FUEL4DESIGN

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FUTURES LITERACY METHODS

AHO
Arkitektur- og designhøgskolen i Oslo
The Oslo School of Architecture and Design

POLITECNICO MILANO 1863
DIPARTIMENTO DI DESIGN

ELISAVA
Escola Universitària de Barcelona
Disseny i Enginyeria

ual: university of the arts london

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FUTURES LITERACY METHODS

The main aim of Futures Literacy Methods is to transform and convey FUEL4Design outcomes into learning processes.

Learning Future Literacies Methods concerns both the preparation of a complete Futurist Designer training course and the design of small Independent Learning Units to cross breed design studios or speculative/ theoretical courses. The Units are specifically created to cater to the needs of future literacy and geared to acquire knowledge on anticipatory practice, critical future design and future making through the dedicated tools.

This booklet presents one orientation unit (Unit 00) and ten educational content Units (Unit 01 to 11). In the first section of this booklet, there are a set of “Maps” and paths to help educators in navigating through the eleven Units. These maps are meant to be used as suggestive paths rather than prescriptive ones. The basic concept behind these units is to be independent (yet connected). Educators are free to select the suitable units to their courses, put them together and structure their pedagogical paths based on their needs as well as the context of use .

In each Unit, there is a section for the tools and devices. These are tools and devices developed or assembled during the FUEL4Design project. They play an important role in supporting and facilitating the pedagogical process. Each of these tools or devices is linked to the FUEL4Design website, where you can further read about them.

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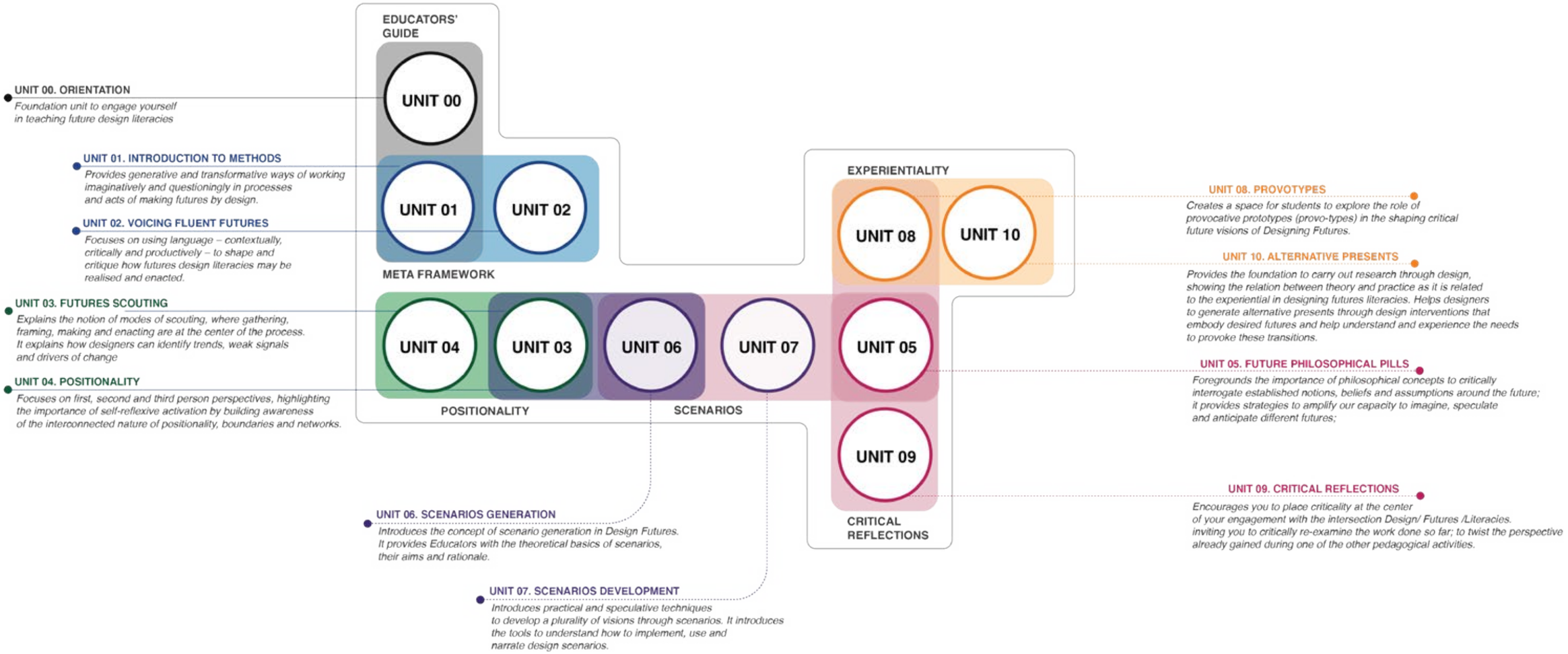

