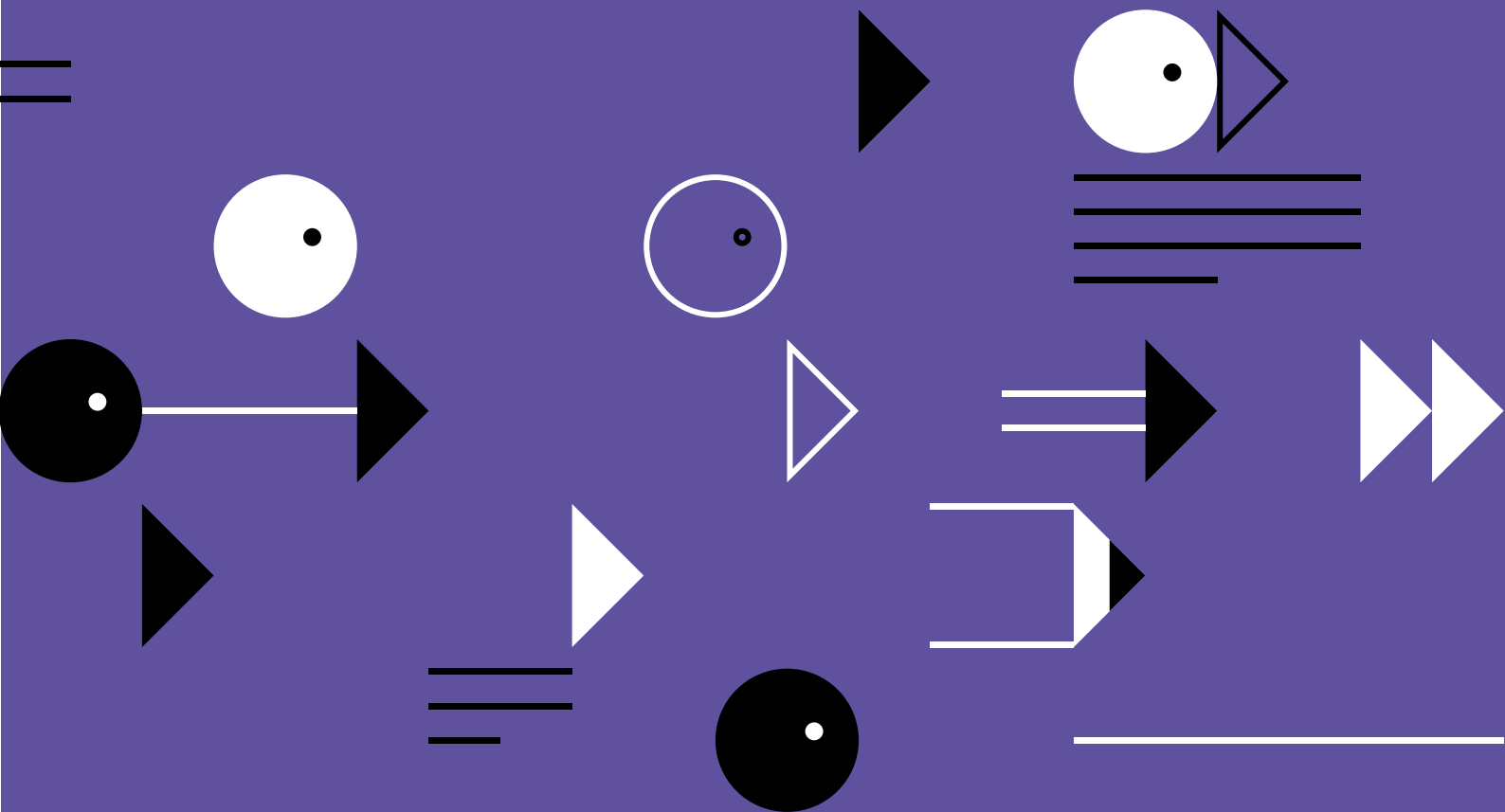


# Design Futures Literacies

VOL. 2  
ESSAYS & REFLECTIONS

ED. ANDREW MORRISON



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# Design Futures Literacies

**VOL. 2**  
**ESSAYS AND REFLECTIONS**

**ED. ANDREW MORRISON**





## **FUEL4DESIGN**

Future Education and Literacy for Designers (FUEL4DESIGN) aims at developing knowledge, resources and methods to help young designers designing for complex tomorrows. FUEL4Design builds on an extensive research programme conducted by leading universities and experts in Europe. Design futures literacies are a transdisciplinary mix of theories and concepts, methods and practices geared to support situated and resilient pedagogies for design students and teachers to engage productively and critically with the given and changing contexts and conditions of Design. This is a design that reaches beyond functionalism into the pragmatic and the imaginary. It works with a diversity of participants and interests. It aims to meet real world needs but to also reach beyond their constraints and conceptualisations to develop and sustain specifically design based literacies and competencies. These are mental, material, creative and critical skills that are enacted performatively. In doing so, we need to acknowledge and address the changing nature of futures where the temporal and spatial, social and political, economic and ethical are increasingly entwined.

### **Design Futures Literacies Vol. 1 — Practices & Prospects**

This collection presents ventures into futures in and through designing with master's and doctoral students. Included is an overview of current approaches and content on design education. There follows a group of overviews and reflections from FUEL4DESIGN that reveals novel and exploratory work carried out over a three year period. These insights provide the core for further repositioning of what design futures literacies and pedagogies might contribute to reconfiguring design education in times of uncertainty, challenge and change. With a process view on making, learning, teaching and knowing, Volume 1 also reaches into current and ongoing debates and shifts towards decolonising design education futures. It offers modes and means of addressing matters of power, inclusion and transformation of design universities and includes aspirations towards both imaginary and pragmatic designerly futures.

### **Design Futures Literacies Vol. 2 — Extended Essays**

The set of long-form essays gathered here complements the focus in Volume 1 on practices and prospects of futures in and through design learning, teaching and researching. Collaboratively composed, these essays span a range of themes from and beyond FUEL4DESIGN. Each essay addresses central issues and potential in seeking to identify and elaborate on directions to meet 21st century needs and contexts of changing 21st century design education. The essays make a novel contribution to synthesising and elaborating on a diversity of content, methods and potentials of transdisciplinary design inquiry. Individually, and as relational and rhizomatic whole, the essays provide a recursive orientation to anticipatory approaches to shaping futures design literacies and pedagogies.



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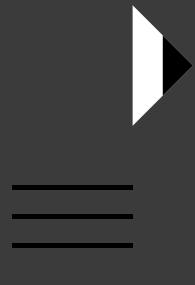
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PREFACE.  
CONTEXTS

# FUTURE EDUCATION & LITERACIES FOR DESIGNERS





## Summary of FUEL4DESIGN

### Background

The two volumes entitled *Design Futures Literacies* are the outcome of the Future Education and Literacies for Designers Project (FUEL4DESIGN). The project was developed by four European design universities and investigated the dynamics of futures design literacies through six distributed work packages. These consisted of experimental ventures into shaping relations between making, pedagogies and research. Spanning three years, FUEL4DESIGN was funded by the ERASMUS + Strategic Partnership Programme, aiming to support student and teacher competencies in an ongoing development of relations between design and futures.

As design is one of the few disciplines that work pragmatically and creatively with the future beyond the here-and-now, the project was seen as a means to building capacities, resources and creative critical engagement through which design Master's and PhD students and teachers might together shape their 'Design futures Literacies'. The project identified gaps in facilitating design competencies, fluencies and vibrancies (engagement). This was informed by exploring tangled relations, design roles and practices in navigating futures as plural, complex, contested and emergent.

'Anticipatory design pedagogies' were ideated and realised through sustainable, proactive, speculative and pragmatic preferred, plausible and potential futures. We addressed master's students' learning design-futures to enter changing 'industry' and public services. We underpinned doctoral level designers' training to become critical designer-researchers.

We supported students in taking care ahead of time via critical practice and informed action in situating 'what-if' modes of knowing. A medley of online, hybrid and in-place 'Design Futures Literacies' were embodied and critiqued to provide fuel for young designers designing for complex nearby tomorrows and long-term sustainability.

## Objectives

We aimed to develop, test and implement new approaches and resources to provide learners and educators with innovative and adaptable tools to imagine, perform and enact a plurality of futures by design. This was to equip design learners and educators to deal with real-world issues on techno-digital futures, climate crisis, and political instability.

We further aimed to connect experimentation and design theory via invention, imagination, speculation, and through design making activities such as via prototyping, scenario building, and foresight. In the context of the COVID-19 global pandemic, intended objectives were adapted and configured to a pivot to digital delivery and didactics.

This heightened modes of online access, diverse representations, types of activity for learners and support for educators. We sought to facilitate of self-directed and digitally mediated pedagogies, exploratory encounters and courses, workshops and public events that embodied experimental, generative activity and action centred engagement and exemplars.

We kept to core aims to prepare, orient and activate design-futures learning for emergent conditions and changing contexts, where creative criticality could be realised, critiqued and anticipated further.

## Implementation

We included a diversity of action-based learning resources in support of wider learning needs and goals in the context of specific sites of experimentation and implementation. We developed interplays between original print and face-to-face activities and materials and their digital access and activation. These were addressed through various interfaces, types of learning tasks, from small actions to wide reflections, and through teacher and tutor presence, online lectures and workshops.

Activities were supported via Zoom and Teams, using online tools such as Miro. I01 and 2 activities ranged from card-based play in shaping world views on design projects to metaphors in shaping futures research reflections, not tied to disciplines or programmes. I0s 3 and 4 were congruent with design futures courses and used personal digital and multimedia 'diaries' and presentations and co-designing in Miro group work. I05 supported methods for teachers and was connected to public events and training for their uptake of multi-pathway resources. In I06 reflections included activities of co-writing and publication of a book, with reflection on the projects workings presented in related media rich and dialogical online and international events. We chose to divide this book into two volumes, for readability and in order to make connections between the two volumes of content.

## Results

FUEL4DESIGN designed and trialled open access online and printable design literacies learning materials for master's and doctoral design students, located in contexts of uncertainty and change. We created a digital repository of futures design resources as plural, ethical and situated and enacted via self-directed, adaptive and transformative pedagogies.

This involved diverse student experience of encountering, using and adapting content, tools, methods and learning activities to needs, tasks and learning pathways. Novel tools, concepts and instances of how new critical creative knowledge exchanges were taken up and apart in near and long-term futures alternatives in an ongoing present. A design centred 'pandemic pedagogy', platforms, teacher support and events were achieved and analysed.

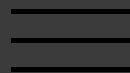
Outcomes included cases and critical reflections on what and how design futures learning may be advanced, in online-only and adaptive, responsive hybrid formats. Focus on relations of design and care, agency, time and situation via dynamic modes of address and articulation for civic, critical and creative worlding were included in these open access books. This positioned design futures literacies in wider societal, geopolitical and educational contexts.

## About

For more about the FUEL4DESIGN Project, please see: [Link ↗](#)

PREFACE.  
CONTEXTS

# ON THESE VOLUMES







## Motivations for publications

We've put together a thematic collection of the project's work packages and a set of inter- and cross-related position chapters and essays. Between us we produce and exchange experience and knowledge and we convey this in a variety of ways and fora, including formal research ones. We contribute to the ongoing professionalism of theoretical and applied design inquiry in a diversity of domains and collaborations. We are in the main committed to excellence in teaching and research and to their rich intersections that characterise much of what we achieve.

In composing what we needed to place in two linked volumes it has become clear that of all the fields of design research, the field that is least formally a part of most of our institutions in design, is design education itself. Yet, design education is the one shared domain and activity that fuels our schools. For this reason, these books focus on futures in design education.

The books include research inflected accounts of the project's workings and outcomes. They are, in a sense, heuristics or devices with and through which to think. The collection of work and reflections offer ventures and experiments, experiences and pathways. These have been intense, challenging and inspiring. We offer them not to lockdown 'a pandemic pedagogy' to offer a deliberative diagnostic for the future of design education. Instead, the publications are offerings of our experiments and ventures in bringing futures and design together and in looking to building relations design futures pedagogies

The books provide multi-level, multi-authored and multimodal reflections on ways design futures literacies have been conceptualised and realised in the FUEL4DESIGN project. As the project progressed, a set of linked online (in majority) resources were developed as a response to the conditions and constraints of a global pandemic lockdown. This was supported by a variety of modes of teaching, learning and communication about the work that was done that has contributed to the longer essayistic chapters in Volume 2.

## **Partial, not impartial**

We are not impartial in what we have tried to do and claim to stand by and argue for, even though we have done this in a mode of making-inquiring-reflecting that is located in 'becoming'. We are partial to, the propositions, positions and practices we have developed and have been able to work with between us.

We work with, through and towards shaping relational links and affinities, and preferences. We are partial to some of these, but we offer them as another form of resource into design education and futures, mindful that we are only one project and four teams from four Europe-based design schools.

We've tried to convey and open out to some of our experiences. We acknowledge that our work has been difficult, entangled and risky. It's been motivated by our deep concern for our students and our colleagues and ourselves as professionals in a wider community of design education. That said, what we offer is a relational, not universal, account and gesture of sorts to a wider community of design learners, teachers and researchers.

## **Multiple audiences for the books**

These two volumes have multiple audiences with varying interests and needs, from practice and pedagogy to research and reflection. The books are geared towards design educators, graduate students and design researchers who themselves also venture further into exploring anticipatory perspectives and practices around futures in design education and research.

The books will hopefully also especially be of interest to design educators and to researchers and policy makers of design. As we mention a few times in the introductory 'partial state of the art' on design education and futures and in the essays that follow, design universities are fuelled by design educators. We are a mix of practitioners and professionals, designer-researchers and researchers of design.

Our design pedagogies, and those that are anticipatory in stance and reach, are only possible because of the motivations and attention of our students. Master's and doctoral students might find parts of the books useful for specific parts of their own learning by designing and learning to design, research through designing and design research. Perhaps some of them might even be motivated to develop Master's and PhD theses in design education and its literacies and pedagogies. As motivation, you'll see we've included design work and research reflections from students who've contributed to the project and been connected to its events and specific domain area topics.

We hope that the books will also motivate our colleagues to value even further the intense, changing and demanding nature and substance of their own design pedagogies and to look to ways to perhaps draw on some of the primary and secondary material included and presented here.

### **A limited mapping, a massive field**

We've tried to make connections to a diverse body of research and to position our ventures into design futures literacies in relation to other studies and reflections, inside and beyond design. It's not possible to cover the very many fields and domains that are covered in design schools, even though we have expertise in some of these, such as fashion, in the wider project team.

The design schools within which we work and have carried out this project are themselves very different, historically, institutionally, in orientation to the professions and research, in languages, cultural diversity and funding models.

What we do have in common are dedicated staff and highly motivated students, and these are local and national, and increasingly international. So too are the staff in our establishments who are themselves design nomads in a sense that they shift domains and interest, courses and collaborators, projects and teams, tools and assessors. And they too are representative of places and cultures, experience and expertise that is filled with difference as much as it is commonality. This has been apparent in the many events we have held during the project that have been far more the richer for participation and a diversity of perspectives beyond our own institutional, national, disciplinary and cultural borders and arenas.

### **An open access outcome**

The books are open access. In PDF format, they're free of charge. No subscription fees. Please share them under the Creative Commons licence. You can download and read the PDF on a screen in ways you select and prefer.

### **A public resource for re-purposing**

You can refer to the material as you choose in your own learning, teaching and research. And in the spirit of Creative Commons, please give credit to what you use. The books are composed to be read in a variety of different ways, depending on interests, need and time. Search, cross, select a chapter or subsection that interests you. Read a longer item or read sections more as modules.

We hope that the volumes work this way and that they are resources to which to return and perhaps reframe your own thoughts and replace ones we might have suggested. Do let us know your thoughts and the paths the material in the books and the companion website has suggested you follow or influenced you to make.

Do please forward the documents to anyone you think might find it useful.

## **Working with various modes and shifting scales**

Like other design students, teachers and researchers this work has taken place largely within the formal boundaries of the global pandemic. We attempted to shift our work and to support our students' learning through the project, indirectly and directly.

This was through specific Master's classes and PhD summer schools, in providing online resources parallel and affiliated with courses project material. This took place in on-site and online workshops and in special sessions tailored for specific courses, and in the projects many public online.

Two of the project partners more directly ran full and challenging courses and were able to pursue detailed and connected pedagogical trajectories (see for example student videos in I03) and others supervised PhDs directly and indirectly connected to the project. We've included collaborative writing with several of the doctoral students and included material and reflections that have informed and challenged our thinking.

## **Moving forward**

We've been a transdisciplinary team and we are still learning how to learn, design, teach and research design futures literacies in our own workplaces. Do feel free to contact us to hear more about the project and perhaps to discuss your own work with shaping design futures literacies in your own design educational contexts, framing and practices.



