Making resilience through design doing

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Abstract

We propose 'resilience making' in this paper as urgent, creative and adaptive action through an account of its exploration with students in the first year of an international BFA in design. We focus on the learning design being carried out for the fourth iteration of the module 'Resilience' - the last of eight modules completed by students in an introductory year structured around design tools and processes.

Our core proposition is that context-rich, place-based making is a means to connect students *within* social-ecological systems as continua, rather than positioning them as separate from the abstract concepts and systems theory we typically expect them to comprehend. Arising from this learning design process, we highlight insights around sustainability epistemologies, meaning-making in place, and our valuing of contextual and traditional knowledge.

As design practitioner-teachers, we outline our working position in relation to sustainability and resilience education, and our aims of integrating design knowing, seeing and doing. We then detail how the module will unfold with students during May 2019 - a month characterised by:

o   place-specific making days progressing in focus from personal, to community, to large-scale system resilience
o   structured reflection by students on their first year learning and place-based making; and

o a culminating, 'co-citizen' lab week in which students are challenged to carry out adaptive action by linking their own system and timescales in the context of their diverse learning community.

We close by questioning how we might advance 'resilience making' as design-led adaptive action, and strengthen our own resilience as practitioners and teachers of design in a time of crisis.

Author keywords

resilience making; knowing, seeing, doing; place-based; adaptive action; learning design

Introduction

We propose 'resilience making' in this paper as urgent, creative and adaptive action through an account of its exploration with students in the first year of an international BFA in design. We focus on the learning design being carried out for the fourth iteration of the module 'Resilience' - the last of eight modules completed by students in an introductory year structured around design tools and processes.

Our core proposition is that context-rich, place-based making is a means to connect students *within* social-ecological systems as continua, rather than positioning them as separate from the resilience concepts and systems theory we typically expect them to comprehend. We are pursuing 'resilience making' with students at a time when our collective ability to adapt has become a daily project, often overshadowing the routine demands of scholarly and artistic practice in higher education. This shift amounts to a diminishing resilience in our own systems within the academy, described as a multi-factor 'pedagogical frailty' by Kinchin and Winstone (2017). Stark among these factors are the global climate and extinction crises more persistently undermining the well-being and perceived agency of both students and teachers.

Many of our students in the international undergraduate degree in design share the urgency for action expressed recently by the student activist Greta Thunberg at the World Economic Forum in Davos:

"*Adults keep saying: "We owe it to the young people to give them hope." But I don't want your hope. I don't want you to be hopeful. I want you to panic. I want you to feel the fear I feel every day. And then I want you to act.*"

"*I want you to act as you would in a crisis. I want you to act as if our house is on fire. Because it is.*" (Thunberg, 2019, para. 20-21)

This paper communicates one response to crisis: new strategies for teaching resilience that create a space for transformative understanding and urgent action that develops collective agency, personal capabilities and capacities around design and resilience. We outline here our reflections on past teaching

practice and iterations of the 'Resilience' module, our inquiry into expert positions and voices in sustainability and resilience education, the learning journey we designed for students, and finally what this learning design offers colleagues who share our goal for adaptive action through design.

Sharing and building on past teaching practice

Our present teaching challenge follows three iterations of the 'Resilience' module, all led by an annually re-configured module coordinator and teaching team of three to four members. While resilience is an increasingly relevant concept with its focus on negotiating complexity, uncertainty and interlinking scales and levels across systems (Folke, 2016), it has often felt overwhelming and out of place in the setting of a five-week design course for undergraduate students.

Despite various efforts, it was often impossible to engage the students with enough stakeholders to understand a case study system sufficiently, nor to provide learning tasks that linked design practice and resilience in a coherent way. Previous student responses to learning tasks usually resorted to either communicating the concept and its relating principles, or to presenting design ideas that related to the wide field of sustainability, not making use of 'resilience' in a meaningful way. While we share the belief that "the concept of resilience provides an important conceptual framework for designers to navigate – or even celebrate – this complexity" (Sterner in Zaretsky & Parr, 2011, p. 166), we did not feel that we had reached a satisfying solution when it came to the design of a meaningful and responsive learning environment.