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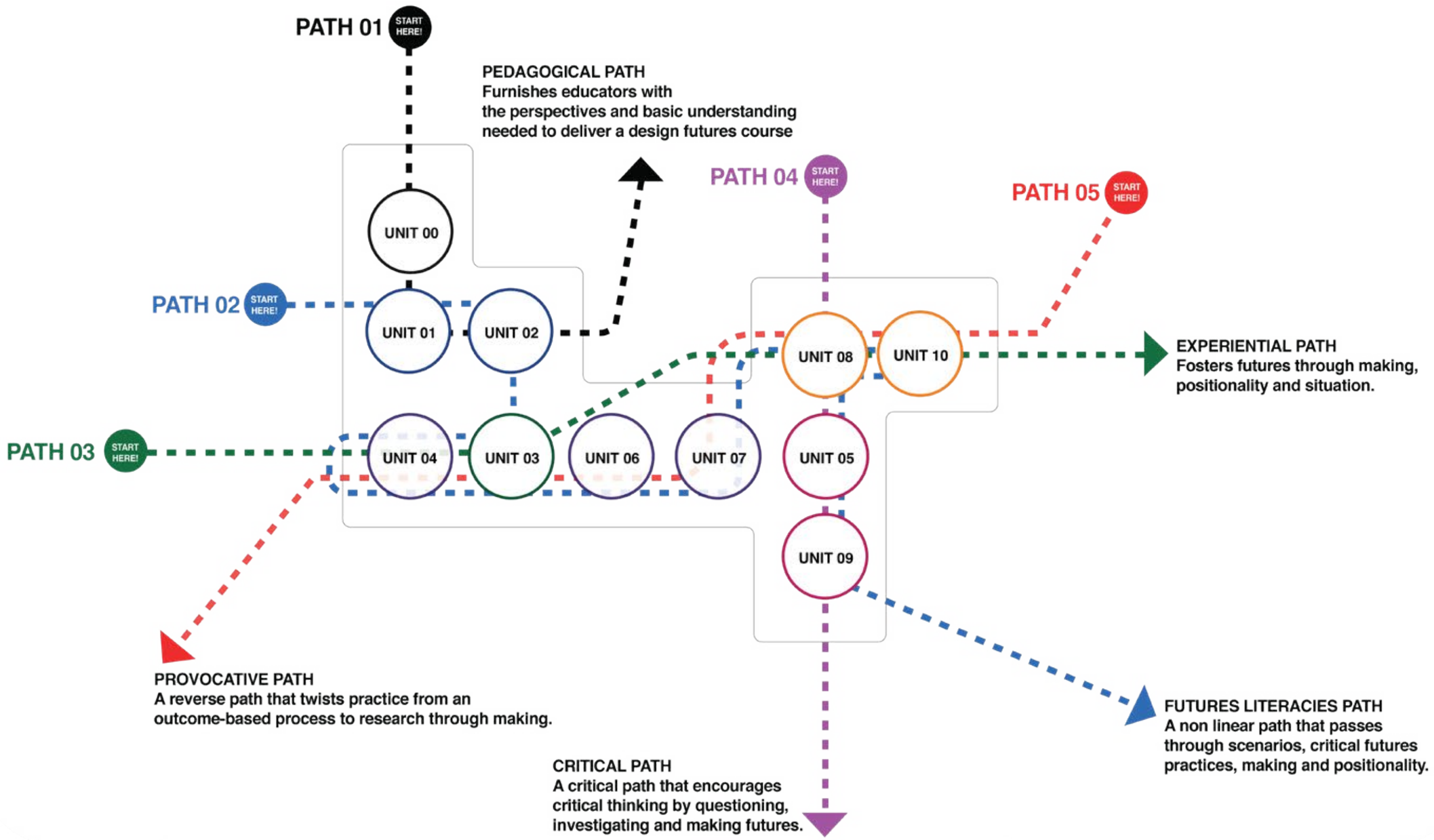

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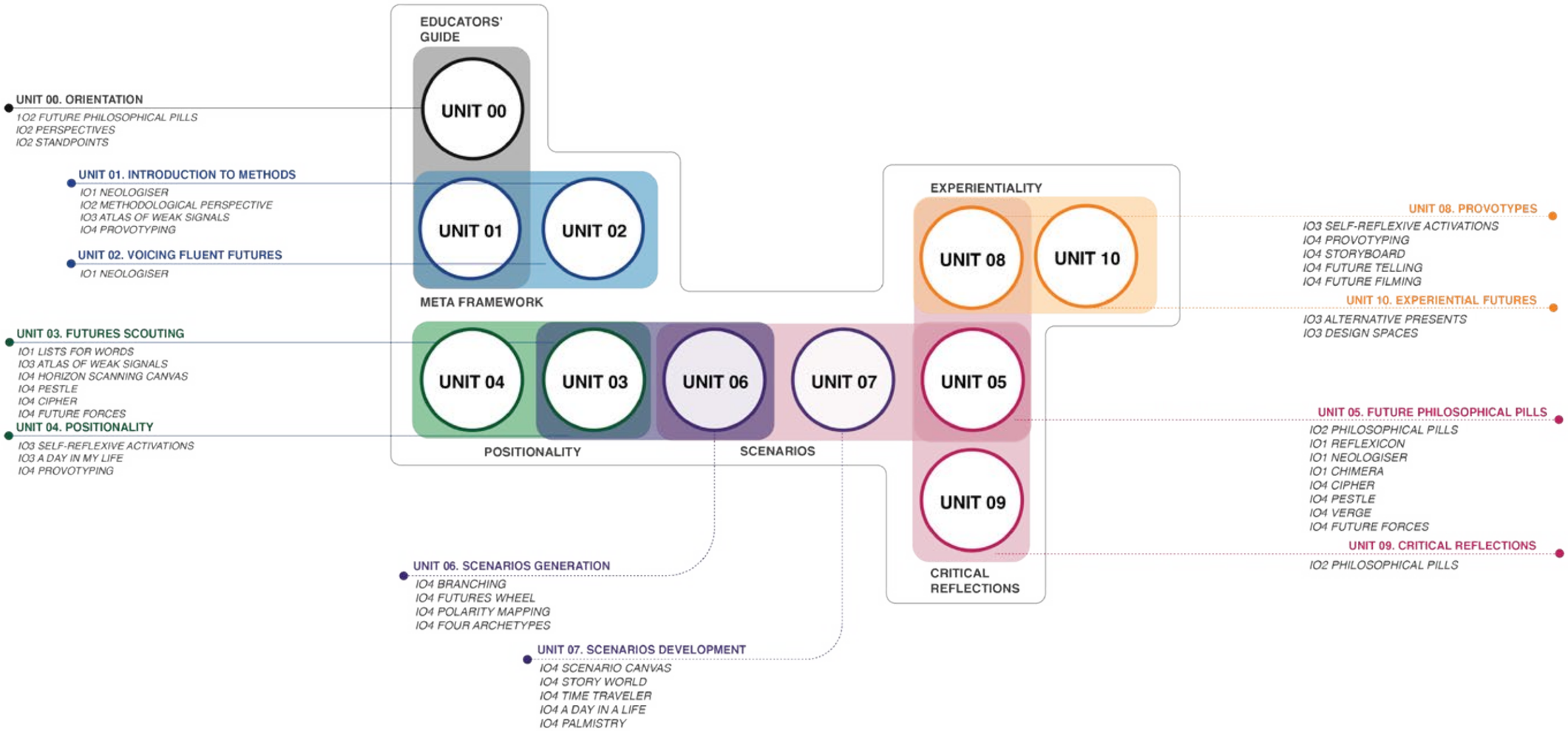