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ESSAY 1

# ANTICIPATORY DESIGN LITERACIES



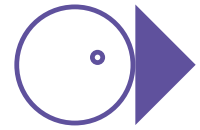
BY Andrew Morrison, Manuela Celi, Betti Marenko & Oscar Tomico

WITH Palak Dudani, Bastien Kerspern & Amanda Steggell



# 1. ORIENTATIONS

BY Andrew Morrison & Manuela Celi



## Making frames

In this thematic essay we mark out some of the main concerns that a futures-oriented design education might include within a framing we label 'Anticipatory Design' (Celi & Morrison, 2017). In essence, Anticipatory Design refers to design that seeks to develop design literacies, practices and analyses that 'take care ahead of time' (Morrison, 2019). Through FUEL4DESIGN we have taken up the term and made it more visible to highlight relationships, potentials and pedagogies that contribute to a dynamics of shaping futures and design (Candy & Potter, 2019). In adopting a view of design futures literacies in-the-making, our framing is not meant to be universal, absolute or determinist. Rather, it is dynamic, relational and emergent in character and it is situated in a diversity of contexts and acknowledging difference and plurality. In brief, our work adopts a mode of 'using the future in education' (Facer, 2016) and extends it to *making design futures in learning through anticipatory designing*.

In our view, anticipatory design futures literacies and pedagogies are plural and stretch beyond a 'futures literacy' approach (e.g. Miller, 2018) that centres on supporting learners and citizens, businesses and organisations, policy-makers and governments to be more aware of the future and ways to incorporate this in their work and lives (see e.g. Gray, 2018). An anticipatory design futures literacies and pedagogies perspective and related activities acknowledge that the future is plural, provisional, slippery, polymorphous and indistinct (Escobar, 2018; Augé, 2014). Anticipatory pedagogies are ones that engage participants in adaptive and prospective designerly making. They look ahead of current constraints to options, alternatives and possible scenarios for change that can be redirected back into action in the present. This may be achieved through relational and transversal thinking for transdisciplinary long-term sustainable knowledge building and sharing. This demands the exploratory, principled and reflexive exercise of criticality while shaping mediated techno-cultural design tools, artifacts, processes, uses and engagement.

In short, this demands we engage as educators and design students with ways in which power and processes are manifested within existing configurations of the selection, promotion and preference of views and methods. It extends to how these are taken up actively and in modes of transformative anticipatory learning that engages with the 21st century 'critical turns' in education (Gottesman, 2016). These are turns that encompass a diversity of voice and views – feminist, decolonial, posthuman – in ontological dispositions and re-positionings of learning as a matter of 'becoming' and



◀ **Figure 1**  
Example of embedding design speculative products within a futures scenario discourse, from *The Open Journal of Refuturing* 2131 (Design BRICS, rendering by Jomy Joseph, AHO, 2021). (Joseph, 2021: 92). [Link ↗](#).

'otherwising'

[→ SEE Vol.1 - Part III. [Learning Futures Design Otherwise](#)]. This accentuates attention to gestures and influences (not directives and resemblances) in processes of emerging knowing that are arrived at through the interplay of situation and subject, context and process, body and affect, motion and making.

In our view, Anticipatory Design, in contrast to Foresight and Foresight in Futures Studies (e.g. Poli, 2019), embodies a relational ontological orientation that's realised via a speculative-pragmatic perspective. This allows us to engage with contemporary societal and environmental issues and needs around inclusion and equity of human and non-human systems, agency and life by focusing on difference, diversity, decolonisation, depatriarchisation and 'otherwising'. To do so also need experimental thinking and exploratory action in a reconceptualisation of learning spaces and outcomes in what may be considered contact zones. Where such a metaphor and spaces of prosexual, asymmetrical power relations in linguistic and cultural knowing have been widely taken up, (e.g. through the work of Pratt, 1991), and linked with border crossing and boundary objects in design, education and technology studies (Morrison, 2009; Morrison, 2010; Bowker, et al., 2016); we also reference to the recent transdisciplinary publication *CONTACT ZONES* (Latour & Weibel, 2020).

We do this in an exploratory, and hopefully not exclusionary, mode of learning together through working with emerging futures practices in the present. Barrineau et al. (2022) conceive of such a venture and stance as a mode of radical futurity in which an emergentist approach to education is adopted and explored - centred on core notions of disciplines, emotions and sustainability - so that young people are able to arrive at and pursue motivated directions of their own informed choice. Further, in a product and rhetorical view, as Jomy Joseph, one of the PhDs linked with FUEL4DESIGN at AHO, comments in his practice-and compilation based thesis, '... in telling a compelling narrative of radically different futures, an encounter with a conflicting artefact may lead to a creative speculation of its own.' (Joseph, 2023); [SEE [Figure 1](#)]. In this sense, our work has sought to engage with that other design educators and researchers have explored in

terms of *Rehearsing the Future* (Hasle, et al., 2010), which in our case has involved acts of ‘scripting’ to improvising in the context of futures in the plural and in which futures and futuring are taken up as design material and acts of designing to learn and to know. Long-term champion of anticipation, Poli (2019: 139-140) writes that:

*Learning to look ahead – developing future skills – is perhaps the best choice if we want to try to divert the experiment in which we are all involved from the likely catastrophic outcome to which it seems directed. But to be able to look ahead, it is essential to be able to stand upright, with your back straight and your eyes open, willing to do what needs to be done.*

The overall aim in offering this orientation to *Anticipatory Design Literacies* is to bring the ontological to the foreground (Willis, 2006, 2014, 2016). We adopt this focus not to confirm positions and views, to reinstate design complicity with an extractivist capitalist logics that so clearly confounds actual change, whether it be on climate and environment or equitable public services and ethical design practices very often driven by corporate rather than human and ecological needs and symbiosis. Instead, pedagogically, and for shaping design futures literacies - by design and through design learning - and for futures design, this orientation is developed through and as situated practices (see e.g. Micklethwaite & Knifton, 2017). Smith (2020) provides a useful related approach in *How to Future*, though this is not design education directed work.

As a whole, these are critical practices that inform designing-learning and researching and shifts between them as knowledge ‘exchanges’. Such exchanges are a mix of the creative, critical, contextual, participative, communicative, prospective and the provocative. Design future literacies, therefore, are centred on transformational learning, student and educator agency, and contextual and ethical enactment and engagement.

## Questions and concerns

Given such trans-relational and intersecting aspects of anticipatory design and pedagogies, we now present a number of core questions in this essay. These were central to establishing the FUEL4DESIGN project and are regrouped and revised here with a focus on ontological aspects:

**What does anticipatory designing mean in the context of facilitating and enacting design oriented futures literacies?**

**What are design framed futures perspectives and why do they matter for our design pedagogies?**

**What work can relational, processual and situational views do in shaping design futures literacies beyond given assumptions and practices?**

**Why attend to the imaginative and creative in working with futures to inform and alter the present?**

**What’s the point of a situated anticipatory designing in facilitating long-term sustainable futures?**



◀ **Figure 2**  
 'Phone farm(ing)', an intervention to distribute unused sources and preserve social interaction by Gábor László Mándoki. Weak signals: attention protection, circular data economy, tech for equality, long-termism, human-machine creative collaborations from Atlas of Weak Signals. Master's in Design for Emergent Futures (ELISAVA, IAAC). IO3: DESIGN FUTURES SCOUTING (Image credit: ELISAVA & IAAC). [Link](#).

## Relational and recursive-re-visionings

Below, we elaborate on these matters and turn them reflexively and recursively back onto the related outline of futures design presented in the Introduction in **Part I**, and in **Part II** that includes the six main 'work package' areas of the FUEL4DESIGN project. We do so to distinguish between futures design practices and futures design inquiries.

Our motivation is to go deeper into their connections in FUEL4DESIGN's experimentation with futures-oriented pedagogies and to look to related projects and endeavours. We elaborate on how futures have come to be seen as plural and how in terms of design futures and learning this needs to be understood in terms of diverse, different and intersectional plural futures framings.

In these framings, design needs to be more fully situated and framed in relation to re-thinking and re-appointing sustainability-systems relations [→ SEE **Essay 3: Sustainability, Systems & Learning Design Futures**], matters of temporality and design futures literacies [→ SEE **Essay 4: Time, Design & Anticipatory Learning**], care and an extended field view of ethics [→ SEE **Essay 5: Care, Engagement & Design Futures Knowing**] and a dynamics agency and enactment [→ SEE **Essay 6: Agency, Enactment & Design Future Literacies**] and to its being actively exercised in the present for engaged and impactful long-term sustainability.

Opening up to and demarcating aspects of Anticipatory Designing and Designing Anticipation in design futures learning and pedagogies asks that design, looks to its own discourses and practices, concepts and world views, educationally, professionally and in terms research. It needs to do so in the contexts not only of climate change and global instability around food and water security, amongst others but also in negotiating the status and motivations of perspective and preferences, in a time of 'fake news' and directed marketing, and to pay attention to what Rommetveit (2022a) elaborates on in a 'post-truth' framing in *Post-Truth Imaginations: New starting points for critique of politics and technoscience* (Rommetveit, 2022b).

Opening up, creatively and critically, to Anticipatory Designing and Designing Anticipation also asks that we include orientations and ontologies, emergent in design-located futures inquiry and processes of making, together with ones prevalent in other domains of the humanities, social sciences and technology studies and developments in related and intertwined fields of practice, production and use.

This view aligns in large part with 'the challenge to how designers engage with the planetary crisis we are living through' in the collection *Design in Crisis: New worlds, philosophies and practices* (Fry & Nocek, 2021a: 1). In a framing of design in crisis, Nocek and Fry (2021: 4) write that:

*If life itself is under siege (and in ways that we elaborate below), then it is largely due to the modern political ontology that design has brought into being. This is a crisis by design. Still, the challenge, which has so far not been met with an adequate response, is to see how this planetary crisis puts design itself in crisis: human and non-human ontologies cannot be reimaged without rethinking the very being of design. In short, design is immanent to crisis.*

In this first of eight essays, and in these books as a whole, we offer a set of inter-related array of endeavours to work with problematics in design futures literacies and design futures pedagogies. We try to hold onto the view that the determination of a problem is not its solution (Deleuze, 1994; Marenko & Brassett, 2015) remembering as Marenko (2018: 38) argues that design inquiry needs to be rebooted through a shift from problem solving to problem-finding.

To this end, in this chapter we work towards opening out, not boxing in, some of what may be seen as core content matters and potential directions that learning by designing futures and being open to a mode of 'futurescaping design learning'. We position and elaborate on what this may offer to working towards an anticipatory relational design futures learning frame in 21st century settings.



## 2. RELATIONALITY AND AN ANTICIPATORY DESIGN EDUCATION

BY Andrew Morrison

### Redirecting design futures education when design is in crisis

Earlier, we outlined the contradiction of the modernist, teleological and techno-determinist Design typical of the 20th century that searches for the novel, for invention and innovation, for progress and betterment of human existence to the cost of ecological, environmental and planetary survival. Fry (2009) has argued that design needs to be reconfigured and to operate differently through what he calls a 'futuring redirective practice'. This refers to the need for concerted action to change practices and policies, pedagogies too, that reinforce the approaches and behaviours that contribute to the crisis of climate, of existential threats, disquieting experience, confusing ideas and unrevised strategies. Below we argue that such futures redirection cannot be realised nor our planetary survival - approximated if not ensured - if design education does not work with futures ontologies and epistemologies in active programmes and networks that recognise human-non-human relations, ecologically, technically and 'cosmologically'.

Needed in situating design futures literacies and pedagogies is a rethinking and repositioning of what Nocek & Fry, 2021: 12, original italics) frame as 'the relation between crisis and the ontology of the *problematic*'. This is central to disentangling and re-aligning ways Design and designers have typically responded to pressing and emerging issues and in its pragmatic responses and approaches to innovation that have all too often been driven by a design-as-solution ontology and practice. While good intentions and genuine commitments to working for good permeate wide swathes of Design, action-driven pragmatic solutionism, in assertions such as 'Design can fix it' and 'We can design our way out of this', all too often mask and misdirect what is fundamentally at issue and in need of closer elaboration.

Nocek and Fry (2021: 11) argue that in order for design to avoid the standard response to provide a solution to a 'problem' - where design solves, stitches up and rationalises a further presumptuous heroics - is that 'design might respond to this crisis as a problematic'. In addressing this problematic, they refer to Continental philosophy, central to our own positioning of design futures literacies in relation to world views and ontological dynamics in design learning. In particular they refer (Nocek & Fry, 2021: 11) to that 'Deleuze depends how we tend to think about the relation between problems and solutions: the problem is never exhausted by the solutions it makes possible (Deleuze,



## On Relational Design Ontologies

**EXTRACT FROM:** Raymond, R., Snaddon, B., Chisin, A., Morrison, A., Steggell, A. & Di Ruvo, M. (2019). 'Design, relational ontologies and futurescaping'. Curated Session. *3rd International Conference on Anticipation*. 9-12 October, Oslo: AH0.

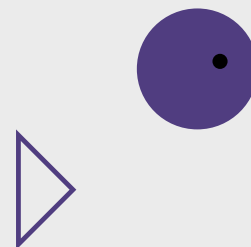
[Link ↗](#)

A relational ontologies perspective is one of event-as-process, where 'becoming together' (Deleuze, 1987) and not just 'being together' acknowledges and works with the emergent relationality of relations as they come into play through pedagogical events and interventions. Our perspective and approach 'is a question of arraying oneself in an open space, of holding space, of maintaining the possibility of springing up at any point...' (Deleuze, 1987, p. 353).

We share with Kearnes (2006) the view that 'Design is always in a process of ontogenesis because it is in a complex relationship to a world that is itself complex and in motion: design contributes to such dynamism at the same time as being affected by this world of becoming' (paraphrased by Brassett, 2015, p. 32). In this the 'ontological incompleteness of design' is signalled (Kearnes, 2006, p. 20). Design scholars Fry and Willis have expanded the concept of 'ontological design' and the importance, from a sustainability perspective, of how 'design designs'.



Barad's term 'agential realism' further articulates such agentic action as intelligibility understood to be 'an ontological performance of the world in its ongoing articulation' where 'knowing is not a bounded or closed practice but an ongoing performance of the world' (2007, p. 149). In this view, design for sustainability is about matters concerning not only the sustainability of the designed object itself but also the design of the relations located in current and future contexts (Fry, 2009).



1994: 165). They argue that what is needed is that we view problems as ‘... indicative of a certain ontological distribution of tensions, pressures, and strains that give rise to a wide array of responses/solutions.’ (Nocek & Fry, 2021: 11).

In looking to appreciate and include difference and heterogeneity in reframing design futures literacies and pedagogies in a relational view, and when design is in crisis and design education subsumed in a global pandemic, it has not always been straightforward to demarcate, hold onto and enact a clear stance on design education as a problematic while the external world and the internal venues and activities of teaching and learning have themselves been uncertain and where our responses have been challenged by misfits between assumed practices and emerging challenges. In these contexts, student and teacher have been working within a crisis when design has been in crisis. These two intersecting and concurrent pressures, however, have also undeniably placed the futures design education and the roles of future in design education into sharper relief, magnifying them but also distancing them and dissipating ways they can be addressed through a focus on ‘solutioneering’. Nocek and Fry (2021: 13, original italics) argue that ‘Design is *in* crisis, and we need to think through this crisis by holding together the multiplicity of frames through which crisis becomes visible without reducing, negating, and otherwise subsuming any of them under a single frame of reference.’

Through its own processes of needing to relate to the deep challenges of Design in crisis and crises within which Design finds itself, the FUEL4DESIGN project has needed to constantly negotiate a variety of affiliated frames - within, between and across - own specific educational settings together with the qualities and status of its own formulations and responses. Our colleagues have argued that we need to ‘Walk the talk: Toward an ecological futures framework for our designed cultures’ (Edeholt et al., 2021). What has become increasingly apparent is that Design while we need to hold together a multiplicity of frames, working with design futures literacies cannot be pursued in a meaningful and transformative sense without looking to the power dynamics and valencies within which such literacies have themselves been positioned in and through design. This aligns with the assertions made by Fry and Nocek (2021b: 219) that in order to avoid the dehumanising and defuturing effects of what has been, ‘design has to overcome its own conditions of crisis’ by way of intentional acts of defuturing (Fry, 2020) that remake design as a futuring redirective practice and position design accordingly.

*... the implication of embracing the process of remaking design as futuring redirective practice (Fry, 2009), directed by autonomous designers (Escobar, 2017), is that an ontologically recursive dynamic ... means designing and remaking design becomes a continuous conscious process. (Fry & Nocek, 2021b: 219).*

What we have done is not just argue for this but investigate its immanence within collaborative anticipatory experimentation into and through design futures literacies. This is in essence an ontological venture while being at the same time an exercise into and the exercise of *an anticipatory and pedagogical mode of learning-research*

*through design*. By this we mean that such an ontologically recursive dynamic is also realised through its placement and enactment in the interplay between growing knowledge - as student design futures literacies and teachers design futures pedagogies - and these are materialised and experience, as well as applied and assessed, repositioned and revised in the intersections and interplays between learning and teaching, analysing and researching. In this sense our emergent literacies and pedagogies are not merely formative and developmental in their genesis; they offer experimental anticipatory illustrations that are ontologically generative and methodologically transductive, not merely conductive, in their reframing of a 21st century design futures education [→ [SEE Essay 7: Learning Design by Making Futures and Essay 8: Tools, Means and Mediating Design Futures](#)].