In this fourth iteration of the module, we wanted to bridge the gap between this undebated relevance and our aim to design for transformational learning that allows students to develop personal, professional, social-communicative and action competencies (Barth, 2015). As a consequence, we had to critically question our role as design *and* teaching practitioners, the role of the students, as well as the learning activities and their staging within the module.

The syllabus for the BFA program prescribes the learning objectives for the module to which our learning design responds:

1. Practically apply design as a change agent in relation to the concept of resilience
2. Conduct a design project in moving images focusing on the concept of resilience
3. Explore the conditions of resilience through design
4. In writing reflect on the possibilities of resilience and design from the perspective of sustainability.

The set of learning objectives emphasizes the practical dimension of design learning in accordance to the resilience principles. At the same time, our interpretation needs to create conditions for meaning-making by connecting to students' values, previous knowledge and experiences, and offering a realistic

opportunity to engage with resilience that does not obscure that uncertainty and varying levels of control are inescapable features of resilience thinking.

Through reflection on previous experiences and module evaluation feedback, we also identified that the timing of the module at the conclusion of first year presents an opportunity for students to reflect on, and consolidate *all* their first year learning and personal development, at a more conducive pace than earlier, intensive modules.

Interweaving expert voices into resilience teaching

In matters of teaching resilience within a broader frame of design for sustainable change, we are still in a situation that requires us to break new ground. Despite a widespread concern for environmental and social degradation, paired with a strong belief in design education's responsibility and ability, we are only slowly understanding the implications for design and its teaching.

"…[I]t is equally remarkable that, after 40 years of expressed ecological politics and a decade since the generalized acceptance of climate change as a scientific fact, that high level education in design for sustainment (or as is sometimes now called, "transition design") should be so lacking – again despite rhetoric to the contrary" (Dilnot, 2017, p. 168).

Drawing on the extensive research knowledge base of the Stockholm Resilience Centre (e.g. SRC, 2018), we recognise our teaching challenge will not be solved by simply continuing to add sustainability keywords and concepts to existing curricula. The relevant question to ask is what is actually the goal of our educational efforts? Vare and Scott state quite rightly that "...our long-term future will depend less on our compliance in being trained to do the "right" thing now, and more on our capability to analyse, to question alternatives and negotiate our decisions" (Vare & Scott, 2007, p. 194).

In addition, throughout recent years an understanding of the teaching and learning implications of the challenges ahead has gained momentum, resonating with Stephen Sterling's observation that "the nature of sustainability requires a fundamental change of epistemology, and therefore, of both education and learning" (Sterling, 2004 in Wals & Blewitt, 2010). This position is echoed by Ioan Fazey's (2010) linking of personal epistemological beliefs (knowing how we know and think), higher order thinking and human development in teaching resilience. Consequently, engaging with sustainability (and resilience) means to "critically reflect on the inherent social norms and values and the underlying assumptions of the concept" (Barth 2015, p. 60), and to develop collective agency and personal capabilities that generate positive but perhaps unforeseen outcomes.

Drawing on the particular opportunities inherent in design practice and education, we aligned our subsequent questioning and pedagogy with place-based making approaches, guided by the integrative, multi-domain approach to sustainability education urged by Sterling (2014) - involving **knowing**, **seeing** and **doing** - and his earlier call to conjoin strategies to develop

learners' personal resilience with broader resilience science and thinking (Sterling, 2010).

We are therefore pursuing 'resilience making' with students as generative and adaptive action in the world rather than one narrowed competence to be developed among many (see for example Wiek, Withycombe & Redman, 2011). Instead, we aim to set up the conditions for a *lived* approach to capability development that challenges students' beliefs through action within the messy complexity of the systems they are inhabiting – as a function of being in a specific context on the planet for the three years of their initial design education.