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FUTURES LITERACY METHODS

UNIT 00
ORIENTATION

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DESCRIPTION

This unit provides the foundation for educators to engage in teaching future design literacies. It enables you to deconstruct your prior learning. It challenges you to re-evaluate your teaching practice with a view to reframe the intersection future - design - literacies.

The subject of this Unit is Teaching- This is about understanding how to create a learning environment where to teach future literacies by actively re-imagining the practices of teaching. What is crucial, therefore, is how to unlearn.
The content is centred on facilitating 'change makers' (i.e., your students) to develop the ability to navigate their way through uncertainty and complexity in their future-building practice. Through reflecting on your positionality and its influence on your actions, you will be invited to identify spaces for inclusive interventions with the potential to transform peer / student experience.

The Unit is underpinned by the principles of collegiality and active participation. You will share your own knowledge and experience with the group, and give and receive feedback through presentations, discussion, micro-teaching and peer observation in an atmosphere of mutual support and solidarity. This is a space to foster self-criticality in relation to your teaching practice.
This Unit suggests a series of teaching tools and learning activities which are framed through a collaborative, participatory, reflective, hybrid and transdisciplinary ethos.

AIMS

The Unit will enable you:

• To support you to critically relate educational theory and practice (pedagogical knowledge) to your own disciplinary knowledge (e.g., design studies, future studies, engineering, art, and any other domain you are working with). The aim is to foster an ongoing reflection on how your field of expertise is taught and learned, and to view this process as dynamic and situated. For instance, by learning strategies on how to work with, and facilitate, learners' journey, group work and community building.

• To continually enhance your teaching practice in a way that responds to the complex and evolving contexts of institution, policy, and society. For instance, by examining the drive around decolonization, and other urgent matters emerging in society, by affirming education as a social purpose, which means reflecting on the future of design education, not on the future of educators only.

• To interrogate and demystify your current academic research language and practice so to be aware of gatekeeping mechanisms, and how they impinge on inclusivity and diversity. For instance, by looking at different modes of knowledge-production, hierarchies, and communication; challenging the status quo and developing awareness of alternatives (e.g., journals vs. zines).

COMPETENCIES

The core competence of the Unit is to refine ways of working together to engage with uncertainty in a creative, critical and open manner. Specifically, by engaging with this unit you will acquire and demonstrate the following competencies:

• Reflecting on your attitudes to, and experiences of, learning and teaching to develop ethical awareness of your current position, practices, and contexts.
• Learning how to be empathic, to be an active listener and enabling others.

• Demystifying academic research, its purpose, and philosophical underpinnings, and how to decentering research canons, questioning histories and disciplinary silos

• Developing meaningful relationships with the community of educators, professionals, researchers with each other, and with other species (paying attention to the role of the nonhuman)

• Responding responsibly and ethically to complex situations arising within teaching and learning situations

• Understanding, embracing, and modelling the ethos of the unit. In other words, being prepared to embody the collegial, participatory and hybrid spirit of the unit, which intends to nurture self- reflection, openness, and practices of care tailored to whichever situation you find yourself in.

DEPTH OF DETAIL

This Unit is a pre-requisite for educators before engaging with the rest of the material provided in Units 1-10. The purpose is twofold and concerns these two levels:

• **Level 1:** To provide a solid pedagogical platform ahead of engaging with the units 1-10. This unit will highlight and suggest practices in relation to ways of teaching with particular attention to groups dynamics, inclusivity, diversity, fairness and representation. It will also assist with making an informed choice among the units 1-10 through a selection of the pathways that best respond to your requirements, interests, and needs. It will introduce key terms (glossary) that you will encounter throughout.

• **Level 2 (meta-level):** To inspire educators to apply the learning gained through this unit to your own practice. The meta-level concerns how your way of teaching will change as you keep on engaging with the material and will impact on how your way of using the FUEL4Design material with your students. It fosters self-reflection and self-evaluation and is predicated on an ethos of education as transformative experience for educators and students alike. You, me, everyone: we are learning all the time.

EXPECTED LEARNING OUTCOMES

A. Knowledge and understanding	Articulate your positionality as educator and researcher, in relation to disciplinary practices, research philosophy and ethics.
B. Cognitive Skills	Explore new ways of knowing and sharing knowledge made possible through decentring research and design practice
C. Practical Skills	Identify a focused design topic/exercise/activity that has value for you as an educator/designer, demonstrating how this connects to relevant fields of future study
D. Generic Skills	Critically evaluate institutional, national, and global perspectives of equality and diversity, and their relevance to your academic practice context.
E. Collaborative Skills	Develop and enact hightened ways of working and being together through lived experience so to produce new knowledge

ACTIVITY

Individual task

To assist educators in the process of engaging with the levels indicated above, these tasks are recommended:
• a 'positionality' statement to reflect on who you are as an educator/designer, not only in relation to your disciplinary practices but also in considering research avenues that address the contexts in which you work and the individuals you work with.
• a 30-minute learning activity that activates discussion around a theme or issue emerging from your own research (e.g. workshop, seminar, other activity etc.) directed toward a mixed group of 5-8 students.