This may be understood in terms of what our colleagues Håkan Edeholt and Jomy Joseph at AHO have called 'ReFuturing'. In contrast to Fry's defuturing, 'ReFuturing, therefore, is an invitation to imagine the seemingly impossible and realise the unthinkable - from whole systems change to climate reparations to the dehumanisation of everyday life.' (Joseph, 2023: 150). The notion and stance have been born out of product design courses and related network oriented research centred around the '... reclamation of design and designing to prepare it for these new systemic responsibilities and look at the conditions that may be needed for this to happen.' (Joseph, 2023: 139). In a sense this is to think and act hopefully beyond crisis, doom and catastrophe discourses (e.g. Danowski & Viveiros de Castro, 2016).

In terms of design learning and teaching and related research, FUEL4DESIGN has variously worked with dynamic, heterogeneous, poly-logical perspectives. In framing our ventures and inquiries broadly in a relational anticipatory design perspective, we have also needed to deconstruct and look to decolonising our own perspectives, structural and systemic practices and to hold onto - to hold ourselves firmly to and to hold forth our position tentatively - to explore relations between the what is, what if, what might be and what can be [→ [SEE Vol.1 - Part III. Learning Futures Design Otherwise](#)]. To that end, we also needed to situate how relational design sits within design and how we have heuristically selectively taken it up also as an ontological design futures material in rethinking design futures literacies and pedagogies.

## On relational design

Through the dynamics of our work in the FUEL4DESIGN project and in research related to it and to other projects, a relational perspective on design has been central. Philosophically, a relational ontology views relations between subjects and objects as mutual rather than separate. This has been central to the process perspective in our [FUTURES PHILOSOPHICAL PILLS](#) and to a range of different contributions in support of design students' futures-oriented learning. We see a relational design perspective as offering design educators and students with framings and positionings of ways to work with the complexities and unfolding nature of designing in a changing world. It offers us all, to whatever degree or extent or commitment depending on our own subjective views and disciplinary leanings, principled means to working flexibly and adaptively while remaining creative and critical. This is no mean feat to claim and to sustain. This

book hopefully provides some evidence of how this might be done variously, and it suggests ways to do so differently. We see this as a fundamentally important position to propose and to try to hold open and to hold onto as approaches to futures are changing and being changed as climate, economic and geopolitical forces wreak havoc on civic order and societal and environmental needs and matters of planetary longevity.

Relational Design, as it has been named, has some of its motivations in relational aesthetics where lively debate has occurred concerning art, institutions and the everyday. However, Relational Design has not featured greatly in design research and design educational discourses. In a series of e-books, Holloway (2012a, 2012b, 2012c) outlines core conceptual aspects, issues on practising relational design and dialogues with practitioners and educators. As Suchman (2005: 3) reminds us, this too concerns the 'relational character of our capacities for action, the constructed nature of subjects and objects, resemblances and differences; and the corporeal grounds of knowing and action'.

One central voice on Relational Design has been that of Blauvelt (2012: 44) who states 'Relational design is preoccupied not just with design's form or meaning, but with its effects; not with isolated objects, but rather with situations embedded in everyday life.' Blauvelt outlines five themes in relational design: the birth of the user, the democratisation of the designer, the contextual turn, the power of the many, and the rise of the social. For Blauvelt (2012: 48):

*Relational design does not name a style, a school, or a movement. Instead, it is an analytical tool by which we can better understand the historical evolution of ideas in design. It privileges process over product, open platforms and systems over one-off objects, and design understood as situated experience. If the old modernist maxim was 'form equals content,' its contemporary is 'form equals context.' While most 20th-century design is autonomous, independent, isolated, and closed, relational design is synonymous with interdependence, connectedness, and openness. It evokes today's network culture, both literally and metaphorically, and the web of associations, uses, and contexts determining design today.*

In our design pedagogies and daily social and professional lives we meet protocols and platforms, practices and preferences that constantly remind us that our world is structured and infused with choices and implications located in how power is inscribed and enacted.

Our relational design is realised in and as activities, that is as designing. Drawing on notions of situatedness and learning, relational design pedagogies are not only abstracted away from their socio-material practices and manifestations. Rather they are realised in experiments and articulations with materials, processes and participation. Taylor (2020) sees design as a key creative practice that is both open to the real and to social connections and that it thereby works as an 'interface with the everyday life and situations' beyond narrow functionalism. Taylor (2020: 189) writes that in working with design as relational '... it is necessary to conceptualise each new

condition to which design is applied as being entangled in a wider system of systems that, in being dynamic and emergent, will always have a unique structure of interrelation and consequence that includes the experiencing subject.' In the context of object and emotive design and a relational view on design, Taylor, (2020: 202) concludes that:

*By refusing to accept that the borders of what we do are fixed by the sterility of what serves the market and an approach to the material that sees endless consumption as efficient whilst denying the power and importance of our emotional lives, it may then be that we find new purpose. In these moving objects, these things that wear their performativity on their surface, that shout and play, that scream that there are other ways of doing things, it may be that we find not just a way to survive but a new way to live.*

In our view, what is at stake today for design futures literacies is the negotiation in our pedagogical and research performative practices of what such a new way to live might be and its design futures aspirational character and dynamics. This extends to what our design futures need to be in the context of urgent needs for change and ethical futures making, whether transitionally, prospectively or critically troubling our present preferences and expectations.

## Relational pedagogy and relational literacies

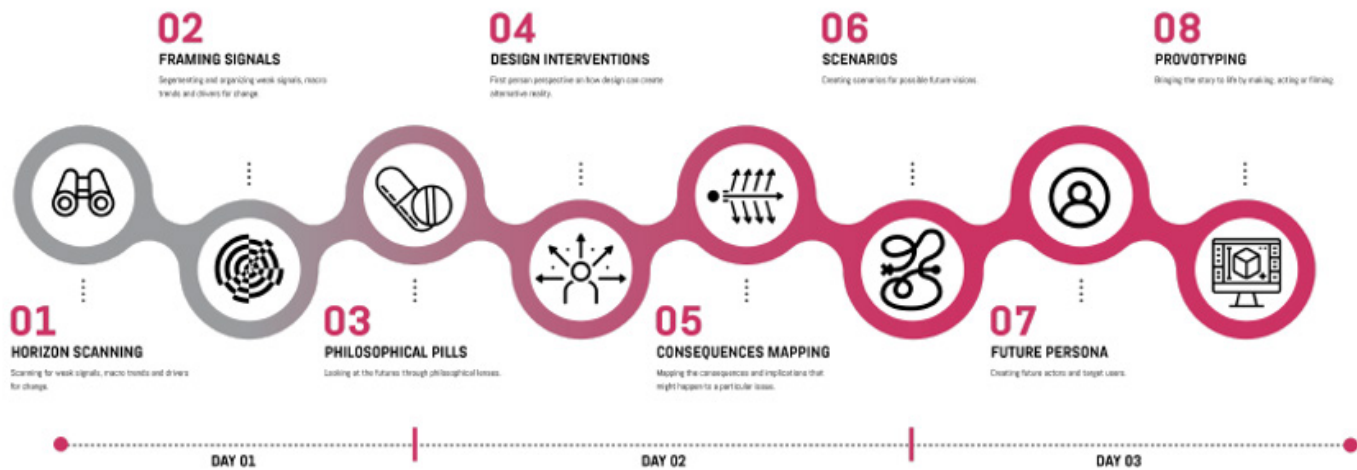
Where relational design may not be very prominent in design studies and pedagogy, neither are relational literacies and relational pedagogy nor in sociocultural and pragmatist traditions in education. Relational pedagogy was used by Baxter Magolda (1996) to refer to a mode of connected teaching that included respecting the student as knower and links to their own experience and peer-based learning. Drawing on this work in the context of epistemological beliefs of teacher education students, Brownlee (2004: 2) characterised a relational mode of knowing as 'open, flexible, connected and responsive'; this is synonymous with much of the approach adopted and explored in FUEL4DESIGN, and in our view significant for working with futures in design learning. Baxter (2004: 4) writes that:

*Relational pedagogy and connected teaching both imply that tertiary teaching should be a relational activity: that is, connections between self and theory (epistemological beliefs) and interpersonal relationships. Therefore, to help student develop more sophisticated (and relational) epistemological beliefs that connect self and theory, it is important to consider how teacher education programs may be improved using pedagogy, which is also, relational in nature.*

Biesta (2004) discusses relationality by focusing on the gap between participants, students and teachers, to a learning activity in which it the interaction in this zone that is paramount. Such interaction is negotiative and engages in making meaning in situated contexts, where processes and clarity need to understand messiness, emotions and emergence. Related then is the notion of anticipation as taking care ahead of time, as well care as working to support nurturing on the part of educators and students in shaping educational and future flourishing relationally (e.g. Thayer-

Bacon, 1997) as all education is also reaching into potential and preferred futures [→ SEE [Essay 5: Care and Agency in Design Futuring](#)]. Across and within elements of our project, we developed learning resources on futures in design education for master and doctoral students and their educators, but also with students and teachers, and that it is this, together with a focus on exploratory and shared 'learning events', that was a key part of the relational design based pedagogies we offer. This can be seen in the orientation chapter on our [FUTURES PHILOSOPHICAL PILLS](#) and in the parallel text in these pages [→ SEE [FEATURE 2](#)].

## WORKSHOP STRUCTURE



▲ **Figure 2**

Outline of a 3-day workshop, PoliMi PhD Futures Thinkaton, 2020; I04: DESIGN FUTURES TOOLKIT, FUEL4DESIGN. (Image credit: Ammer Harb).

In [Figure 2](#) we see one of the many initiatives enacted in FUEL4DESIGN to explore relational design futures pedagogies and their design futures literacies, in this instance a three-day workshop from the *PhD Futures Thinkaton* from the Politecnico di Milano partner. Shown here is a schematic outline of a set of design futures orientations and activities that were devised in the FUE4DESIGN work package [I04 DESIGN FUTURES TOOLKIT](#) to provide students access to some of the key tools developed in Futures and Foresight Studies and to explore their utility and applicability in working with ways to critically assess and apply futures tools as part of developing further individual and group based literacies and learning.

In line with the contextual view on multimodal design literacies presented earlier in the chapter in Volume 1, [Design Education Reconsidered](#), the work of Kern (2015) addresses language-based education in terms of interactional relational pedagogies. He suggests a set of key principles for implementing educational relational goals. These are (Kern, 2015: Kindle location 6477ff): 1) Meanings are situated and relational; 2) Language, literacy, and communication rely on both convention and invention; 3) The medium matters; 4) Texts are always multimodal; and 5) Language, literacy, and communication rely on both convention and invention. Kern draws on these principles, much as we do at

the start of each essay, as a means to pose heurist questions to engage us in rethinking our pedagogies relationally. Though this is language-based work, it applies to our own [DESIGN FUTURES LEXICON](#) as working with instances of relational and contextual futures 'linguaging'. Kern further addresses implications for the role of technology in language and literacy education, arguing that it should not be a goal in itself (Kern: 2015: loc. 7121) but part of an ongoing critical semiotic awareness. This too has been central to our own work and to thinking and learning in a relational anticipatory design pedagogy where language and contextually generative semantics and vocabularies terms are only one part of an intricate mesh of design based communication and futuring (see also Lockton & Candy, 2018).

Relationality is also taken up elsewhere in educational writing. In a reflection on John MacMurray's philosophy and its applicability to technologies in education, Facer (2012) pointed to matters personal (as in the individual), relational (interpersonal and agentic, as a resource for collaboration and friendship), and beautiful (namely reflective and contemplative). A similar view on relationality - as social, shared and amicable - is taken up by Gergen (2021) in *The Relational Imperative: Resources for a world on edge*. Drawing on his earlier work (Gergen, 2009), Gergen argues there is a vital and urgent need for us to act on challenges of climate and societal issues and where education has a key role to offer and play in responding to global and local precarity. Gergen discusses a relational view on conflict and co-creation and outlines shifts in responses over the past century as moving from punishment to bargaining to logical reasoning, suggesting that what is now urgently needed are peacemaking, caring practices (Gergen, 2022: 113-121). These he labels as: discouraging degenerative discourses, inviting generative scenarios, creating new realities, creating consciousness of commonality, and becoming the other. These suggestions resonate with the contexts and needs of meeting design futures challenges and potentials. Anticipatory design relational pedagogies are clearly in need of strategies and tactics to realise change and to constructively engage diverse parties to it, such as the focus on relational governance Gergen promotes.

In the recent *Relational Pedagogies: Connections and mattering in higher education*, Gravett (2023: 14) acknowledges the importance of relational pedagogies in university learning but stretches the common focus on multiple interactions between student and teachers, a human level, to focus on non-human actors and agency and their entanglements, at a level of matter. Gravett's goal is to experiment with a more radical relationality in addressing posthuman and other socio-material theories. We have pursued a similar path in parts of our project (see Zou, 2022; Snaddon, 2020, and the chapter [Design Education Reconsidered](#)) in exploring diffractive futures design and pedagogies, drawing on the work of Barad (2003, 2007), amongst others. For Gravett, this also extends to ethical relationality in acknowledging difference and diversity and their underpinnings [-> SEE [Essay 2: Altering Prospective Design Pedagogies](#)]. Gravett is critical of the heightened focus on individualism and instrumentalism in western societies and institutions of higher education; instead, she works to 'play with the multilayered concepts of connection, relations and mattering' (Gravett 2023: 17). For Gravett (2023: 227), teaching:

*... is also relational in the sense that matter matters: material contexts, spaces, objects and things all entangle to impact upon the learning and teaching that happens. Mattering then is a useful word. Mobile and multiple in its meaning it can be helpful to us in reminding us that relationships matter, but so do the non-human things around us. It invites us to think beyond those well-worn cognitive, psychological and humanist tracks of thought that have dominated educational research and practice for so long.*

On offer also is a history of the relational in learning and teaching in higher education (Gravett, 2023: 18-26) that provides additional citations and orientations to those we have referred to and to which readers may like to consult further. Gravett refers to key educators and writers, such as hooks (1994) and the notions of mutual recognition and presence, connectedness and selfhood (Palmer, 1998), student engagement (Gravett & Winstone, 2020) and the notion of mattering to students' lives as elaborated by Schwarz (2019), and others we mention above. Gravett (2023: 59) argues that her '... perspective reprioritizes values such as connectedness, relationality, collegiality, community, the micro, mattering and entanglement. This thinking takes place in the cracks that Bottrell and Manathunga describe (2019), and offers a source of activism.'

In summary, Gravett (2023. 28) writes that:

*Additionally, while the literature has focused on the mattering of teachers and students, or students and peers, I believe that there is a further significant dimension of relationality that has so far been occluded from the discussions surrounding relational pedagogies, and that a broader conception of the relational is required if we are to understand learning and teaching experiences in higher education. Moreover, I contend that this is a frame which holds the power to upend the way that we think about learning and teaching altogether.*

Such arguments are addressed further in **Essay 2: Altering Prospective Design Pedagogies** where we focus not only on wider issues in higher education but specifically on design institutional transformation. This is to do with change and ways to supporting the transformation of design education through ventures into futures-oriented design literacies and pedagogies. It's infused with imaginary yet pragmatic and open visions together with actual scenario-based transformations. These are futures in design learning that are conceptualised and enacted - relationally, creatively, critically and actively - to offer, pose and position, and to shape and to shape-shift meaningful, influential and long-lasting *Anticipatory Design Literacies* and *Anticipatory Design Pedagogies*.

Where we have consistently placed our work in an anticipatory 'systems-with-cultures' view [→ SEE **Essay 3: Sustainability, Systems & Learning Design Futures**], linked to open prototyping and unfurling scenario generation, to mention a few techniques, we have had to tackle a major shifts in working with and through a relational pedagogical perspective. The shifts have included entangled modes of in-person, face-to-face and physical materials contact and contexts, to online, digital pivots and electronic mediation of much of our project dynamics and processes. Through the project we have therefore adopted a broadly speculative-pragmatist approach that has allowed



the melding and differentiation of activity centred inquiry into ways design futures literacies and pedagogies might be realised further (FEATURE 2; see also Marenko 2012a, 2021b).

A recent book by Ross (2023), entitled *Digital Futures for Learning: Speculative methods and pedagogies*, also takes up many of the educational perspectives we have outlined above and within and across FUEL4DESIGN and this book. This is a most encouraging confluence of views relationally speaking, as well as the attention Ross gives to the role of speculation concerning the methods and pedagogies of learning. In her view, speculation refers to not taking futures for granted and to active attention to ways participants shape them, and her volume is centred on digital technologies in learning and how they may be opened out in new and generative ways (Ross, 2023: 6). She defines:

*... a speculative approach works with the future as a space of uncertainty, and uses that uncertainty creatively in the present. Working in a critical or questioning way with digital education futures requires methods that can bring particular ideas or issues into focus by envisioning or crafting conditions which may not yet currently exist, working to trouble established imaginaries.' (Ross, 2023. 13).*

Ross (2023: 139) continues:

*Speculative methods in education research use approaches including fictions, researcher-made objects, design activities for participants and speculative analysis. Speculative pedagogies, beginning to be applied in a number of disciplines, tend to centre emergence, creative experimentation and open-endedness. In both research and teaching, speculative approaches reject the articulation of best practice, and the production of predictions, in favour of an orientation to the future that plays with tensions between groundedness, unfamiliarity, responsibility and risk.*

In closing her arguments and reflections on speculative learning, Ross (2023: 202ff) lands on four main thematics: 1) the relationality of learning needs approaches that can account for its complexity; 2) speculative research questions or pedagogical structures need space for unanticipated or surprising experiences or insights; 3) speculative approaches bring risk to research and teaching situations; and, 4) working speculatively means acknowledging that representing knowledge differently creates different futures. Together, these allow us to venture, she urges, towards unknown and risky futures. These are also speculative futures that are beyond our grasp and engaging with them openly allows us to delve into more misty prospects. To do so with hope and intention, Ross asserts, is to reach beyond assumptions and comforts in the educational practices and framing we know and already enact.