Learning design: journeying and prototyping

Following review of the Stockholm Resilience Centre's comprehensive open, digital learning resources and our own (re)interpretations of the module learning objectives, we posed questions to ideate potential learning journeys through the module for students. In order to prototype the learning design, we positioned ourselves as co-students by asking, for example, what are we *doing* if we come to understand ourselves as 'co-citizens' and 'planetary stewards'? (SRC, 2018). How might resilience concepts such as 'diversity', 'adaptive capacity, 'redundancy' and 'feedback loops' be observed and experienced through both action and reflection? How does local, traditional ecological knowledge manifest across the interconnected social-ecological systems of specific places and cultures?

To this inquiry, we layered insights from anthropologist Tim Ingold's (2013) approach to meaning-making through embodied and sensory engagement with environmental phenomena, materials and cultural artefacts. Such shared encounters in place – if richly documented and represented by students' multiple voices – then create a platform for relational and inter-scalar modes of resilience making, over the duration of the module. Our approach was further informed by the 'eight ways' design learning framework visualized by Samantha Edwards-Vandenhoek (2018, p. 627) which carefully prioritises indigenous perspectives, values and ways of knowing and being (in the Aboriginal cultural context of East Kimberley, Western Australia). Together, these alternative models of 'knowing, seeing, and doing' helped us to apply resilience thinking to make connections between 'place', knowledge and value systems therein, and the particular social-ecological systems in which we are located.

Visualising our own learning design in Figure 1, place-based making activities are underpinned by foci on the self, the community and a local large-scale forest-lake system with corresponding progression from knowing, seeing and doing (Sterling, 2014). Each day-long making activity creates a platform for structured reflection via multiple dialogues with Stockholm Resilience Centre's resources: viewing, reading, peer discussion and sharing reflective documentation. Equal priority is assigned to other local actors who, for example, will share their local and traditional knowledge through the making activities focusing on the self, community and forest-lake system.

The initial making day is designed for reflection on and extension of personal resilience – experiences, beliefs, setbacks, strategies – that both consolidate the year's learning to date and identify opportunities for the weeks ahead. The second seeks to immerse students in a community setting centred on local foodways that will enable students to connect their daily food habits and consumption to regional systems and networks, as well as experiment with adaptive knowledge and skills. The third making day will locate students within a nearby forest-lake system with expert ecological guidance, where 'making' is experienced as enhancing conditions for other species and the natural phenomena with which humans are interdependent.