Group task

Working in collaboration with a small peer group (2-5 or more) to develop a document inclusive of code of conduct / set of principles/ core values informing your teaching practice within a diverse environment. This could be a manifesto-type document, a flow-chart, a diagram etc. and the outcome of a mutually enriching process of discussion, negotiation and collaborative engagement (co-design).

Self and Peer-to-Peer evaluation

It is recommended that educators do self-evaluation throughout this unit. Self-evaluation can be a reflection journal, a series of blog entries or a mini-portfolio of notes and insights. Its purpose is to document your response to teaching practice as it evolves, and your responses to literature and other sources on teaching and learning.
Whenever possible, include Peer-to-Peer evaluation where colleagues come together to share experiences and reflection in a supportive and critically constructive environment.
Ongoing evaluation whether self or peer-to-peer will encourage skills such as risk-taking, independent enquiry, effective negotiation skills, as well as critical and civic engagement.

TOOLS AND DEVICES

Tools and devices appropriate to this Unit are those that encourage educators to reflect on their positionality, to critical appraise their learning and to experiment with ways of exercising agency, even in a 'risky' or disruptive mode. For instance, the Perspectives and Standpoints (from the Prompts cards in IO2) assist with questioning the nature of the future you envision, the knowledge it produces, the values and politics attached to it etc. (Perspectives). Also, they assist with reflecting on what can (or cannot) be achieved through the position you express (Standpoints).

Equally relevant here are tools that enable you to question your own learning and experiment with unlearning activities, for instance the Neologiser prompts you to work with imaginative words, each envisioning a different futurescape, with potentially

innovative and alternative roles to cast a new light on the space of future-making

Perspectives

- Ontological Perspective
- Epistemological Perspective
- Methodological Perspective
- Axiological Perspective
- Political Perspective
- Technological Perspective

Standpoints

- Declarative
- Disruptive/ Re-framing
- Reformative
- Rejective

CASES AND EXPERIENCES

In this unit you might want to use the following methods, test them out and embed them in your teaching practice. Feel free to adapt them to your own teaching style. They can be used online and IRL.

• Silent brainstorming: working in silence is a powerful pedagogical technique that affords sustained reflection. It is ideal for intense idea-generation and pattern and vision-building; by diluting the clamour of dominant voices in a group dynamic, it empowers all participants equally

• Vision-building: using image research to collectively populate a board (or a wall if IRL) illustrating a specific future vision (e.g. around a year/theme), usually best initiated in silence. Participants add keywords and comments on each other's images.

• I DO ARRT (adapted from KaosPilot*): a guided way of setting the scene when facilitating a group. The acronym stands for Intention, Desired Outcome, Agenda, Rules & Roles and Time. Participants co-design the items, making assumptions explicit and building a common culture where everyone feels represented.

**a creative leadership and educational accreditation HERE*
In more detail: how to apply IDOARRT and Micro-teaching

1.IDOARRT
The purpose of IDOARRT is to aid you in co-designing your roadmap across the 1-10 Units in IO5.

It is a tool you can use to set and define your boundaries and scope in relation to IO5. It is predicated on a group working together, thus it requires negotiation and communication skills, and teamworking.

CASES AND EXPERIENCES

As said above, IDOARRT is a way of setting the scene. The acronym stands for Intention, Desired Outcome, Agenda, Rules & Roles and Time. Participants are invited to co-design each item, making their own assumptions explicit and striving to build a common culture where everyone feels represented and heard. Principles:

- Intention: why are we here?

- Desired Outcome: what will we leave with?

-Agenda: Build your own roadmap according to your own trajectory, needs, and requirements, goals, the gaps you are identifying (but you may not be certain of as yet)

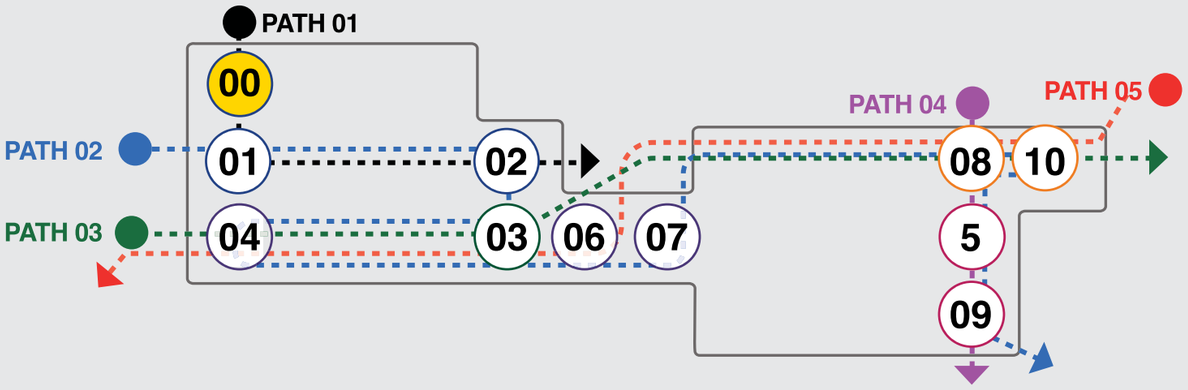
- Roles and Rules: who are we? Who are you?

- Time: what is the timeframe you want/can allocate to their learning to ? Eg 2 hours? 2 days?