In our view such a speculative approach, as the one Ross conveys, may be taken further into situating futures views and methods inside design education in which they are applied, developed and experimented with *by and through designing*. This highlights the roles of a design-rich view on speculative learning and knowing, where, as the

essays that follow show, the dynamic interplay between knowing and making draws on and extends beyond traditional academic disciplines and their rhetorical and mediational literacies and mixed, transdisciplinary and post-qualitative methods. An *Anticipatory Design Pedagogy* is itself a mode of ‘multimodal composition’ (Morrison, 2010) and linked, as we indicate in [Essay 7: Learning Design by Making Futures](#) and as Ross also mentions, to a ‘compositional methodology’ (Lury, 2021), that is a space that emerges across a problem space.

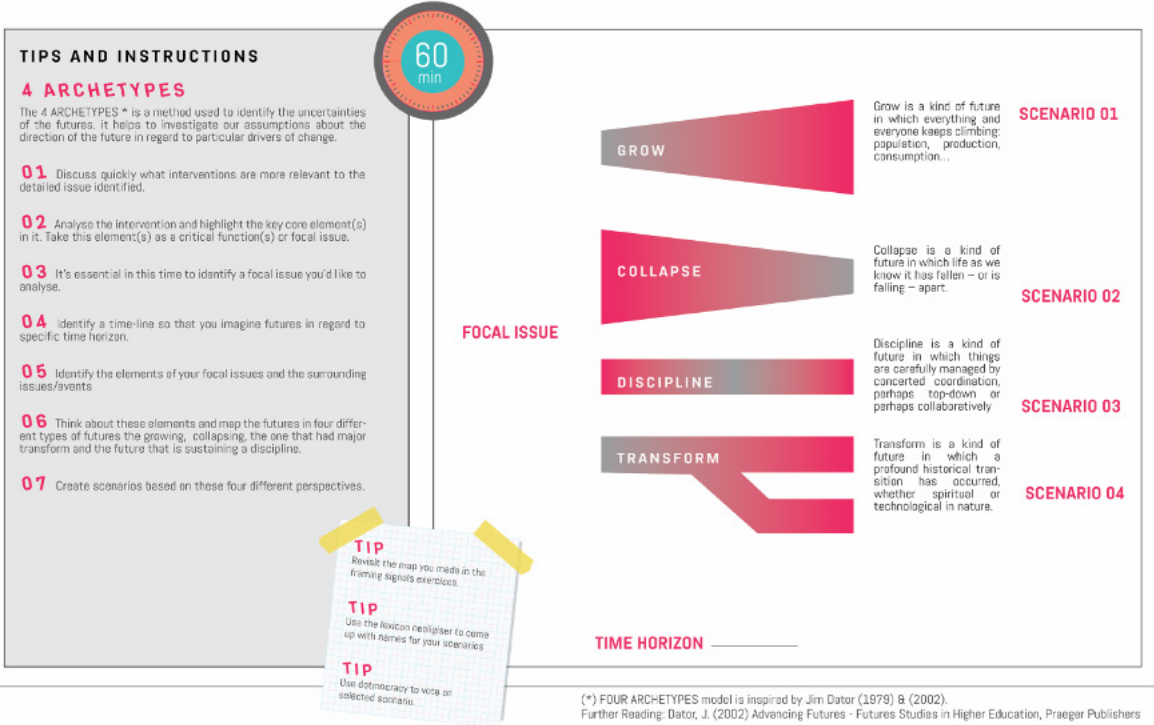
We conceive of an adaptive, flexible, resilient and futures engaged *Anticipatory Design Pedagogy* has at its heart not only compositional methodologies. It works transductively, that is with and through and realising relations between and within multiple materials, processes, dynamics, participants, systems and articulations. Together, in combination, relation and difference - by being risky and new, exploratory and prospectively suggestive, offering or altering, disrupting or problematising - these are also designerly in their anticipatory articulations. This is so structurally and communicatively, emblematising thereby their aesthetics, rhetorics, performativities and ethics as *reaching toward alternative futures through designing*. For example, in [Figure 3](#) we see the outline of a Miro based workshop activity from [IO4 DESIGN FUTURES](#)

**GROUP B**

TEAM | CARLA MOLINS, CHIARA DI LODOVICO, EMILIO LONARDO, JOMY JOSEPH, SYMEAON BANOS

**PHD FUTURES THINKATON**

PHASE 05 | MAPPING CONSEQUENCES



◀ **Figure 3**  
Online group work in Miro, 'Mapping Consequences'. PoliMi PhD Futures Thinkaton, 2020; IO4: DESIGN FUTURES TOOLKIT, FUEL4DESIGN (Image credit: Ammer Harb).

**TOOLKIT** developed to both draw students' attention to tools from Futures studies, in the case of the Four Archetypes model from Dator (2002), and design futures view on its links with scenarios and supported by three tips as to how to use resources from related work in this module as well as from the **NEOLOGISER** in the **DESIGN FUTURES LEXICON**.

## On relational anticipatory design education

In order to do preparatory, projective and reflexive work on shaping our possible, potential, and preferable futures - ecologically, culturally, technically, communicatively - futures oriented design education needs to continue to engage with both historical and contemporary needs and issues, and their related constructions and projections. However, it needs to do this to reach into anticipatory and imaginary perspectives and experiences so that we may return to present-day contexts, designing, related analysis and situated engagement through which to make informed yet creative moves towards better futures. Yet, this is not that straightforward when we cannot escape the paradox of trying to work in an anticipatory mode of knowing and becoming while the future is always just beyond us, beckoning (and mocking) us in its shadowy lure and constant ephemerality.

While needing to retain a strong measure of educational and societal hope, such as argued by the philosopher Bloch (1986) - even drawing forth the utopian and a needed psychological and organisational ethos and practice - for those learning, teaching and working with design, from industry to the public sector to research and policy, our primary goal in design anticipatory pursuits must be to secure survivable, sustainable futures. These need to be ones that we can shape in the present and allow to flourish and generate possibilities for those human and non-human beings and systems that come after us. Such 'postures', as we might call them, or, to consider them more generously, efforts and offerings, ought not to predetermine, decide and lock in choices and decisions in the very short term. Here, in the design professions and in master's education we meet very real pressures to provide responses and solutions to acknowledged critical needs and decisions.

However, the 'problem', as mentioned above, is seen as a form of immediate solutioneering. This 'design-as-salvation' view many design educators and education design researchers now argue has led us into the precarity that our societies and polities along with deep threats to biodiversity and environmental degradation. Solutions cannot address one aspect of a wider product delivery chain, for example, or isolate a service experience without seeing its deeper systemic infrastructuring. In the FUEL4DESIGN work package **IO3 DESIGN FUTURES SCOUTING** took the metaphor of venturing central to the project as a whole into a mesh of individual and collaborative student learning designed around an Atlas of Weak Signals.

This can be seen in Figure 4 in which is profoundly illustrative of design futures pandemic pedagogies. Gloves, masks, social distancing. Pin boards, diverse images and own productions in an assemblage of personal composition. Multiple items situated in a wider spatial communicative ecology. Hands, eyes, postures and actions. Scissors. Pins, thick twine, pink tape and thin string. Proximity to the paper and 2-D interface

in a process of becoming. Attention to a specific edit by the student on the far left, a selection and its placement centre image. Two students watching others in acts of making and shaping selections and relations. In the corner a computer monitor, and its implied and invisible relational pathways between the digital and the physical, the imaginary and the tangibly mediated.

A tableau of action and reflection, of working together from students' own first-person perspectives into modes of materialising collaborative documentation and the texturing of 'swarm intelligence'. Being visible in acts of shared becoming while working with design project characteristics and articulations from personal work and pointed scale to the rhizomatically collective and expansive Spaces of different processes being connected and through different minds and yes and hands and gestures. Time of project development compressed into a zone of layered mapping and networked thinking with action and pauses, diverse contributions and participative principles. Our challenge as educators and as students, as this one collaborative learning event



◀ **Figure 4**  
Collaborative Documentation and Swarm Intelligence session, 16 November 2020, ELISAVA. In detail, students were asked to frame their prototypes and experiments in relation to their area of interest provided in the Atlas of Weak Signals (for more information about the AWS, refer to the article published in Temes de Disseny) and make these relations between students visible. (Image credit: ELISAVA).

indicates, is hugely about negotiating how to ethically and creatively shape design futures in order to negotiate transitions and change in and over time, and to look to time as a design material [→ SEE [Essay 3: Time, Design and Futures Pedagogies](#)].

We need to limit or curtail destructive policies and practices (already extending in time in their consequences). We also need to generate and imagine the very ways and means to engage productively in which anticipatory choices, designs and ecologies may be realised and where these are situated in durative, responsible actions (temporally distributed, poly-chronological, options in their anticipatory reach and security). Such

anticipatory acts are ones that we need to face head on in living and working in today's world, not in some imaginary terraforming of Mars. Yet design imaginaries, need to be understood not only as anticipatory systems and schema but also as anticipatory cultural articulations in the forms of products, services, systems and interactions, and un/disciplinary and inter/transdisciplinary activities. Anticipatory learning events are themselves ontological spaces and acts of change and they can and may continue to happen in design futures pedagogies that script and stage possibility spaces that allow the dynamics of design materialised futures literacies to flourish.

For Brassett and O'Reilly (2021: 18) a diversity of modes of anticipation themselves may be understood as ontological transformations within our emergent approaches to studies of anticipation. In their view, 'Anticipation is the capacity of futures studies for opening up to the multiple modes of future becoming, beyond the corporate 'unreal estate of the future', to making futures that are creative, ethical and lovely.' (Brassett & O'Reilly, 2021: 18-19). *Creative. Ethical. Lovely.* Teaching and learning design futures literacies in the past three years or so may have often seemed far from these three terms and their constructive, exploratory and, at times, risky experimentation. Yet they matter immensely in working with and in and through futuring in design education.

To achieve such hopeful and aspirational futures, that is through teaching and learning design, by way of design practice, and in crafting critical and situated design research, we need to be engaged in multiple, linked and bounded acts of creating, doing, experiencing and critiquing. For us, there is a necessary performativity here in order to grasp at, to work towards and to engage in so that the 'what-if' of what will continue to be intangible futures and future potential potentials may be further realised as what might and can be done back in the present and its reach into alternative futures.

These are futures schemas in a sense that we then experience - from a passing sniff to a full-blown somatic overload as it were - so that we use design refuturing as what may be understood as a recursive ontological anticipatory design material. To hold these states and processes, engagements and reflections open to deep and critically creative learning - not in suspended disbelief as design fiction work so often claims - interesting and productive as that may be - asks that we take up with the speculative as a mode of inquiry that is only possible for what we have become and are. To do so asks that we take stance of engaging with processes, acts and activities of 'becoming' that not only allow for but encourage anticipatory designerly modes of teaching and learning how to engage in shaping shared long-term different futures.

This is conveyed in '[Crafting a Speculative Space in a Pandemic](#)' [[SEE FEATURE 2](#)] in which Betti Marenko considers and reflects on how expectations and experience of attempting such design anticipatory education played out, encapsulated here in one of the early public events held by the project. The example is from a project blog post and it indicates the value of a variety of modes and styles of communicating about the project online that here further refers to digitally mediated events concerning the forced pivot from physical to digital communication. The feature is indicative of the engagement of project teams and the team as a whole to engage critically and reflexively on their own

changing and adaptive work practices and the roles of participants to platform shared venues and events where our own pedagogical modes of becoming were presented and discussed.

Further attention to relations between the ontological and the methodological and the interplay of the making and enacting of design futures pedagogies and design-research future framed methods, is covered in [Essay 7: Learning Design by Making Futures](#) and in [Essay 8: Tools, Means and Mediating Design Futures](#).

## Design-learning through ‘dark futures’

In locating an anticipatory design view on design futures literacies in relational and transdisciplinary ways, it is important that we go beyond a walled-garden view of our own design expertise, practices and knowledge. Rather, we argue, what is needed is that we accentuate the potential and actual engagement with design and futures that goes beyond dampening to a crowing from its borders inwards and outwards that we will simply and always work to provide solutions.

In design research terms such arguments are well versed, rehearsed and received. It’s time they were also better appreciated and within a more substantial, informed, shared and wider ecology of interrelated discursive and enactive designing and knowing.

This is a serious challenge to voices in design that all too quickly say that ‘It’s designers that find solutions’, who matter-of-factly support such a view in locking down potential and open status investigation in the restrictive ‘That’s what we do’ and when such voices may not articulate or be in positions to deconstruct the very problematiques to which they contribute.

In *After Lockdown*, Latour (2021) refers to Kafka’s *Metamorphosis* and the persona of a hard-backed insect that his central character Gregor finds he has become on awakening one morning. Contained in his apartment, ordinary life is inverted, and movement restricted. Embodied in this human/non-human persona, argues Latour, are the framings of our fragile, human contained experience in which ‘Kafka hit the nail on the head: becoming a bug offers a pretty good starting point for me to learn to get my bearings and to now take stock.’ (Latour, 2021: 4). This ‘making an account’ takes place in Latour’s later work in the context of understanding human and non-human relations in non-binary terms in the wider context of climate and planetary level systems change.

Many of Latour’s observations in *After Lockdown* apply to design education in which, in many respects, we are curtailed by our own values ecologies and infrastructuring logics. In contrast, Latour reconsiders the lockdown logics and experiences of the COVID-19 global pandemic, and its challenges to our lived realities and the unequal distribution of vaccines and skewed global access to public healthcare and calls to action.

He writes that:

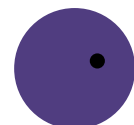
*It's this 'return to earth' business that's got my head in a spin. It's not fair to push us to come back down to earth if they don't tell us where to land so we don't crash, or what will happen to us, who we'll feel affiliated with or not. I was a bit too quick off the mark. That's the problem with starting with a crash site, I can no longer position myself with the aid of a GPS; I can no longer overfly anything. But this is also my chance: it's enough to start where one is, ground zero, and then try to follow the first track that crops up in the bush, and see where it takes us. No point hurrying, there's still a bit of time left to find a place to nest. Of course, I've lost my nice stentor's voice, the one that used to hold forth from on high addressing the whole human race, offstage; like Gregor's to his parents' ears, my diction is in danger of sounding like mumbling, that's the whole problem with this becoming-animal. But what counts is to make heard the voices of those groping their way forward into the moonless night, hailing one another. Other compatriots may well manage to regroup around those calls. (Latour, 2021: 7).*

What then, as it were, is our design education as becoming-creature? How is it construed and who speaks as and through it? What is articulated and how might we gather around matters of care and concern (Puig de Bellacasa, 2017) that help fuel our relational practices?

To follow this through, and perhaps as a less direct bio-semiotic challenge to design, let's turn to one recent publications in art, a nearby and intersectional domain for design, that offers us similar and accessible engagements with the ontological and epistemological in a wider relational view.

