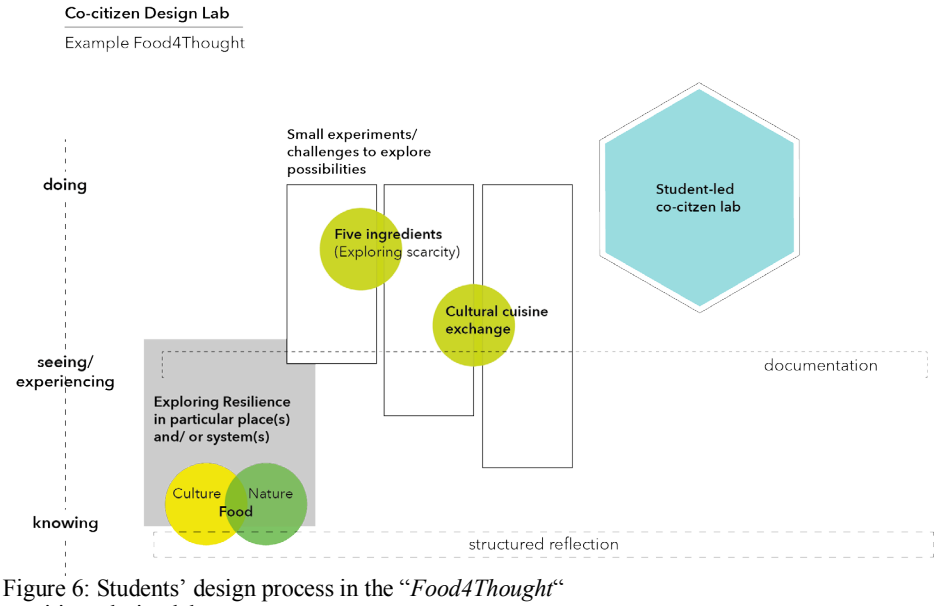

Figure 6: Students' design process in the "*Food4Thought*" co-citizen design lab

but by shifting the focus from values and interests of an individual or entity to considering what is valued and relevant to multiple interests (which could well include indifference to humans). This connects back to the 'co-citizen' provocation, promoting a relational view of system habitation and opening up for dialogue and interaction. The concept of co-citizenship therefore allows us to engage with a richer field than if we would only speak about 'sustainability' – a weak concept which too often is reduced to a trade-off between economic growth, the needs of humans and 'nature'.

While many of our most pressing issues are global, they are also contextual, taking a particular form in particular places. They are also perceived as far beyond the influence of an individual design student. Therefore, common approaches in design education that seek to make change in the world by identifying relevant, urgent topics with little consideration of realistic, well-scaled learning design can leave the students feeling powerless and frustrated. Unless the students manage to translate their work into a realistic scale, they tend to develop abstract and speculative design projects, often feeling they are not contributing to any change at all. Having said this, there is of course a place for abstract and speculative design projects, but not always.

The strategy therefore is to work with continua (i.e. local to global, simple to complex, personal to public) to propose design responses that allow the students not to view a situation from afar, but to perceive from within in a networked way by exercising empathy for others. Coupled with the embodied experiments of the design labs, this aligns with Cooke et al. (2016) who propose re-connecting individuals with global scale dynamics – namely the planetary boundaries – via grounded, embodied action in preference to mere mental models.

As a result, students gain from a direct experience around values, interests and design possibilities within a personally and collectively relevant space.

EVOLVING THE CO-CITIZEN DESIGN LAB FOR 2021

In approaching the next iteration of resilience making, our immediate challenge is to overcome the still rather human-centred approach to thinking and decision making, towards an understanding of the world in which nature is more than a resource or something existing separate to us or to the urban environment. We also intend to develop improved guidance for students throughout the entire learning journey. This will range from explicit formulation of values, to supporting the exploration of the systems they work with. While we have introduced system mapping, we need to intensify the work around using those maps to analyse and to identify opportunities for resilience making. This will include involving more and different perspectives (e.g. actively including the voice of the non-human), as suggested by Lotz-Sisitka (2016) when speaking about transformative, transgressive learning to explore and confront contradictions, as well as identifying what is not there (absence) and what could be there (new practices). To this re-design of our mapping activities we will also adapt the process-relational perspectives of Mancilla García et al. (2020).

Depending on pandemic conditions in 2021, we will revise the three making days relative to what is possible. We adapted these effectively in 2020 to fit within restrictions, but with new insights stemming from Head's (2016) relational practices of hope and Ingold's (2020) ideas of kinship with the earth, we see new opportunities. The community and regional scale making days in particular invite inquiry to discover and revive practices of localised resilience making which

can be understood as cultural improvisations for day-to-day survival.

Finally, we have become aware that the design labs are persisting as 'living artefacts' and points of reference by the students at different stages of the design program. We wish to initiate a collegial exploration of how the co-citizen design labs in the first year can inform relevant progression with subsequent labs that expand the students' capabilities in designing and making transformative change.

CONCLUSION: RESILIENCE MAKING AS A PRACTICE OF HOPE

We have shown in this paper how cross-scale system concepts can be actioned in design learning in ways integrative of social and ecological relations, and human knowing, experience and action. Through this co-writing process we have critiqued and evolved our resilience making and co-citizen design lab pedagogy, aligning with moves toward more grounded, living curricula in higher education. From within our experiences of concurrent crises, we have also suggested design learning is not for an 'unknown future' but a present-as-future where our collective design agency is already at work seeding transformations while we all co-develop new adaptive capabilities.

At the same time, we have clarified the value of process-relational thinking and firmed our case for small-scale, 'hybrid vernacular' practices in our resilience making approach. We better understand *how* we can foster possibility spaces for learning how to make adaptations and transformations through design action. The co-citizen design labs shared – as combinations of cross-scale knowing and doing – are emerging as a model to experiment with ecologically and socially viable ways of living. We now see these design labs offering a purposeful way to work through grief and hope from *within* the crises of our present – even beyond formal education. To that end, we are scoping possibilities to conduct such labs as design practitioner-teachers in our respective communities, which will enrich iterations of resilience making to come.

ACKNOWLEDGEMENTS

We thank and acknowledge the students, colleagues and guests who have contributed to and shaped each iteration of resilience making over several years. We also thank the anonymous reviewers for their incisive and generous feedback.

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