2. Micro-teaching
Prepare a 30-min learning activity of your choice (i.e. workshop, seminar or intervention) directed towards a mixed-student cohort that

activates discussion around an emerging themes or issue in relation to design and futures. The purpose of this session is both to highlight your existing practice in relation to design futures and to foster reflection on your teaching. Draw on your existing knowledge and your specialism. What are the aims of the session? How are you engaging your students? What do you want them to achieve? How are you going to self-evaluate?

ROADMAP AND CONNECTIONS



The yellow color indicates the position of the current Unit.

UNIT CONTENT

This unit is called Orientation because it intends to assist you with navigating the complex terrains of future-making throughout the IO5 set of units, by enabling you to find your own mode (of teaching, working, learning, unlearning) . What this Unit does not wish to do is to provide you with a map: in this sense orientation is about you developing your own compass, rather than following a given blueprint. It is your journey of discovery, and is about developing agency, rather than been given all the answers. This also is in line with the meta-level of this project which asks what are futures made of?

Key features of the orientation process:

Building Community: The unit could start with a 3-day induction workshop to build an online cohort dynamic; to share and exchange cultural values; to communicate design tales and backgrounds; to introduce the unit/course ethos and provide key induction sessions. Peer learning is embedded into the course, allowing for the creating of a multidisciplinary community of practice that capitalises on diverse disciplinary, professional, and practice-based ways of knowing.

Testing Tools: Tutors are encouraged to run a pilot of the tools that they will be applying in the different units. A way of doing this is to engage in a Micro-teaching workshop. (Micro-teaching concerns leading a short activity with a peer group as if they were your students). The workshop takes place with tutors working with each other in order to become familiar with the chosen material, adapting it to their own situations and getting ready to implement it (for instance a micro-teaching capsule using the Pills or the Lexicon for a short session). This is a way to enhance your pedagogic ideas, experience, and expertise in collaboration with other members of the programme/course community; moreover, it actively encourages participants to evolve traditional design research and practice approaches by surfacing deep knowledge of creative and professional practice and amalgamating it into their research.

Positioning Yourself: Opening with an introduction to varied ontological and epistemological approaches to constructing knowledge, we will explore together how as researchers and practitioners we situate ourselves in the pursuit and communication of knowledge. By reflecting on your positionality, mapping your positionality, and sharing it with others you create conditions to develop sensitivity and evaluate the impact of your teaching.

Transdisciplinary practices: Educators are encouraged to think and act transversally to unsettle both verticality and horizontality, and the hierarchies these might conceal. They are encouraged to explore the value of transdisciplinary in breaking boundaries and questioning existing disciplinary silos. Investigating and playing with a range of methodologies drawn from diverse disciplinary fields will enable you to develop an experiential understanding of your own knowledge production. Acknowledging expertise in the classroom and voicing the voiceless surfaces issues of how to stay with divergence and engage in bridge-building rather than pushing for consensus.

Educators will be invited to critique research traditions and practices, considering decolonial imperatives and consider what it means to decentre academic research and practice traditions in the 21st century.

UNIT 00 - ORIENTATION

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FUTURES LITERACY METHODS

UNIT 01
INTRODUCTION TO METHODS

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DESCRIPTION

As a set of social-material design practices, how we go about making and analysing our futures by designing is central to facilitating prospective literacies. They implicate us in the kinds of futures we configure and that we and others live within. The devices and tools we employ thus script, generate and situate short- and longer-term futures: these are ‘lifeworlds’ others may experience and endure without us. This demands attention to ethics, sustainable uses of resources and materials, and modes of participation. Futures methods are not neutral transactions: they construct and position how we may know what we know by how they do what they do and they ways they performatively allow or facilitate design.

Below is an orientation to select futures methods, with disciplinary origins and world views. We include a tool to map dynamics of how we know what we know in shaping futures by designing and unpack methods from Foresight (from Futures Studies and professional ‘futurists’). We indicate ways a in which tools and methods here and across F4D may support learners’ practices of design making together with critical reflective competencies. This includes generative and transformative ways of working imaginatively and questioningly in processes and acts of making futures by design.

AIMS

This Unit seeks to engage you in working anticipatorially with a diversity of tools and techniques, means and methods in future oriented acts of design and analysis. The dynamic relations between these ‘methods’ allow us to activate and value expertise in the making, by making. It includes critical and reflexive reviewing and revision in, through and on such acts of knowing through futures designing.

A related key aim is to activate curiosity and critical interest in looking closely into how design futures methods themselves may be understood and activated as design materials and processes. This extends to ways we know what we know about shaping futures through designing.

The Unit further seeks to:

- clarify relations in futures making between world views, methodologies, designing and design inquiry

- situate an anticipatory design view on how we co-create design artifacts, tools, processes and experiences

- indicate pathways and potentials in shaping pedagogies and literacies via diverse ways of knowing and acting on, with and through ‘methods’

- distinguish how futures design techniques and tools may contribute to how we may know about and prospectively shape our needs and world

- connect exploratory, experimental resources developed in and across F4D.

UNIT 01 - INTRODUCTION TO METHODS

COMPETENCIES

The competencies involved in this Unit include the following that are also connected to the others in IO5:

Acuity on futures methodologies and methods

Fluency with select futures design tools and techniques

Facility in working relationally with methods-content

Applying criticality to methods in use and reflection

Motivating self and shared generation of new means and tools

Critiquing prospective means used in projecting and promoting futures

DEPTH OF DETAIL

Students in different parts of the curriculum and their own learning trajectories will need to meet, identify, select and enact a diversity of methods in shaping futures by design.