Witzgall (2021) elaborates on relational onto-epistemologies as ways of being in the world in the context of contemporary art practice and theory. She argues for attention to ecological thinking and how it may be understood in regard to wider approaches and engagements in relational thinking and practice. These are ones that may be positioned within what has been termed 'a relational turn' that works against a modernist, instrumental and subject-centred paradigm (Witzgall, 2021: 74). For Witzgall, S. (2021: 73):

*In the new relational approach sketched out here, the signs, tools and practices of representation are inseparably entangled with the other semiotic-material actors that make up their assemblages and networks. In this way, they do not only participate directly in the differentiation, or individuation, of the phenomena and things to which they are directed but also are themselves determined by the relational processes involved.*



# 3. PLURALITY AND FUTURES KNOWING THROUGH DESIGN

BY Andrew Morrison & Manuela Celi

## What futures, whose futures?

For design educators, designers and design researchers speculative design futures literacies stand in contrast to prevailing approaches to futures as a field of research under the banner Futures Studies. These approaches may be characterised by attention to planning and strategic decision-making. They reflect historical and contextual influences and world views around ‘managing the future’ (e.g. Gidley, 2017; Andersson 2018). These may be broadly read as a mode of problem solving. While such views might indeed be oriented towards addressing system and pressing issues, they tend to overshadow approaches that open out speculative spaces, activities and mediations as ways to work with uncertain and unfolding futures. Mazé (2019: 27) reminds us that:

*In design practice, rhetoric of futurity is prominent in various genres, even if political dimensions are not made explicit. For example, the future is at stake in ‘concept design’, ‘critical design’ and ‘persuasive design’, as well as in other genres not further elaborated here such as ‘speculative design’, ‘design futures’ and ‘transition design.’ As I discuss elsewhere (Mazé, 2007), concept design, critical design and persuasive design are not definitive categories in design discourse, since examples are not easily or exclusively identified and terminologies are highly contingent, and since positions are continually renegotiated and reframed. For explanatory purposes here, these are elaborated in over-general terms, as tropes through which to discuss ways in which design may aspire or claim to project, challenge and steer the future, in order to expose some political dimensions.*

Escobar (2018) has urged us to rethink our conception of the future as plural. We need to ask what and whose futures we are taking part in and to what ends. This extends as well to wider acknowledgement that the future is also being colonised, occupied and promoted out of vested and inherited interests and power configurations. Ways we can work with futures and support our students to do so creatively and ethically demands that we also unpack the wider discourses and devices through which futures views and disciplinary takes on futuring as arranged and disseminated [[SEE FEATURE 3](#)]. Adam (2021: 123; original emphasis) writes that:

*To engage with the future explicitly means we have to consider what entity we are dealing with. This means we need to consider whether the future is a sphere of purposive action, transaction, or interaction. Is it a sphere of mind, imagination, or language? Is it a sphere of*



*ideas, beliefs, and knowledge? Or is it a sphere of morality, ethics, values, and obligations, or a sphere of freedom, choice, intent, and instrumentality? We need to ask ourselves further whether we think the future is embodied or abstracted, real or ideal, material or immaterial.*

A plural futures view translated into an anticipatory design pedagogy is centred on and realised through problem posing, prospective design-based options and modes of working and knowing that encompass the contingent and the emergent (Marenko, 2018). One of the PhD participants to our many events, Jomy Joseph, from India and shaping his doctorate at AHO, comments in his work as follows:

*The future we create will need deep conviviality, autonomy and cooperation, which may help us make and remake the world just as intimately as we normalize the arrival of climate dystopias today. ... The prospects of a long-term sustainable civilization worthy of the name, if there ever is to be one, may yet depend on the possibility that the human species, with all its ingenuity, realizes forms of becoming indigenous to its life-giving biosphere. (Joseph, 2021: 112).*

**Figure 5** ▶  
'Artefacts from the Pluriverse-Shaping Sustainable Futures' Exhibition. (Jomy Joseph, PhD fellow at AHO, Oslo; Zhilong Luan and Xia Nan, PhD fellows at Tsinghua University, Beijing). Part of the ReFuturing Studies: Investigating Ecologies of Climate Action, exhibition and seminars, AHO, 25 November-3 December 2021. Supported by the designBRICS project, AHO. (Photo credit: Jomy Joseph). [Link](#) ↗.



This is where working with and towards long-term survivable and sustainable futures - in the contextual clusters of complexity and change - may benefit from being recast, reconditioned and reconfigured [Figure 5]. Even at this point (as these last three verbs indicate), one can see that working in a mode of anticipatory designing asks that we take an active, exploratory and formative role in shaping specifically design futures. Such design futures are prospective, recursive and critically repositioned views on futures that are themselves plural and always just beyond tangible grasp.

In the face of crisis, change and complex contexts, the ontological (world views; meaning) and epistemological (methodological; pragmatic) characters and uses of perspectives and approaches on futures need close, careful and critical scrutiny and strategising. This is no small matter for design students, educators and researchers.

Without our own attention to such matters, it's hard to see how others outside of the actual dynamic of designing can make full sense of what this might mean. Mazé (2021: 278) reminds us, referring to a book she co-edited, that:

*In Feminist Futures, we argue that feminist futures are 'becoming' when common projects—e.g., a canon, curriculum, project, or conversation—not only momentarily produces an alternative space, but effects new connections and social relations that can alter ingrained patriarchal structures as many of us still experience them.*

Altering a set of interlinked, ingrained structures and practices is central to shaping more equitable and inclusive design futures literacies and pedagogies. These changed curricular and pedagogical formations need to be transposed into events and actions, experiments and experiences. They take place (and it needs to be noted), however, in contexts in which predominating and ideologised neoliberal political economies of more growth and exploitation of material and human resources and related policies position and limit world views. They may be actively configured to constrain and even curtail design-driven ventures into shaping design futures learning experiences and paths to conceptualising and actioning urgent needs and long-term equitable and sustainable change through designing.

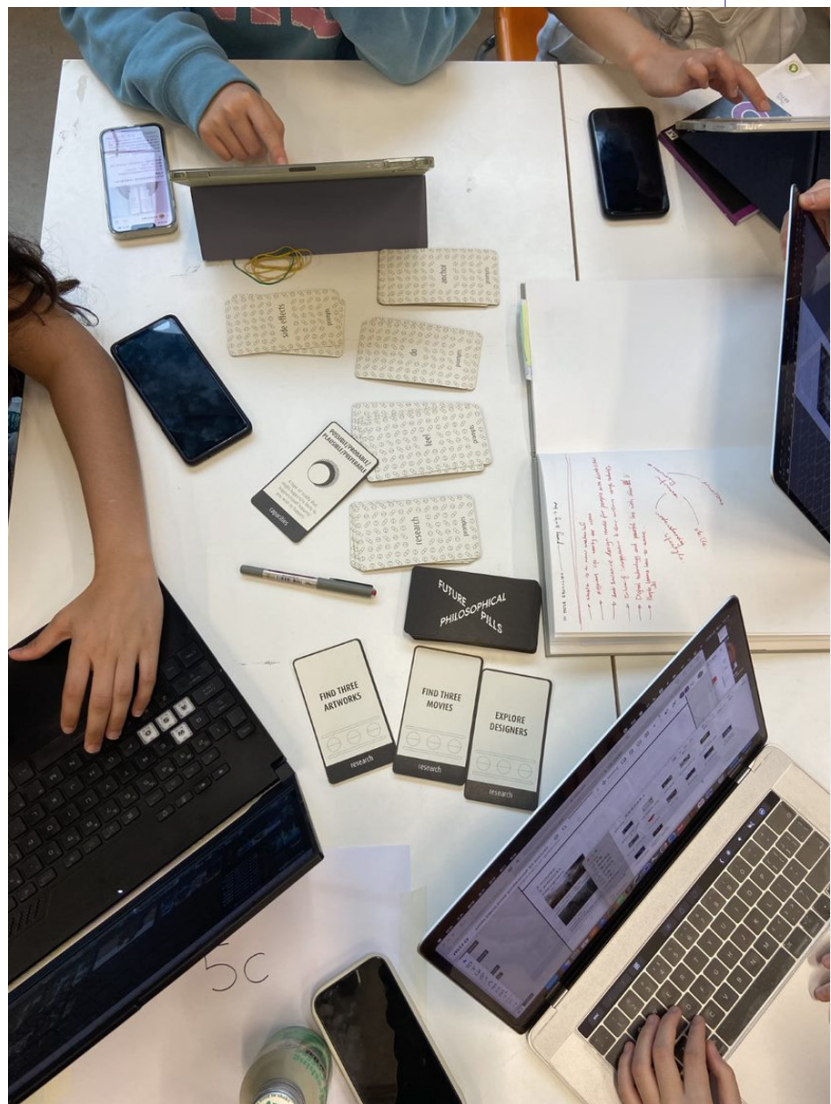
The work of Betti Marenko and her UAL team on the [FUTURES PHILOSOPHICAL PILLS](#) [[→ SEE Part II. Positioning](#)] works relationally in engaging participants through serious play to better identify world views, assumptions and positionings in their design projects and the design discourses they encounter. While developed out of a canon of western continental philosophy, the PILLS have also been generated by a design scholar and theorist who works in critical studies of digital technologies and cultures, including in Japan. This work has also naturally informed the wider orientation and character of the PILLS. The intention with the PILLS is to fulfil a second phase that draws on a corpus from the Global South thereby extending the co-design of its contributions to building additional plurality into relational anticipatory design learning resources.

Similarly, the [DESIGN FUTURES LEXICON](#) acknowledges vocabularies and their workings in, as and through discourse (the articulation of meaning above the level of the sentence) and its further multilingual and poly-cultural development [[→ SEE FEATURE 3](#)]. Further examples of 'tools' and uptake from these two work packages are located thematically in the essays that follow.

To focus for a moment on a doctoral design student outcome, the two examples of Jomy Joseph's doctoral work shown above in this chapter straddle and entwine physical-digital, visual and verbal narratives and exploratory design futures multimodal rhetoric. They work relationally to offer and to propose ways to work ontologically and to think through ways design futures are conveyed and communicated. They suggest and beguile us to venture forth on our own. They open out spaces to think with and through the tools and environments they mediate and how we might further our own senses of the emergence of the 'what-ifs'. Here too we are shown and even shaken a little, asked

to be present and to be critically active and open to what is being conjured and cajoled out of the past and the present into a subjunctive and anticipatory relational way of thinking and learning and communicating.

In entering into these 'speculative spaces', as Marenko outlines in [FEATURE 2](#) here, we have invited students and colleagues to engage in processual and ontological acts of relational anticipatory design. This includes designing, learning, teaching and analysis where the hyphenated designing-learning generates its own energies and possibilities and where recursively and watchfully we all need to continue to mind the choices, uses and implication of the views and vocabularies we select and work with to actively use futures in design education. This connects with themes in other essays, such as care, sustainability, and agency. It also asks that we work critically with notions of design imaginaries as part of design futures literacies in the ways we approach and embody futures in our pedagogies and in transforming their wider institutional and social and communicative reach and influence [[SEE Essay 2: Altering Prospective Design Pedagogies](#)].



**Figure 6** ▶  
Postgraduate students  
from a range of art  
and design disciplines  
taking part in the Future  
Philosophical Pills  
workshop at Central  
Saint Martins, UAL, 6  
March 2020. (Image  
Credit: James Bryant).

# Framing Futures

EXTRACT FROM: I05 Unit 02  
– Voicing Fluent Futures.

AVAILABLE: [Link ↗](#)



## UNIT 02 - VOICING FLUENT FUTURES

### UNIT CONTENT

#### 1. FRAMINGS OF FUTURES

Futures concepts and contexts  
Gidley (2017: Kindle) writes that 'The future has been prophesied, divined, imagined, colonized, feared, forecast, strategized, and created. As multifaceted as humanity itself the future can never be fully known, predicted, or controlled, but it can be better understood.' So how might the future, or rather futures as it is now commonly referred to, be better understood? And whose futures are these and who owns them? (For one view, see: Jarnier 2013). How do they matter to design teachers but also to our students as young citizens? (Gidley & Inayatullah, 2002).

This Unit seeks to facilitate sensitivity to and fluency with how work around 'futures' has been developed. Here fluency refers to being able to articulate 'a design futures view' verbally and in relation to multimodal expression, rhetoric and critically positioned worldviews in a design work or project (see Unit 9).

How we select approaches to 'futures' and related methods may inform, identify and support ways we can teach, learn and work with futures in a futures-by-designing mode of making and knowing. (see PHILOSOPHICAL PILLS). Contemporary futures views are pluralistic and participative and are concerned with alternatives not predictions. We need to examine their genesis, methods and circulation

Alternatively, Adam and Groves (2007) provide two thematics that may guide us: The Future (Told, Tamed, Traded, Transformed, Traversed) and Futures (Thought, Tended, Transcended). In centring on methods in Design Futures Literacies, we alter result type past tense verbs to gerunds or '-ing' forms (Lury, 2018; Unit 1). Processes, action and agency are essential to how futures may be shaped and 'voiced' via concepts, language and multimodal discourse.

#### Futures: plurality and positionality

Today, the future is considered to be plural (Escobar 2018). Futures need to be examined for diversity and for their positionality: historically (Rosenberg & Harding, 2005; Adam, 2010; Jameson, 2007), socio-technically (Dourish & Bell 2011) and culturally (Appadurai, 2013). Augé (2014: Kindle) writes that, 'Including oneself in the knowledge of what is (the ethnologist's multiple journeys make the task easier) means making progress, embarking on a route and understanding that the movement itself is both the means to knowledge and its object.'

In Design Anthropological Futures, Smith, et al. (2016) considered multiple and heterogeneous relations of futures and cultures: as a multiplicity of ideas, collaborations into possibilities, futures in and of design anthropology, and dominant takes on 'singularity, linearity, locality and novelty' (Gislev Kjærsgaard et al. 2016: Kindle). Acts of positioning knowledge to methodologically open out spaces for the possible are central. Moti (2019: 16) argues that 'a) the future is not trivial, b) the future has priority now, and c) the future is open to critique.'

#### Mapping Futures Studies

'Futures' are realised within the domain areas of Futures Studies, Foresight, Anticipation and more recently Anticipatory Design and Design Futures. Needed is examination of the histories of futures (Adam; 2010) argues and approaches and processes in reframing futures (Jarratt & Mahaffie, 2009). Many of the futures methods we meet are from Futures Studies: a research field within which foresight research sits, but equally in the practical work of foresight practitioners. Gidley (see e.g, 2013) has a five-part taxonomy of approaches to futures studies. This categorisation is contextual, not linear, and may in effect be used inter-sectionally

## UNIT 02 - VOICING FLUENT FUTURES

### UNIT CONTENT

by designers, teachers, futurists and researchers alike: 1) Empirical-Positivist, 2) Critical-Normative, 3) Cultural-Interpretative, 4) Empowerment-Activist, and 5) Integral-Transdisciplinary. For an elaboration, see World Futures Studies Federation site <https://wfsf.org/about-futures-studies/>. Gidley has recently updated this mapping. From FUEL4DESIGN, we argue (Morrison, et al. 2021) there is a need to interrogate the modes of design ideation, cultural and technical imaginaries, and mental and material projections of futures.

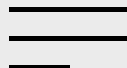
#### **Futures, imaginaries, time and transformation**

Sardar (2021a: online), writes that the 'Future is about time: it is about how we perceive time in our lived present, it is about memory and anticipation, it is about how time is presented in our worldviews, it is about how we give meaning and a sense of direction to our lives, and it is about collective undertakings. Time itself is, of course, all about change.' Haraway (2016) coins the notion of the 'thick present' on the now as lumpy and fibrous, one that is linked to the past but not an 'instant' present. This concept raises important potential for design making and inquiry: it asks us to explore assumed (modernist) notions and practices of linear time, directive planning, and strategic decision making (prominent in Foresight work). Key futures concepts are presented in a process framework taxonomy (Voros, 2003; Voros, 2017: online) with nested classes: preferable, probable, projected, plausible, possible and preposterous. Voros (2017: online) notes that 'This taxonomy finds its greatest utility when undertaking the Prospection phase of the Generic Foresight Process...!'

We may also ask and shape futures in which past-present-futures relations are dynamic assemblages, re/configurations and enactments of designing and contexts

of situated and emergent collaborative and collective (re)use. On working with language and time, see [DESIGN FUTURES NEXUS](#) and [UNIT 2.5. FUTURES DESIGN, WORDS AND TIME](#). Tibbs (1997) proposed a 'psychological landscape of the future' and three types: cognitive, affective, and conative (Tibbs 2020). These we can use to develop methods and pathways in shaping futures pedagogically and methodologically, e.g. through scenarios.

Political economies of futures are influence expectations of consumption, imagination and change. Beckert (2016: 285) writes that 'Modern capitalism entails much more than instrumentally rational actors and calculative devices—it includes the creativity expressed in imagined futures'. Yet, these are futures infused and even co-opted by the methods and means we shape futures by design; Frase (2016) proposes 'mixing imaginative speculation with political economy' in a post/industrial model of four futures (communism, rentism, socialism, and exterminism). Sardar (2021a: online) positions futures in a frame of postnormal times where '... the future is represented as three tomorrows, which are simultaneously distinct and diffused: extended present, familiar futures and unthought futures..... Time in the framework of three tomorrows is complex and contradictory, characterised simultaneously in the singular as well as plural – time and times.' Our futures, likely or imagined, near or remote, sort or long term, may be realised via a variety of means and methods. In addition to the other Units here, the LEXICON offers a diversity of tools and methods for working with futures, time and the articulation of shaping futures by design.



# 4. LEARNING DESIGN FUTURES IMAGINARIES

BY Andrew Morrison

## Imaginaries and dialogue matter for design futures

Here's a thought to consider. Learning is a mode of design future imagining. Our design future literacies and pedagogies can only proceed transformatively with continued attention to the interplay, the creative, and design imaginaries and contexts and systems of their making, that is of the conceptual and the pragmatic, between 'fabrication' and finance, and through changing relations of innovation and market where value is plural and ethical, not merely monetary. We will need to continue to make and buy and sell and consume, But it is how we do this and how design's imaginaries may be a part of working to make this possible and actual. Art and design schools have such imaginaries at the core of their education and preparation of students for working in a complex and changing world. We take this up in institutional terms in [Essay 2: Altering Prospective Design Pedagogies](#).