Student learning journey

doing

Increasing scale and complexity; self to systems; practical to artistic

Making day 3

student-led co-citizen **lab days**

Making day 2

system

Making day 1

community

seeing

individual

documentation

knowing

structured reflection
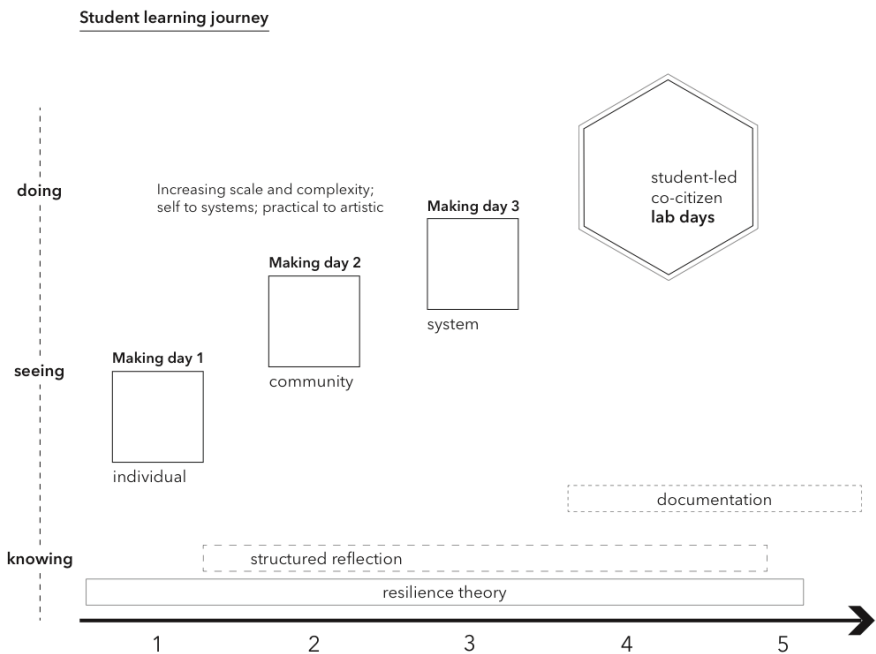
resilience theory

1   2   3   4   5

Figure 1: Student learning journey over five weeks emphasising the integration of knowing, seeing and doing via making activities with increasing system complexity and scale

Student-led adaptive action

The culminating student-led, 'co-citizen' lab days will present students with a design challenge centred on building greater resilience within the systems they inhabit as a function of their design education. Based on their experiences to date, they will be guided to devise and carry out strategies that build resilience at the scale of the individual, community and the broader regional system in which they are located, as well as draw on home country knowledge and experience. By explicitly framing this design-led action as 'design futuring' in Tony Fry's terms, it will be possible to connect students' initial focus on the self with deeper consideration of 'community' and its ecological functioning

(Fry, 2009, p. 114). They will also be challenged to work with timescales given they will spend another two years completing their degree, with potential to actively foster the resilience of their diverse learning community within a region in southern Sweden that is richly endowed with traditional knowledge and a history of adaptive practices.

In terms of learning progression, we expect students to be equipped for what Levy and Petrulis (2012) term an 'authoring mode' of inquiry-based learning, where we frame inquiry as design-led action that is dependent on exploration, critical reflection, discovery and unforeseen outcomes. The student cohort in focus is currently experimenting with activist modes of design process, and is accustomed to levels of collaboration and self-organising somewhat atypical of first year undergraduate expectations. The ethos of the program also promotes student-led initiatives and exercise of agency such that the 2019 Resilience module has the potential to further activate and amplify a range of concurrent informal curriculum projects across all year levels in the department.

Conclusion and next steps

The learning design we have communicated for 'Resilience' demonstrates one instance of how design processes can be harnessed for team teaching in design in response to deepening ecological crises. Our greater aim however, is to progress resilience making as design-led adaptive action that genuinely contributes to new ways of knowing and design doing – as co-citizens and planetary stewards – within the social-ecological systems in which we are all actors. By sharing this tentative and iterative approach and our firsthand experience, we hope to engage with, and learn from others who are leveraging place-based, creative approaches for resilience making.

The prescribed learning objectives reflect a common approach, in which the course content is driven by a popular topic in research and/or public discourse i.e. resilience. What remains less clear for teachers of design is how the topic can contribute to an innovative teaching and learning setting when, for example, making is narrowed in one of the learning objectives to "conduct a design project in moving images". We believe there are many more ways of making that a design student can, and should, engage with. In agreement with Barth (2015), we see the need for pedagogical creativity and an on-going process to build and continuously improve upon a variety of pedagogical approaches to the challenge we are facing. Our particular learning design has to enable a way to combine knowing and seeing with relevant acts of doing or making that go beyond the traditional notion of design making.

We acknowledge only lightly broaching the need to perceive and mediate the emotional side of inherent social norms and values that underly the concept of sustainability (Barth, 2015). As we experience more and more the stress experienced by students, as expressed by Greta Thunberg at Davos, the artificial division between the professional and disciplinary rationality of course syllabi and students' emotional well-being clearly will not bear up.

As we implement the learning design outlined above, core questions persist: If we are to evolve our approach and facilitate resilience making with students, how do we as teachers and designers develop greater resilience at the scale of the self, the community and broader, interconnected systems? How do we mediate 'pedagogical frailty' and intervene in the latency of the academy's response to planetary crisis? These are the questions that will drive our ongoing design inquiry and the collegial dialogues and action we intend to seed with this paper.

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