LEVEL 01 – BACHELOR

Students select a specific futures method for a particular activity/course and focus on how to follow it through as a ‘future-scaping’ exercise on point of view and boundaries. Write a short reflection on the ‘hows’ of the designing, annotating images included to highlight methods.

LEVEL 02 – MASTERS

A series of prompts for design educators. How can we look at methods more actively, critically and creatively in working with our futures pedagogies? How and why might this matter (for a domain area of design or a specific issue, say sustainability) in learning? How might this matter in preparation for worlds of work, professionalism and practices, outside the design school studio?

LEVEL 03 – PhD

For a supervisor and PhD student.
How might the 4-part demarcation on ‘methods’ (Morrison et al. 2018) be applied in:
a) a ‘futures methods’ take to an overall research design
b) processes of sketching and writing a conference paper /journal article, and
c) the multimodal and written discourse rhetoric of a methods chapter.

EXPECTED LEARNING OUTCOMES

A. Knowledge and understanding	To be able to identify how different methods shape how we know what we know and how we may design futures by design
B. Cognitive Skills	To distinguish between aspects and practices of making and analysing in how we know what we know Identify what 'designerly ways of knowing' might be in shaping design futures literacies pedagogies, designing and researching
C. Practical Skills	Navigate different types of methods and apply them
D. Generic Skills	Navigate different types of methods and apply them
E. Collaborative Skills	Know how different ways and means of making can be realised in co-design

ACTIVITY

Horizon scanning
HERE

Aim
The aim of accentuating this resource from IO4 is to engage teachers and students in the activities of working with Horizon Scanning as a method and means to better understand the content and changes of contexts within which emerging challenges and trends concerning the future may be mapped.

Duration
A working session of an hour, individual/pairs

Description
As a method Horizon Scanning aims to motivate exploration of emerging, new and unexperienced futures and to situate them in relation to the emerging challenges and trends of the present. Scanning for weak signals, macro trends and drivers of change is mapped onto the cognitive and collaborative skills of mapping current activities and sorting them to be able to process a diversity of mediations (online, on site, interpersonal etc).

Method

Teachers are invited to access the online tool and study how it works as a device for engaging with challenges of key societal futures developments and emerging futures trends. Invite a class of students, working in groups, to activate the tool to critically assess the key outcomes of the COPP26 summit. Referring to the goal to not exceed global warming limited to 1.5C. Using the demarcations in the tool,

a) map the projected and actual key decisions arrived at by the summit, b) write a short statement outlining the resulting outcomes and the 'trend' or consequence of the horizons for climate change for low lying communities and nations by 2050.

UNIT 01 - INTRODUCTION TO METHODS

ACTIVITY

Design fiction: personas & scenarios (see also Unit 6 and 7)
HERE

Aim
OCTOPA's JOURNEY has been co-designed with sets of movement words generated from the LEXICON as a means to situate them inside the fictive, ironic persona of a travelling device. The activity aims to engage teachers and students in critical engagement in a design fiction future narrative activity, to travel an online journey via imaginary scenarios abductively connected to the actual world and to relate them back to their own concerns as design educators and students in the present.

Duration
1-2 hours, individual/pairs/groups of 4

Description
OCTOPA's JOURNEY offers a design fictive method for making more apparent human-nonhuman relations by way of a persona and scenario based narrative means. Online materials provide access to methods such as pastiche and counterfactuals. Related research is also accessible.

Method
Teachers and students are invited to travel

with the design fiction persona OCTOPA into 28 imaginary scenarios located in the histories, presents and futures of the North East Passage and related 'Northern Sea Route'. The online knowledge building method engages participants in connecting cognitive skills of 'travelling' to translating the experiences, affect and problems generated to their own actual contexts of translation in the contemporary world.

TOOLS AND DEVICES

From the diversity of methods F4D has assembled, we have selected four examples of different methods. These are:

IO1 Lexicon - NEOLOGISER (Generation)
IO2 Pills – Methodological Perspective (Prompting)
IO3 Scouting - Atlas of Weak Signals (Mapping)
IO4 Tools - Provotyping (Technique)

We suggest you may wish to select one or two of the method themes (shown in brackets), to consider how the theme is pertinent in an aspect of your own pedagogy. In doing so, you may refer to the F4D resources and work abductively to draw up an outline for how you would work with the chosen theme/s and your own needs and context (e.g. by discipline/task/material/medium/context/process and form of delivery).

In support of this focus on methods and pedagogy, the two CASES also included in this Unit. They suggest ways how selected views on methods and design futures literacies may be elaborated pedagogically.

CASES AND EXPERIENCES

Case 1
Case title: Working with concepts and form

The future may be indistinct, yet the ways we go about making it through our methods gives it form. This was taken up in a co-taught master's workshop with a Product Design teacher, Nina Bjørnstad (AHO) and F4D's LEXICON. Together, we selected sets of futures terms from the LEXICON to connect in a clay abstract form-giving activity. In pairs, then groups, students were asked to form associations with their design studies, product design, futures and abstract forms. Items from the Lexicon provided prompts. Making abductive conceptual and trans-methodological connections, students discussed their own associations, experiences and ideas prior to shifting into work in a 3D haptic mode. Referring to given lists of words from the LEXICON, on large table top surfaces covered in paper students worked with clay, while also drawing concepts and making notes. The teachers discussed notions of tags and types of abstract terms that emerged. Next, students created a fully formed abstract form of their own, with discussion on associations, connections to LEXICON terms and qualities of abstractness. In plenary presentation of each clay piece, reference was made to lexical items (earlier cut up by students from lists of futures terms and their own selected made). The form teacher presented her reading of the artifacts. She presented students' different categorisations, associative groupings and potential taxonomies for parsing 'form language'- and thereby abductive and affective senses and associations in shaping abstract, named and embodied futures.