What is at issue for a view on Anticipatory Design Literacies is that we make more explicitly the contradictions and possibilities in the contexts and connection within which we work. Without our creative inputs to such education, without modes of engaging creatively with criticality in working with and through design futures imaginaries we will not be able to contribute through design to alternate, different, emergent and preferable futures. It is as if we are now aware of the future that has ruptured the present but we have not collectively joined creative forces to do the painful and reparative work of suturing together another professional and transformational educational platform through which ongoing imaginative contributions may be made into and through processes of critical and situated innovation and change. This may sound idealist, even utopian and dismissive of clear pragmatic work to achieve such change, but without connecting the imaginary, sustainable and systemic in and as and through designing our design futures literacies will be the weaker.

Needed then is visionary and challenging work, playful and engaging, edgy and quirky, even deviant and disruptive in proposing with exposing, offering while discomforting, reaching and rippling towards a flourishing and wider and durative regenerative and systemic practices [\[Figure 7\]](#). These demand pedagogies of openness and risk, of options and difference, of working with change as material, of engaging with difficulty and uncertainty, and, frankly, in seeing all of these - and others we perform and might find - as to do with design learning.

**Figure 7 ►**  
Speculative scenario in which L0 recognises a plant, produces light appropriate for its growth needs and anticipates its future ecological system through digital technology (Image: Zou, 2020). (In Zou, 2023: 25).



Yet this asks that we do some delicate work perhaps, as educators and researchers. It suggests that we place high value on such work of unlearning the givens and the assumed. It depends on us being able to open out imaginary design spaces of possibility (Nygaard Folkmann, 2011). Needed too are collaborative projects with industry and public sector partners, policy-makers and STEM actors in which we actively and deliberately work to position design as working towards alternate futures in shared meaning making.

Here there is the danger of design imaginaries, with their offerings of optional pathways and diverse scenarios, too quickly being curtailed and dismissed by design itself where working with difficulty and uncertainty is displaced by the adage that design works with solutions. Solutionism and 'solutioneering' (that a problem solved solves the conditions and contexts of an issue or a need) are not the direct and immediate answer but may perpetuate the problem.

So, an anticipatory dialogical design, drawing on Dewey's pragmatism but folding to with and into a speculative creative designing, is one open to using design imaginaries as material and means for future shaping, is discursive in its workings and inclusive of futures as plural. It acknowledges the need to recognise a diversity of participants and prospects and the economic, political, cultural and ecological contexts of designing. For example, Appadurai (2013) articulates the future as 'a cultural act'. Such views, supported by attention to philosophical underpinnings and to futures framing lexis, together communicatively shape the views and vocabularies and cultural articulations of designerly informed, multiple futures.

Identifying, devising, and expressing such dialogical routes to plural futures making through design is not an extension of a future neo-liberalism, as Andersson characterises much of the application of foresight and futures. It is a potentially dynamic and response-able anticipatory view of innovation and systems – as these

rhizomatic essays attempt to reveal – that an abductive *and* transductive endeavour and that, by multiplication, is itself a matter of 21st century Anticipatory Design Literacies in-the-making [Figure 8]. The words of the novelist and semiotician Umberto Eco come to mind:

*If fictional worlds are so comfortable, why not try to read the actual world as if it were a work of fiction? Or, if fictional worlds are so small and deceptively comfortable, why not try to devise fictional worlds that are as complex, contradictory, and provocative as the actual one? (Eco, 1994: 117).*



◀ **Figure 8**

Travel to a place that exists here and now, only over there rather than here': the tagline for the Philosophical pill 'Heterotopia' in one of its initial iterations. Future Philosophical Pills workshop at Central Saint Martins, UAL, 6 March 2020. (Image Credit: James Bryant).

## Design, imaginaries and futures

In the 21st century we are engaged methodologically, practically and mediationaly with what Rosner (2018) refers to as 'critical fabulations'. These are ways in which we rewrite technoscientific narratives of the digital and computational systems through feminist perspectives and practices. Such a mod of counternarrative points to the deeply socially constructed 21st century nature of global, local, digital and distributed design, and the hybrids and new combinatorial practices, artifacts, services and systems they deploy and convey. Here our scientific imaginaries (Marcus, 1995) and socio-techno imaginaries (Jasanoff & Kim, 2015) are critically important, as they too are shaped by prevailing and motivated positions and forces, where investment, education and policy are entwined in configurations and exercises of power (see also Zuboff, 2019). The domain of Science Technology Studies (STS) (e.g. Latour, 1999, 2005; Haraway, 2008, 2013, 2016a) has done much to expose the relational assemblages of the technological and the cultural. This extends for example to how national projects, corporations and social imaginaries work together, for example in the case of South Korea (Kim & Ku, 2021).



For Jasanoff, (2015: 338):

*... sociotechnical imaginaries are part of the repertoire of the constructivist and interpretive social sciences. They consistently direct our attention toward the practices of collective sense making and the tacit assumptions that allow collectives to hold together in understandable, sustainable, livable modes of being.*

In her view ‘the socialtechnical imaginary ... is a voyaging concept’ (Jasanoff, 2015: 321) yet sociotechnical imaginaries ‘get built into the hard edifices of matter and praxis. Once situated in the specifics of time, place, and social worlds, they still have power to move minds and actions at a distance; and, as constructs in part of human thought, they remain continually open-ended and subject to revision.’ (Jasanoff, 2015: 323). She writes that there is potential for social imaginaries and science and technologies together shape alternate futures. In conclusion, Jasanoff (2015: 340) argues that ‘Analyzing sociotechnical imaginaries emerges, then, as a form of intensely political narration, reminding both observers and observed that the seen reality is not the only one about which we can dream.’ [[→ SEE FEATURE 4](#) for an example of a student project form FUEL4DESIGN on technologically re-meeting our deceased].

Such a view is taken up for example by Withycombe Keeler et al. (2019) in ‘Intervening through futures for sustainable presents: Scenarios, sustainability, and responsible research and innovation’ in which they argue for ways futures may be taken up to act on the present to build sustainability that may endure by way of developing participatory scenarios that disrupt ‘status quo imaginaries.’ In *Media Futures* Ernst and Schröter 2012 examine relations between media and futures and how our present imagines its technological futures. In a more specifically design view (Auger, 2013), such disruption and imaginary prospecting is the stuff of speculative design (Sterling, 2009) that asks for a suspension of disbelief in the posing of alternate fictive and counternarrative futures, drawn from and back into the present to which I now turn.

## Two instances of speculative designing and learning resources

In the remainder of this section, I present and discuss speculative design as an emerging mode of specifically design-centred futuring and knowing, and illustrate it with two examples in the extension of the work of FUEL4DESIGN and the [DESIGN FUTURES LEXICON](#). These examples include the role of scenarios and personas in design fictioning and work with stretching imaginaries to contexts of supposition and subjunctive twists in rethinking potentials and consequences indirectly, abductively and poetically. In this sense they are experiential and narratively framed design fictions that, as Ward (2021) entitles his chapter in the *speculative.edu* project collection, are about ‘Practice of hope, a method of action’.

However, this action is about conjecture and thinking into alternate paths to framing scenarios as it matters that we do tough work with imaginaries and explore potentials and creative pathways in the face of design innovation and functionalism that

# PoliMi PhD project

GROUP: 4

YEAR: 2022

TEACHER: Manuela Celi

STUDENTS: Alessandro Pasquali, Danilo Grugni, Khanh Linh Nguyen, Lorenzo Gennari, Silong Luo, Wanying Zhao

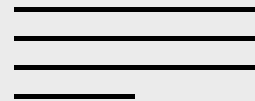
TAGS: Relations. Memories. Senses. Time.



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## Acheron Interface

A mental aid product to help with the coping of loss by enabling users to see the deceased again using AI. The machine's input are the real-time memories provided by users, while the output is a realistic VR experience in the form of lucid dreams and sensorial experiences. The trance is facilitated by the amniotic liquid in the tank, while the AI is constantly learning and updating through the user's feedback.



is reductive in not problematising and working with uncertainties. Elsewhere we pragmatically address contexts of real world needs concerning scenarios, water, social justice and collaborative governance [→ SEE [Essay 3: Time, Design and Futures Pedagogies](#)].

## On speculative design

Lively experimental work and a considerable body of research has emerged in a little more than a decade in the area of Speculative Design. Growing out of the work of Dunne and Dunne and Daby (e.g. 2013) on critical design, design educators and design researchers have taken up that the much quoted Kirby (2010) refers to as diegetic prototypes. These refer to fictive objects that are fully functional in the environments in which they occur, such as science fiction film. Speculative design has come to be the umbrella term for intersections between media, narrative, design, technology and future imaginaries in which scenarios of a ‘what-if’ status are presented and invite engagement in reaching beyond the present to think through contexts and projected events in the near-, mid- and long-term future.

Interest in speculative inquiry has also grown in the past decade more broadly in the Social Sciences (e.g. Wilkie et al., 2017; Wilke, 2018; Wolf-Meyer, 2019) and has focused on speculation as a mode of inquiry. However, *design* perspectives have been concerned with acts of *design* making, as fabulation and for ‘fictive thinking’, not deception, as a means to working in designerly ways with futuring as material and means. These are oriented, as a stance, as an invitation, a provocation and a prompt, to engage students and publics in a diversity of ways of reaching beyond the present, into and through futuring, for returns to a troubled planet and, hopefully, motivated collective situated, current and long-term action to change our human responses behaviours and contributions to it (see also Kuijer, 2020).

What has become increasingly apparent in a diverse body of work in speculative design is its direction towards ‘worlding’ (Dunne & Raby, 2016; Coulton et al., 2017), whether in computer games environments or design fiction workshops as modes of involving participants in co-creative acts experiencing simulated scenarios for further thinking about change in the present, whether directly or tangentially. Design fiction, with affiliations to science fiction, cyberpunk narrative and aesthetics, feminist and queer futures (e.g. Evans, 2017), Afrofuturism (e.g. Anderson & Jones, 2016), and eco-futures, for example, offers a mode of serious play (Flanagan, 2010), of irony and pastiche, of anti-solutionism (Blythe et al., 2016) of upending expectations and using scenarios to highlight and problematise our present and projected values and assumptions and expectations.

While often dystopian, as a means to creating disharmony against an immediacy of ambivalence and disengagement, design fiction and its uses in education are frequently utopian in their diegetic prototyping as offerings of alternate futures and returns from their prospecting worlds and worlding. Counterfactuals are used in anticipatory worlding to problematise our conceptions back into the present, politically and communicatively, and where collaboration is central to its transformation (Light, 2021).

This points to how speculative design has stretched its early gallery and artifact assemblage propositional positionings and related critiques concerning gender and decolonisation (e.g. Prado de O. Martins, 2014;) towards looping scenarios, personas and events back into reconceiving alternative presents that acknowledge oppressive pasts and hidden histories of resistance and survival [→ SEE also [Learning Futures Design Otherwise in Part III](#)].

Speculative design is not simply the purview of comfortable critics, distant from real world needs and issues but that we need to engage with the conjectural and imaginary problematising as part of our wider and diverse material practices located in historical (Nooney & Brain, 2019), decolonising (Prado de O. Martins & Vieira de Oliveira, 2016) and matters of voice and representativity in shaping future imaginaries as resources for improved and different sustainable presents (see also Ilstedt & Wangel, 2014). Hoffman (2022: 5) writes that:

*By exploring what's possible, speculative futures cultivates critical thinking about the present and imagination of what lies ahead. The field embraces the fact that what we call 'the future' is a construct, an amalgamation of assumptions, interpretations, and inferences based on experience, research, and hope. Rather than presenting ideas of where the future can go as certainties, speculative futures works with those constructs, employing dynamic tools for prototyping, testing, and evaluating the ramifications of where our imaginations can lead.*

In Anticipatory Design Literacies, not just foresight ones, our imaginary work is not just in the wind or in written and graphic discourse; it extends to sensory and affective modes of communication, where the haptic and kinetic are a key part of embodied knowing. Zou and Morrison (2022) elaborate on the role of the olfactory in 'sensing the future' through reference to Zou's doctoral experiments in developing quirky design fictive works through which thinking about and thinking with smell and changing contexts of critical responses to consumerism and cosmetics might be reconsidered in relation to wider ecological and environmental matters and awareness and anticipatory 'Anthropocenic' awareness (see Celi, & Colombi, 2019). Such 'scentory futures' making and thinking revealed a surprising dearth of work in this field in design educational and research settings and reminds us that doctoral futures based practice-based and speculative inquiry also has a role to expose possible and under-explored spaces and topics for further speculation and analysis. Zou (2023) also points to ways speculative inquiries can provide alternative heuristic stimulus and substance to inform and challenge existing science and technology programmes as STEM education also works to shape its situated, societally relevant futures.

In essence this is about bringing different knowledge and making practice into dialogue where the role of the speculative is to pose and problematise, suggest and surmise, not declare and define, secure and solve. It is part of a range and diversity of design material practices where design imaginaries are also part of our critical-creative means to finding was to contribute differently, than through expository discourses, in altering alter our present world and its current trajectories.

FUEL4DESIGN was fortunate to overlap with the related project called *speculative.edu* under the ERASMUS+ Strategic Partnership Programme. The project's website and cumulative book publication provide many details and nuances about reconsidering the workings and implications of speculation in design making and inquiry and research. Concerning design education, Auger et al. (2021: 209) observe that:

*As a pedagogical tool, speculative design- at its best – opens students' minds to brave new worlds: to critical and creative interventions, transgressions and change, as well as the possibility of applying design principles and tools in very different contexts and types of projects. The speculative approach allows students to create sets of tools and a language for understanding the consequences of their design practice. It is particularly stimulating as an educational tool because it foregrounds criticism, self-reflection, and a move away from familiar practices.*

As FUEL4DESIGN has explored and these design fictive imaginaries offer, speculative design education seeks to engage 'learners as experts on their own futures' (O'Brien & Forbes, 2021). Such motivation was central to a part of the **DESIGN FUTURES LEXICON** called **Renders** that sought to reach beyond the work we had done and into alternatives and options for its application. Part of this work was carried out in conjunction Bastien Kerspern with our web and design partner and his role via the French design and games design bureau Design Friction/Casus Ludi.

## More than human and adversarial in 'linguaging' futures

The **DESIGN FUTURES LEXICON** was built on principles of multilingual, multimodal languaging that acknowledged the importance of language in a diversity of modes, as we short show in design friction collaboration concerning futures, language and movement and a multi-species perspective that acknowledges human/non-human symbiosis (Haraway, 2017). We chose to include a section we termed **RENDERS** to provide some examples of how the resources, tools and examples might be taken up. These were a mic of prospective, suggestive aspects, such as prosing ways of working with the futures of the LEXICON as well as access to an elaborated project-level collaboration with a practice-based art and design project with a partner university.

In developing 'Designing the futures of the Design Futures Lexicon' as a contribution to FUEL4DESIGN, Bastien Kerspern drew on considerable practice and research experience in working with design fiction. This ranges from government departments, municipalities, secondary schools and a design university in France. In developing this specific render Bastien drew on traditions of adversarial design (Di Salvo, 2012) amongst others, as well as his experience and collaboration in-house in devising a diversity of workshops on design fiction as ways to tackle the difficult task of focusing on the importance of shaping social imaginaries in playful, surprising and critical ways outside the more seemingly seamless approaches of many service deliveries offering smooth customer satisfaction. We welcomed such playful and inquisitive engagement in this contribution [[-> SEE FEATURE 5](#)].

This work also indicated how the project's partnering with a design professional bureau can work, and how experience and engagement may be built between university design futures initiatives and practices in engaging a diversity of potential stakeholders in speculative design for their own futuring, not simply for advancing these interest of corporations. This example is a heuristic, a suggestion and a prompt. It provides students with options not directives: may be read and use, consider and move on, transpose into one's own work, etc. It suggests that learning resources for shaping shared survivable and sustainable long-term futures may be materialised in many ways and scales. It offers exemplars, less a traditional scaffolding, for arriving at specific learning outcomes but positions speculative pedagogies through designing as indirect, paralogical and prospective in their reflexivity.

Rather than leading students towards the all-to-often fallback of 'solutioneering', to converge, claim and solve, such a RENDER might lead students to look up additional resources on posthumanism and design, and in terms of the LEXICON the related *Posthuman Glossary* (Braidotti & Hlavajova, 2018) and what this might imply for their descriptive and analytical vocabularies and by extension their positioning via engaging the [FUTURES PHILOSOPHICAL PILLS](#).

## Design fictioning, movement and 'tentacular thinking'

In keeping with the widespread role of collaboration in design and design pedagogies (Maxwell Lane & Tegtmeyer, 2020), and as part of a cross project collaboration between [FUEL4DESIGN](#) and [Amphibious Trilogies Link ↗](#), we examined choreography in an extended public space, we devised the design fictive persona Octopa. Drawing on earlier work on personas, futures, climate and sustainability (Morrison, et al., 2013; Morrison, 2018; Morrison & Chisin, 2017), we developed a range of activities around the non-human, ventriloquised figure of the multisensory, poly-kinetic and intelligent octopus, including movement, arctic travels on land and sea, online tools and workshops, project mediation and research papers. In a sense, we were doing what Candy (2018) positions as 'gaming futures literacy'. Here we accessed relational work into the experimental uses of speculative fictioning ([FEATURES 6](#)) in design disciplines (Knutz, et al., 2013), drawing on writing studies and online rhetoric and visual and spatial aspects of the generation of 'new mythologies' and anticipatory landscapes (Ilysin, 2019; House, 2016; Morrison, 2019).