Link:
For a more detailed account with images see (pp. 126-127) in: Morrison, A. et al. (2020). 'Lexicons, literacies and design futures.' Temes de Disseny, 36: 114-149.

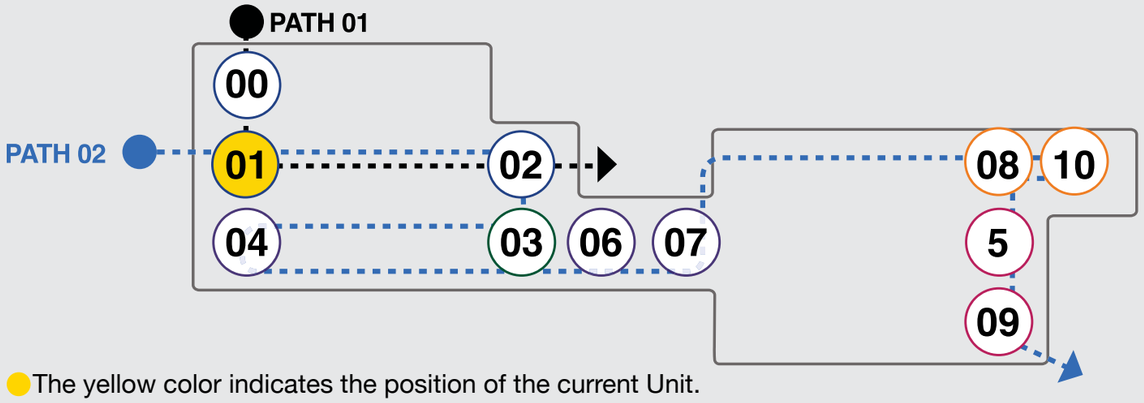
HERE

Case 2
Case title: Scenarios and archetypes

Short descriptions: 200 words

'4 Archetypes' is a method used to identify the uncertainties of futures. It helps to investigate your assumptions about the direction of the futures in regard to particular drivers of change.
Suggestion: Add a short text on use of this tool in PhD workshops

ROADMAP AND CONNECTIONS



The yellow color indicates the position of the current Unit.

UNIT 01 - INTRODUCTION TO METHODS

UNIT CONTENT

Introduction to 'methods'*

*Note this section includes text from Morrison et al. 2018)

Human futures are shaped by our imaginations and directed actions, by our practices and behaviours too. Our futures are also are made through the methods we select and enact, together with the materials, actors and contexts within which those methods are articulated and circulated

For design futures literacies, engaging with well-chosen methods suited to an activity or design brief or task is critically important. Design teachers and students are familiar with the many methods, tools and techniques taken up in processes of designing, such ideating, sketching and user-centred feedback. In recent years, the multi-domain of Design has begun to make clearer distinctions and linkages between its 'methods', that is ones in its educational and professional practices and ones applied in its research, drawn from other academic disciplines.

Morrison et al. (2018) artificially separated out what are often connected aspects in processes of making and reflection between

designing and researching. They present a multi-level and mixed method approach to unpacking these relations to how we know what we know by how we do what we do by design (see Fig. 1). Linked are exploratory and known methods together with existing and emergent expertise in a charting of modes of knowing and ways of making by design methods. A methodological distinction is made between Research Frames and Design Processes, connected to ways of knowing as Research Methodologies and Design Techniques, respectively. Further a distinction is made between Research Activities as means of enacting and Design practices as including devices for shaping designs.

	Research Frames	Design Processes	
Ways of Knowing	**RESEARCH METHODOLOGIES**	**DESIGN TECHNIQUES**	Ways of Making
Means of Enacting	**RESEARCH METHODS**	**DESIGN TOOLS**	Devices fro shaping
	Research Activities	Design Practices	

Fig. 1: Mapping relations in making by Design (Morrison 2021)

is that we then do, and what this means for people we engage and include and the types of futures we prepare, and project ahead of and back into the present.

Many Futures Studies methods (Popper 2008) are largely qualitative in character (see Fig. 2) and fall under the realm of Foresight, including Strategic Decision Making and Policy matters. Foresight methods are diverse (from backcasting to Causal Layered Analysis). Foresight acknowledges multiple futures, with focus on arriving at procedures and outcomes directed back into decisive presents. Consultancy and management views may predominate as may governmental and agency policy making processes and techniques such as, for example, technology roadmapping and scenarios.

UNIT CONTENT

Inayatuttah (2012) notes that 'it is useful to envision policymaking, planning and futures process as having four dimensions or types: predictive, interpretive, critical and action learning.' (see Fig.2). Following his typology, the predictive draws on linear forecasting methods. The interpretive employs methods of learning from models via universalist narratives. In critical futures studies poststructuralist methods are applied to deconstruct and distance diverse discourses. In participatory action stakeholder views are central to shaping futures and include collaborative methods. In addition, Inayatullah goes on to elaborate that such methods may be further viewed in work that centres on foresight processes. This includes A Generic Foresight Process Framework (Voros, 2003) and the Six Pillars Approach (Inayatullah, 2008).

Table 2: A Typology of Positivist and Post-positivist Futures Approaches (Sources: Gidley, 2009; Gidley, Bateman, & Smith, 2004; Inayatullah, 1990; Slaughter, 2008b)

Futures Studies Approaches	Key Terms	Underlying Theories and/or Paradigms	Goals
Positivist Approach to "the Future"			
Predictive/ Empirical	'probable future'	Positivism Empiricism	Trend Analysis Prediction/Control
Plurality of Post-positivist Approaches to "Multiple Futures"			
Critical/ Postmodern	'preferred futures'	Critical Theory Deconstruction	Normativity Emancipation
Cultural/ Interpretive	'possible or alternative futures'	Constructivism Hermeneutics	Alternatives "Other" futures
Prospective/ Participatory	'prospective or participatory futures'	Action Research Hope Theories	Empowerment Transformation
Integrative/ Holistic	'planetary or integral futures'	Integral Theories Planetisation Theories	Global Justice Planetary Era

Fig. 2. A typology of approaches in Futures (Inyatullah, 2012).