Our focus on collaborating between choreography, design, media, gaming and communication, including CASUS LUDI mentioned above, was to connect the language focus of the LEXICON with the kinetic, choreographic shift of 'movement as design' out into the world, that is off the traditional performance stage. With Amanda Steggell, we coordinated the making of such a design fictive kinetic character OCTOPA and the environments through which they shifted and moved, extending this to workshop specifically on working with movement words and futuring in choreography. Together we redirected this back into the LEXICON and a range of design master's and PhD classes and schools in Norway, in the Nordic region and the U.K. [[→ SEE FEATURES 7 and 8 for details](#)].

In the final chapter of [Volume 1](#) we take up action and speculation in the context of the elaboration of work with OCTOPA in the form of new workshop resources and experimental spatial work shop sessions. This more recent work sought to connect the speculative to disciplinary contexts of interest, need, learning and research and to engage participants in working spatially and in a dialogical mode of their own journeys with OCTOPA. This takes place in the climate challenged and geopolitically delicate context of the Northern Sea Route. It looks into ways the fictive and counterfactual may be put to contemporary critical use to open out additional layers of placing ‘tentacular thinking’ (e.g. Haraway, 2016b) into shaping present experience and negotiations around power, place, identity, representativity and change (see Morrison et al., 2021).

Matters of identity and representation - in a non-representational mode (Vannini, 2015) in our work on an extended design futures choreography - are central to how design futures and design fiction are articulated in contexts of decolonising design. In ‘Dreaming outside the boxes that hold me in’, Noel (2022) contributes to a special issue of the *Journal of Futures Studies* on race, identity, social justice and futures. In referring to three case studies based on lived experience, Noel takes up Critical Utopian Action Research as a way to connect participants to matters and solutions that interest them so as to support motivated and creatively critical change. She writes that:

*This methodology is useful because it gives oppressed people space to dream where they might otherwise not have been able to, e.g. because they were focused on the day, because they have to hustle, or because they have to battle with other people’s impression of them. In this methodology, they have space to be critical of their circumstances. However, the methodology does not stop there. In Critical Utopian Action Research, participants have the opportunity to dream of the desired state and to create action to get there. (Noel, 2022: 11).*

Such moves to action through speculative design also have for some time been taken up in HCI research and teaching and this is the focus of a recent guest edited issue of *Interaction Design and Architecture(s)*. While contributions are largely located within computer science education and its crossovers into interaction design outside of academic university settings, a number of key thematics indicate that critical and speculative design has pursued within higher education and learning futures. Kuijer and Robbins (2022) argue that through critical design we are able to teach alternative paradigms, where there is room for the provocative in our pedagogies (Pérez-Orrego, et al., 2022) especially when we are looking critically and carefully at intersections between people, things and future technology relations (Culén & Stevens, 2022).

In the [Essay 3: Sustainability, Systems & Learning Design Futures](#) we continue to frame, discuss and position an Anticipatory Design Literacies with reference to Sustainability for Design (SfD) and Systems Oriented Design (S.O.D.). Both domains have been apparent in the work of our project, but neither have been interlinked much with anticipatory design literacies and we suggest some issues and possible directions in support of that. Our interest is in featuring *cultural* perspectives on designing and learning with futures in design education concerning sustainability and systems.

# 5. BETWEEN DISPOSITIONS AND POSITIONS

BY Andrew Morrison & Manuela Celi

## Towards anticipatory design futures

In the design anticipatory relational approach sketched out here, the signs, tools and practices of representation are inseparably entangled with the other semiotic-material actors that make up their assemblages and networks. In this way, they do not only participate directly in the differentiation, or individuation, of the phenomena and things to which they are directed. They also are themselves determined by the relational processes involved. In an anticipatory design view, this may be achieved through shaping relations that are plural in character, that is through process philosophical and multimodal discursive formations and processes. As de Smet and Janssens (2016) formulate it, we are engaging in 'probing the future by anticipative design acts'. In a sense this is to engage in a shift from dispositions, that is a quality, waiting and leaning toward a mode of acting or interest, towards arriving at positionalities through venturing that support acts and processes of becoming and of change. The latter is evident in the [LEXICON](#) devices and diverse uses as well as via the applications of the [FUTURES PHILOSOPHICAL PILLS](#) and the student projects emerging within the [DESIGN FUTURES SCOUTING](#).

However, processes that are pluriversal in terms of knowledge frames and cosmologies are themselves articulated through a diversity of languages and potentially for futures design pedagogies and inquiries via translanguaging conceptualisation. This too is patterned, pictured, voiced and communicated via a diversity of analogue and digital means and platforms. Yet, these are devices of our own making along with the fermentation of increasingly machinic construction. Together, such mediational pluriversal discourses, and the relational designs that envision and convey them, are ones that entail inbuilt and emergent potentials and practices, alongside embedded constraints and assumptions.

Clearly, the anticipatory ontological character, status and mediations of pluriversal design futures - framings, processes, practices and articulations - offer intricate relations and materials for design pedagogies. As students and educators, design practitioners and researchers we need to be sensitive to their diversity, difference, affordances and affect. To do this we need to engage actively and critically with their realisations in the work of designing and all that it may entail. Anticipatory design futuring thus needs to draw forth the designerly strengths of our existing practices and traditions, such as from Participatory Design and Social Design. However, these



approaches and legacies need to be placed in dialogue with a stance of 'taking care ahead of time', where design views on care and time are also in needs of elaboration, as we take up below.

All in all, from our modest and shared experience, this leads us to see such anticipatory design and its pedagogical social discursive materialisations in terms of critical perspectives of relations between design, technology and ecology. Too often techno-determinist takes on technology have corralled us into herd mentalities and towards socio-technical imaginaries that are weak on contexts, thin on culture and precarious in terms of participatory politics. Where socio-technical imaginaries are central to design, in an anticipatory design and pedagogical frame, our notions of why, when and by whom such imaginaries are formulated and floated also needs critical reconsideration.

## **Futures making and changing relations in literacies and pedagogies**

As educators, designers and researchers caring for and facilitating futures literacies in design, it is in our interests as design educators and researchers, collaborators and strategists to bring these modes of anticipating into relation to one another. For us, in positioning design as a core mode of anticipation, there is need to further elaborate anticipation as change making, and change making by design. In what ways might anticipatory design and designing be connected to design pedagogies and master's and doctoral level students?

A master's education is in essence a preparation for operating in professional work settings. Yet these are changing as relations between materials, supply chains, consumerism and consumption are being revised and changed in the context of climate and human effects on the planet. Design futures pedagogies therefore need to draw on futures literacies developments but to twist and turn them into design-centred critical construction while motivating students and their guest teachers from design bureaus and research projects to engage in change-making practices, such as around degrowth, circular economy and materials re-use.

Added to this is a needed shift away from our human centredness to a posthumanist ethos in which humans and non-humans are appreciated and understood to act in non-binary relations. Writing in design is emerging in this area such as by Laura Forlano (2017) on our Advisory Board, a collaborator and contributor to the project Ron Wakarry (2020) and from Yue Zou, one of our project-related PhDs (Zou & Morrison, 2022).

Doctoral design students need to draw on these dynamics in contexts where they are learning to carry out research. Equally, how research may be modified and resituated to support and explore changing modes of making, use and recirculation in frames of sustainable long-term futures. This in turn demands re-negotiating and asserting alternate views and practices, as well as analyses that are part of building responsible and resilient recognition of fundamental changes to fossil fuel-driven economies.

It forces us to think, choose, make and act in an environmentally and humanely durative behaviour that acknowledges but reject the undeniable denuding of ecosystems and our human capacities that simply block change for shared survival - and flourishing.

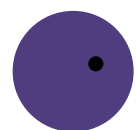
## On criticality and performativity

*We see design education as central to wider collaborative societal and planetary futures. In these wider futures, design futures literacies are ones that elaborate on futures literacies. Design futures literacies work to connect purposes, forms and practices of reflexive design education realised through continual, critical and anticipatory 'becoming-in-the-making.' (Morrison et al., 2020).*

Anticipatory designing is about the temporal: it needs to include up a plurality of times and futures, materials and methods, participants and expertise [→ SEE **Essay 4: Time, Design & Anticipatory Learning**]. Long-term futures - perhaps the hardest to think through as ones to which we are committing ourselves as well as people and things that follow us - in one way or another has to be shaped in the here-and-now. If we do not engage critically and creatively in the small space in the near future, longer-term futures will indeed be dystopian ones. Either way, we will be languaging those futures and they will impact on how we use and develop terms and connect and explore them in regard to the world views they might convey and through which they might be oriented further.

So, hope, aspirations and visions of improved futures, once so treasured by industrialised design, resurface but now with the weave of services and interactions, systems and relations that are distributed, global and local, personal and generic. Educationally, this is not merely a matter of shaping options and positive potentials of our human capacity to project into the future in using language to voice those design shaped futures. It is also about our being capable of critically considering consequences of anticipatory design actions in what they position and how they are re-framed, that is like and through our performative articulations of lexical and discursive ontological design futures.

As we follow though in the last two linked essays, this also needs to be crafted and assessed, re-shaped and revised in concert with other aspects and methods of designing futures literacies. This is itself a relational dynamic composed in-the-making and transforming itself in process and situated uses in design learning, pedagogy and inquiry. In doing so, we are all as part of learning futures design, not just learning about the future as literacy. We are also embedded in realising design for futures learning where futures are part of materials and mediated relations between human and non-human, environment and experience, histories and the emergent.



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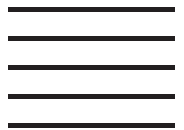
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**APPENDI**

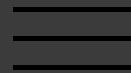
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# ACKNOWLEDGE -MENTS





## AHO

AHO's project team thanks our many students and colleagues who generously participated in FUEL4DESIGN over the tumultuous period in which the project took place. Together we have weathered massive challenges and demands in changing contexts and when the intensity, importance and scale of rethinking and re-forming design education have demanded old and new ways of being, working and knowing. Without your engagement, criticism and support the project would not have materialised nor would it have developed its many-sided and, at times, quirky and locally diverse dimensions.

We'd like to thank in particular all the Master's and PhD students over the three years who have contributed to the project, its focus on the DESIGN FUTURES LEXICON, and its direct and indirect influences and uptake.

As project leader, Andrew Morrison would like to thank our then Head of Institute of Design (AHO) Prof. Rachel Troye for her support for the project and for allowing it space to evolve. Palak Dudani has been a stalwart supporter and active contributor to FUEL4DESIGN. Without her commitment and generous critical playfulness that extended into 'extra time', the project would have been the weaker.

As a project-related PhD student and colleague, Karianne Rygh brought her international experience to bear in the two book publications and to connecting her own design critical literacies to practise and analyses of anticipatory care. Through his doctoral creative practice and critical analysis, Corbin Raymond consistently challenged given design assumptions and contributed anticipatory scenario designing, thinking and reflections across the project and especially in relation to the LEXICON and books. Bruce Snaddon provided key spaces and process for dialogue on design futures pedagogies that informed their conceptual and pragmatic realisations.

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PhD students at AHO, and especially from Design, but also from Landscape and Urbanism, have played a major role in the ongoing genesis of the project. This has ranged from participation in classes, events and publications. Seeing design futures literacies in action in their related teaching and thesis work, including co-publication and wider communication has been inspirational. Thanks go to: Claire Dennington, Lisbeth Iversen, Jomy Joseph, Hayley Fitzpatrick, Xia Nan, Bjørnar Nøsterbø, Bruce Snaddon, Corbin Raymond, Kai Reaver, Karianne Rygh, Eimear Tynan, Kjerstin Uhre, Zou Yue, Luan Zhilong, Duan Zhipeng. Several PhD schools have been important within and across the project.

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Bastien Kerspern and Swanny Mouton at DESIGN FRICTION / CASUS LUDI have been central to the mediation of the project via its website and book design. They have been most patient and supportive in working through and beyond a pandemic and to supporting our changing needs and requests. Bastien has been a valuable contributor of content and in working creatively and pragmatically with the roles of design fiction and speculation in shaping design futures literacies. Swann has been a calm, creative force in book design and production.

We would like to thank the Norwegian Directorate for Higher Education and Skills (hkdir.no) through which the project has been administered. In particular, concerning the formal location of the project under the ERASMUS+ Strategic Partnership Programme (Norway), Andrew would like to acknowledge the generous support and advice given by Guro Sandnes (Advisor, Section for European Collaboration and Competence Development).

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The PIs in FUEL4DESIGN each brought a depth of experience, commitment and engagement to the project without which it would not have succeeded. In particular, Andrew thanks Manuela Celi for her initiative in generating our group and for cross project discussions. UAL project admin colleagues, Nicola Dorigo Salamon and Jerneja Rebernak, provided unwavering support and essential advice through the project and contributed immensely to its formation, running and reporting. We would all like to thank the project's Advisory Board for their inputs and advice, and where possible participation. Andrew would like to thank Laurene Vaughan for her sage advice and critical reflection, given generously from RMIT in Melbourne during and post-pandemic.

The many students and colleagues who took part in the project work packages, events and reflections have made massive contributions to the project's processes and progress. We would like to thank you all for these and for helping make the original goals and aspirations worth pursuing during what has been a challenging few years for us all. We would like to acknowledge you all most profoundly and sincerely. We hope that our experiments and offerings, along with your experiences and participation in FUEL4DESIGN have in some small way taken matters and means further towards shared and better understanding and practices of design futures literacies. We would further like to thank all participants for their critical comments and suggestions throughout the project. These have informed our work and the reflections we have carried through in these two publications. We are indebted too to the various peer reviewers for these books who've given generously of their time, methods and transdisciplinary expertise for which we are the richer.

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Isabella Gianni, Stanislaw Jancelewicz, Ginevra Longo, Zhang Renyuan, Stefano Rombolà, Chuai Shiyang, Alessandra Tardanico, Helen Berhanu Tekle, Filippo Bugni, Matteo Corradini, Sabrina Gadott, Elena Scarpelli and Zixin Zheng.

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Once again, we extend our deepest gratitude to everyone mentioned above and to all others who have contributed to our journey. Your support and involvement have been pivotal in shaping our research and enabling us to envision and create emergent futures in design.

## **UAL**

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# CONTRIBUTORS





**Manuela Celi**, Associate professor, has been the principal investigator of FUEL4DESIGN for the Design Department of Politecnico di Milano she teaches Metadesign and Design Futures at the Design School. Her most recent research activities focus on Design, Future Studies & Anticipation. In 2015 she was one of the initiators of the zero edition of the Anticipation Conference in Trento, co-chairing the Design and Anticipation special session. Her earlier research activity was focused on the different forms of knowledge related to design, their use and translation into skills within the learning systems to learn how to learn, and develop metacognitive skills. She has deepened her inquiry on design processes, particularly Advanced design processes. Following her more theoretical attitude, she has pursued transdisciplinary research investigating the relationship between design and the humanities and social sciences. In this mood also grew her interest in producing semi-finished or intermediate products of the design process with high cultural content such as trends and scenarios. With the aim of building a fruitful relationship between research and educational activities, she conveys innovative content in didactic contributions and launches experimental activities for students associated with basic research. She has published on several academic journals as *Futures*, *The Design Journal*, *DiiD*, *The Design Management Journal* and *The Strategic Design Journal*. More information is available on her work [website](#).

**Laura Clèries** is Director of Elisava Research, Director of the Master's Degree in Design through New Materials and Professor at Elisava, Barcelona School of Design and Engineering. Laura has both creative and scientific backgrounds: she obtained her BA in Physical Chemistry and her PhD in Materials Science from the University of Barcelona and then pursued degree studies in Industrial Design. Laura has worked internationally as designer in main design companies (Zara Home) and design studios, and as researcher for main forecasting publications and think tanks (Pantone Colour Planner, WGSN). As materials innovation consultant, she has worked for Eurecat electronic textiles division, for the architects of Jean-Paul Gaultier's headquarters, and she has curated exhibitions related to materials innovation and forecasting (Materfad - textile area - and 'Materiality'). Her present research work focuses on futures research methodologies, as well as in materials innovation. In the FUEL4DESIGN project, she was Principal Investigator from Elisava.

**Chiara Colombi** has a PhD in Design, Associate Professor at Politecnico di Milano. She is Faculty Member of the School of Design, Politecnico di Milano, where she teaches in the Fashion Design Programs (B.Sc and M.Sc). She is the academic coordinator of FIT in Milan, Fashion Institute of Technology Campus Abroad program in partnership with Politecnico di Milano - Design dept. As co-founder and member of [Fashion in Process Research Lab](#) at the Design Department of POLIMI, Chiara's research interests concern knowledge creation processes, codification of meta-design research praxis, development of merchandising systems, trend research and scenario development in 'culture intensive' industries, with a specific attention on the fashion sector. More recently, she has been focusing on the evolution of the fashion-tech sector, with a particular interest in mapping and modelling opportunities of product, value chain and business models innovations offered by a systemic and sustainable integration of digital technology within fashion processes. She is the Editorial Director of the book series *Fashion in Process*, Mandragora Editrice, Florence; First Associate Editor of *Luxury Studies: The In Pursuit of Luxury Journal* published by Intellect Books; Vice-director of *Fashion Highlight Journal* published by Università degli Studi di Firenze; member of the Editorial Advisory Board of the *Research Journal of Textile and Apparel* (Emerald); member of the Editorial Advisory Board of *Fashion Practice* (Taylor & Francis).

**Thea Dehlie** is a project adviser and administrator in the Research Administration at the Oslo School of Architecture and Design (AHO). With a Bachelor of Arts (Study of Ideas and Culture) and previous work at the Research Council of Norway, Thea has supported the administrative working of the FUEL4DESIGN project as a whole and at AHO in particular where she is part of a dynamic team that facilitates research administration at institutional, national, European and international levels.

**Palak Dudani** is a systemic designer and researcher based in Oslo, Norway with undergraduate studies and work in design in India. In FUEL4DESIGN Palak worked on the design and development of the Design Futures Lexicon and related research on Design Futures Literacies, resource building for designers, educators, and researchers, and diverse modes of dissemination. With a soft systems view on complexity, and a relational and anticipatory approach to futures, her research explores how designers can work with radical systemic transitions in the context of climate crisis. Recent publications look at narrative and metaphors in analysing existing systemic complexities, contexts and conditions. Through participatory projects, events, and playful workshops using AI tools, she has explored how coding place-based narratives into culturally relevant metaphors could be used to imagine, articulate, and materialise radical alternative futures which are experiential, embodied and hyper-local. Palak has worked with humanitarian aid organisations, start-ups, and consultancies on projects in healthcare, transportation and education. She holds a Master's in Service & Systemic Design (Oslo School of Architecture and Design) and has been a recipient of international fellowships and design awards. An elected board member in the Systemic Design Association (2022 – ), she is the Nordic Lead for building systemic design capacity within Design at Accenture Song. Please see Palak's personal [website](#).



**Dr Guim Espelt Estopà** is a designer, researcher, curator, teacher and learner. His background is in product design, with a special interest in the relations between design and fiction, design methodologies and socio-cultural aspects of design. He holds a PhD with a thesis about the representation of product design practice and discourse in cinema. He has worked in the areas of research and curatorship, creative projects, teaching and knowledge transfer, and organisation and management. He has collaborated with Museu del Disseny de Barcelona, Barça Foundation, ADI-FAD, Apparatu or Studio Suppanen. Since 2017 he has worked at Elisava, Barcelona School of Design and Engineering, where he acts as a teacher in methodological and theoretical subjects, as a Managing Editor for *Temes de Disseny* – the academic journal published by the school – and as a researcher for various European projects. In Fuel4Design, he acted as a Project Member from Elisava.

**Roger Guilemany** is a design researcher. He holds an MA in Design for Emergent Futures from Elisava/IAAC in Barcelona and a PgD in Management and Communication of an Applied Design Project with research from Elisava/ISEC Lisbon. In FUEL4DESIGN, he was an assistant researcher to the Principal Investigator from Elisava. As an independent researcher, he explores more-than-human interactions and collaborative situated production processes. He is a co-founder at aquí, an action-research design cooperative investigating and experimenting with participatory design, community engagement processes, and ecosocial transitions. He also collaborates with co-creation, self-construction, and self-governance projects, and as artistic productions. He has recently contributed to [DRS 2022 ↗](#) and the [Commons in Design ↗](#) conferences.

**Pras Gunasekera** is an educator and design researcher. After graduating from MA Industrial Design at Central Saint Martins (UAL), he co-founded Bidean, a more-than-profit enterprise in design and mental health and subsequently spent 18 months co-setting up a design studio at HMP Thameside to co-deliver [Makeright ↗](#), a design thinking for prison industries course. His design practice has a focus on social innovation and utilising design processes to respond to social issues. He is currently employed as a senior lecturer on the BA Interaction Design course at [CODE University of Applied Sciences Berlin ↗](#), where his teaching and learning focus on project-based learning, design research and ethics/ethical design practice. Pras is also part of the academic support team on the Product, Ceramic and Industrial Design programme at Central Saint Martins (UAL), where he is also a Research Associate with the [Design Against Crime Research Lab ↗](#).

**Ammer Harb** is a lecturer in Product Design at the German University in Cairo and the Director of Design R&D at Studio PARADIGM. He is a designer and educator who holds a PhD in Design from the university of Politecnico di Milano and an MSc in Product Design from Brunel University London where he specialised in Critical Design Futures and Human-Centered Design. From 2019 to 2023, Ammer worked as a research fellow FUEL4DESIGN. In the project he placed particular emphasis on design tools and techniques for the future. Besides teaching Interior and Product Design, Ammer has worked on various design projects in Cairo, London, Dubai, and Milan. He has also facilitated design projects as a (Design Thinking) facilitator, such as the ‘Social Innovation Platform’ led by GIZ

(Deutsche Gesellschaft für Internationale Zusammenarbeit) in Germany and Egypt. Over his career, Ammer has developed three design toolkits, published 8 academic papers, and provided design solutions for over 100 projects.

**Bastien Kerspenn** is a French designer specialised in design fiction and public innovation. He co-founded the studio [Design Friction](#) in 2014, pioneering in applied design fiction. With strong experience in designing participatory and playful experiences, he experiments with new modes of design in order to foster organisations' and communities' information, imagination and anticipation. He works with national administrations and local governments in France and in Europe, helping these organisations to address emerging or complex topics, such as smart cities, ageing in place, or biodiversity conservation. Interested in mundane frictions and uncanny narratives, his current works explore how socio-technological transformations and rhetoric of innovation might influence social models. Bastien also carries a discrete, but stubborn, passion for geopolitics. Aside from Design Friction, Bastien is a visiting lecturer on the topics of design fiction and games for futures (L'École de Design Nantes Atlantique, Umea Institute of Design, Oslo School of Architecture and Design).

**Dr Silke Lange** is a creative practitioner, educator, and researcher. Her role in the project was co-investigator, educational researcher and curriculum designer. Silke's research into critical art and design pedagogies is predominantly of a collaborative nature, working at the intersection of educational practice and knowledge exchange. This approach has been providing a productive platform for exploring alternative models of educational provisions, and collectively reimagining knowledge-making processes. Silke is an advocate for intercultural dialogue through collaborative and social practices in arts and design that set and support agendas for social change, reflected in her involvement in projects such as the [UAX Platform](#) and the [European Academy of Participation](#). Her research has been published widely, most recently in the co-authored chapter '[Using cross-disciplinary object-based learning to create collaborative learning environments](#)' and the co-authored article in *Leonardo* titled '[Co-creation across spaces of uncertainty: Interdisciplinary research and collaborative learning](#)'. Silke is currently Associate Dean of Learning, Teaching and Enhancement and Reader in Hybrid Pedagogies at Central Saint Martins, University of the Arts London. More about Silke's research and projects can be found on her [website](#).

**Vlad Lyachov** is a Norwegian-based landscape architect who has worked on a number of design research projects at the Oslo School of Architecture and Design (AHO), including the NORDES 2017 Conference, Quality for Impact / AHO Research Review 2014-2017 and FUEL4DESIGN (I06). Vlad received a Master's degree from the Moscow Aviation Institute (State University of Aerospace Technologies). Having started in the joint AHO-Uit programme in Landscape Architecture, Vlad graduated with a Master's in Landscape Architecture in 2017. He has also worked as an analyst in the research department at the consultancy Knight Frank, several landscape architectural offices in Oslo and is currently employed at COWI. Vlad's professional interests stretch from the past (history, languages, anthropology) through the present (architecture, landscape architecture, urbanism and design), to the future (futurism and sustainable development).

**Dr Betti Marenko** is a transdisciplinary theorist, academic and educator working across process philosophies, design theories and the critique of technicity. She is the author of numerous articles, book chapters and essays, most recently 'Hybrid Animism: The sensing surfaces of planetary omputation' ↗ (2022) and 'Stacking Complexities: Reframing uncertainty through hybrid literacies' ↗ (2021). She is regularly invited world-wide to speak on issues of design, futures and technology. She is co-editor of the volumes *Designing Smart Objects in Everyday Life. Intelligences, Agencies, Ecologies* (2021) and *Deleuze and Design* (2015). Her new monograph is *The Power of Maybes. Machines, Uncertainty and Design Futures* (forthcoming, Bloomsbury 2024). She is the founder and director of the Hybrid Futures Lab ↗, a transversal research initiative developing speculative-pragmatic interventions and world-building practices. Betti is currently Reader in Design and Techno-Digital Futures at Central Saint Martins, University of the Arts London and WRH Specially Appointed Professor at Tokyo Institute of Technology where she is co-founder of STADHI ↗ (Science & Technology + Art & Design Hybrid Innovation), a transdisciplinary Lab working across hybrid methodologies research and knowledge exchange with industry sectors.

**Andrew Morrison** works in the nexus of transdisciplinary design, education, creativity and research. He is Professor of Interdisciplinary Design, Institute of Design at the Oslo School of Architecture and Design (AHO), where he is the Director for the Centre for Design Research and former coordinator of the AHO PhD Programme. Earlier he led a transdisciplinary research network and design-technology-media-education research at the University of Oslo. With a background in language education, Applied Linguistics, Digital Media Studies, communication and 'development', Andrew has supported critical practice-based design doctoral inquiry across core design domains with focus on compositional, mediational and multimodal methodologies, informed by the humanites and social and computational sciences. His recent research is in Anticipatory Studies and design relational futures shaping and study, as well as scholarly communication. He publishes widely within and outside design; contributes to and reviews for a diversity of journals and conferences; and was the chair for the 2017 NORDES Conference on DESIGN + POWER ↗ and the 3rd International Conference on Anticipation ↗. This has built on earlier work in electronic literacies in media, design and education in southern Africa and Norway, extended to PhD education and related research in changing Arctic urbanism and landscapes. Hwas project leader and editor for the AHO Research Review 2014-2017 ↗. Creatively, he works in design fiction and decolonial narrative in shaping social imaginaries, artistic practice and transmodal scholarly communication. Andrew has been the Project Leader for the FUEL4DESIGN project. For details, see Andrew's website ↗.

**Mariana Quintero** is a multimedia developer, interaction designer and researcher. Mariana Quintero develops her practice at the intersection where digital fabrication technologies, digital literacy and the ethics and aesthetics of information and computation meet, contributing to projects that investigate the rise of the third digital revolution and how information and digital technologies translate, represent and mediate knowledge about the world. In the FUEL4DESIGN project, she acted as a consultant and contributor at different stages of the project. She is currently part of the strategic direction of the Master's in Design for Emerging Futures MDEF and regularly contributes to various research projects at IAAC | Fab Lab Barcelona.

**Corbin Raymond** is a South African designer and researcher. He has an undergraduate degree in Product Design and a master's degree in design from the Cape Peninsula University of Technology, previously lectured in Visual Communication Design at Stellenbosch University and now completing my PhD at AHO, the Oslo School of Architecture and Design. His interest has been exploring how we might design for sustainability, and positioning sustainability by design as a focus area between design - and futures studies. Collaboration is foundational to his design and research practices as he explores how we might design for sustainability. Locally, in South Africa, he co-founded an NGO called, CoGo (Collaborative Governance) that works towards collaborating in a Socio-Ecological Systems context, and internationally he works with the World Design Organization's (WDO) Young Designers Circle (YDC) where the focus is on collaboration on the United Nation's Sustainable Development Goals (SDGs). Recent publications include: Raymond, C., et al. (2022). 'Framing scenario thinking in a mode of futures by design inquiry' <sup>1</sup>, in *Proceedings of DRS2022: Bilbao*.

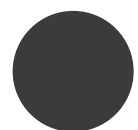
**Karianne Rygh** has contributed to FUEL4DESIGN as an editor and researcher through work package I06 on the development of the Design Futures Literacies books. As a Norwegian PhD fellow at the Oslo School of Architecture and Design exploring care-based tangible service design for public health, she has collaborated with the Centre for Connected Care (C3), working closely with several leading hospitals and healthcare organisations in Norway. Karianne holds a Bachelor of Industrial Design (Swinburne University of Technology) and a Master's of Social Design (Design Academy Eindhoven), with research experience from the Readership of Strategic Creativity (DAE), part of the Creative Industries Scientific Programme in the Netherlands. Her research centres on the role of design in developing tangible, mediational devices supporting negotiation within multidisciplinary service collaborations. Karianne is a design educator, design advisor and leads her independent design studio. Her recent publications include: Kværner, K., et al. (2020). 'Co-assessment framework to identify person-centred unmet needs in stroke rehabilitation: A case report in Norway'. *BMJ Innovations*, 7: 148-156; and Rygh, K. & Morrison, A. (2022). 'Negotiating care through tangible tools and tangible service designing in emergent healthcare ecosystems'. In Pfannstiel, M. et al. (Eds.). *Service Design Practices for Health Care Innovation*. Cham: Springer. 77-114.

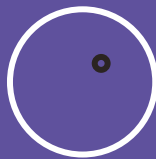
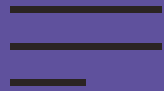
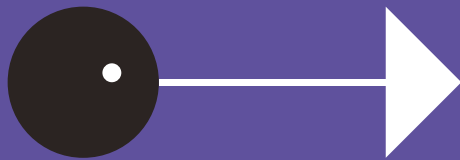
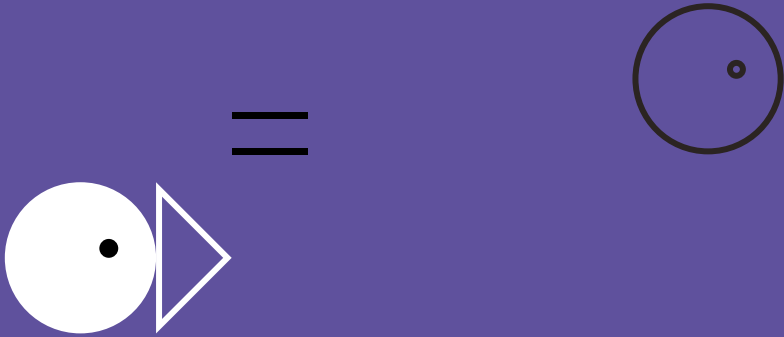
**Jerneja Rebernak** worked as Project Manager for FUEL4Design and is currently responsible for the research management of the Transforming Collections: Reimagining Art, Nation and Heritage <sup>2</sup> project, a large UKRI Arts and Humanities Research Council's Towards a National Collection <sup>3</sup> programme delivered by the Decolonising Arts Institute in collaboration with the Creative Computing Institute – University of the Arts London - and 16 project partners including Tate. Jerneja has 15 years of experience across the Arts, Culture and Higher Education sectors. She worked internationally delivering intercultural cooperation projects including at the Asia-Europe Foundation in Singapore, the European Cultural Foundation in Amsterdam and has been involved as programme manager for the Cultural Centre of European Space Technologies and international coordinator for a large public programme part of the European Capital of Culture - Maribor 2012. She has also served as an Intermedia arts advisor for the

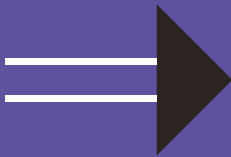
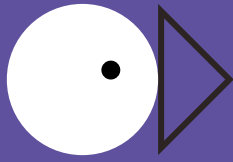
Slovenian Ministry of Culture. In 2015, she joined the Research and Knowledge Exchange Departments at UAL advising on European innovation funding and has managed several European cooperation projects among others T-Factor (Horizon 2020), Fashion-Tech Alliance, Edu4Fashion Tech, FUEL4Design (Erasmus+) and Creative Lenses (Creative Europe). Jerneja is multilingual and holds a BA in Communication Science, University of Ljubljana, an MA in Media Studies, University of Amsterdam, and an MA in Situated Practice from the Bartlett School of Architecture, University College London. Her personal practice evolves across sound, new media art, performance and curating.

**Oscar Tomico** heads the Industrial Design Engineering Bachelor's Degree at Elisava, Barcelona School of Design and Engineering. He co-directs the Design for Emergent Futures Master's Program in collaboration with IAAC, and is also assistant professor at the Department of Industrial Design at Eindhoven University of Technology. In the FUEL4DESIGN project he was Principal Investigator from Elisava. His research revolves around 1st Person Perspectives to Research through Design at different scales (bodies, communities and socio-technical systems). Ranging from developing embodied ideation techniques for close or on the body applications (e.g. soft wearables), contextualized design interventions to situate design practice in everyday life, exploring the impact of future local, distributed, open and regenerative socio-technical systems of production, or experimenting with multi-species design and cohabitation as a posthuman approach to sustainable design. See for more information on Oscar's [publications](#).

**Alejandra Tohill** is a product developer, spatial designer and researcher. Alejandra (Jana) Tohill develops her practice at the intersection between academia and industry, between art and design, where digital fabrication technologies, digital literacy and the ethics and aesthetics of information and computation meet, contributing to projects that investigate the rise of the third digital revolution and how information and digital technologies translate, represent and mediate knowledge about the world. In the FUEL4DESIGN project, she worked as an assistant researcher to the Principal Investigator from Elisava. She is currently part of the strategic direction of the Master's in Design for Emerging Futures (MDEF).







# Design Futures Literacies

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