In contrast, but not exclusively removed from such motivations to work with futures to affect better presents and generate new modes of making better tomorrows, design futures methods that are co-creatively and contextually framed. They may be said to fall under the title of Design Anticipatory Methods Futures methods. These are primarily 'designerly' in character, characterized by their cultural, imaginary, situated and communicative intent and practices and drawing on participation and contextual engagement. These methods may sit within and span design domains such as may interactions, services, products and systems design (to mention some core components that are located within design and less social science, management and policy alone).

Anticipatory cultural imaginaries

Developing pedagogies for Design futures can draw on a diversity of resources from Futures and Foresight studies and practices. There are also culturally framed mediations of futures that we meet in artistic, literary, performance and mediated culture, including digital artifacts, tools, platforms and modes of engagement. Working in an artistic and poetic mode has been central to cultural manifestations and imaginaries concerning futures, especially in the early 20th century.

Russian futurist

imaginaries burst through in a diversity of the creative arts, in art, film and literature (see Perloff 2014) and have had a huge influence on conceptual and practical techniques of communicating futures to publics. Creative imaginaries have been powerful cultural carriers of possible and potential, but also avant-gardist and science fictional futures. In short, futures have also been invented in what Poggi (2009) examines as the art and politics of the artificial. The future is co-constructed via its methods and materials. It is mediated and it is resituated through our collective responses and ongoing creative productions.

Futures mediated by design

Projections of preferred or utopian, destructive dystopic and even the persuasive projection of political futures have been generated from narrative and visual methods within our cultural histories and their increased velocity of change in 'imaginary futures (Barbrook 2007) that are embedded in and co-construct popular mediated cultures, extending to digital methods, including gaming (e.g. Coulton, 2016; Candy, 2018) and distributive, locative and participative social media.

Our design futures literacies are thus embedded in the legacies and emergent methods and practices of other sectors of the creative industries, art and culture. Here too relations between design, creativity, language, visualisation and power are materials and forces, potentials and mediational devices and resources through which design takes part in shaping shared, motivated, select and specific futures.

Yet again, we always need to ask whose views, whose mediated lives and experiences and what relations between humans and non-humans, environment and transformation are being depicted or offered as canvasses for methods of active user participation and world building of ones and our own.

On design fiction

One domain that has emerged in working the fictive in design futures and futures design is 'design fiction' (see Unit 7).

Design fiction has been taken up as a method toolbox to address our complex world (Grand & Wiedmer 2010), while fiction as a mode of making has been used as a resource for participatory prototyping (Knutz, et al., 2016) and pastiche scenarios out to work as fictional aids to user centred design (Blythe & Wright, 2006). Personas have also been deployed to address maters of design fictive projections of learning, climate change and situated experience for surfacing and potentially transforming assumptions and expectations (e.g. Morrison & Chisin, 2017; Morrison et al., 2021) .

Design fiction allows a suspension of disbelief in contexts populated by imaginary potential, possible and even outlandish scenarios.

This is a method aimed at providing disjunctures, swerves, disruptions and encounters with the unknown and unfamiliarly familiar. It works to motivate thinking, actions and revisions of notions of remote worlding, of assumptions of dynamic situations and changes in aspirations and perspective through unexpected events. Performatively, design fictions shift between the actual and the imaginary, the factual and the fabulous so as to engage us in querying the status of both what is given and projected, and by whom and where and when. Design fictions may seem ethereal and narratively remote from material conditions of the present. Yet, they work to shift ideas and perception back into motivations for design action and students' ongoing agency in altering futures present and present futures.

UNIT 01 - INTRODUCTION TO METHODS

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FUEL4DESIGN

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Co-funded by the
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FUTURES LITERACY METHODS

UNIT 02
VOICING FLUENT FUTURES

Co-funded by the
Erasmus+ Programme
of the European Union

Arkitektur- og designhøgskolen i Oslo
The Oslo School of Architecture and Design
POLITECNICO MILANO 1863
DIPARTIMENTO DI DESIGN
ELISAVA
Escola Universitària de Barcelona
Disseny i Enginyeria
ual: university of the arts london

Arkitektur- og designhøgskolen i Oslo
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DESCRIPTION

The focus is on using language contextually, critically and productively to shape and critique how futures design literacies may be realised and enacted.

FRAMING, UNPACKING, MAPPING

Unit 2 aims to clarify relations and practices between the ‘whats and whys’ of how ‘futures’ is shaped and how we have arrived at futures as a plural, diverse and dynamic concept and knowledge domain. This is connected to ways in which language and power relations may be applied to understand these futures and to position our pedagogies and design productions and analyses, pragmatically and in terms of world views. A critical mapping of the futures field is included.

VOICING, ENACTING, POSITIONING

Central here are ways to work critically with relations between language and power, words and discourse. This is important for how we go about shaping and analysing design futures, as pedagogies and as literacies. It extends to how we may enact and perform these where language is a medium, a material and a marker of the world views and methods in individual and collaborative use. Selected elements of the DESIGN FUTURES LEXICON are taken up to support fluency in an emergent critical ‘languaging’ of futures by design. This involves working with words to frame, position and re-orient our notions and senses of future. In doing this, links are made to the FUTURES PHILOSOPHICAL PILLS. Most of this material is housed in the ACTIVITIES section of this Unit and inside the LEXICON.

AIMS

Unit 2 has two sets of aims:

a) FRAMING, UNPACKING, MAPPING

- orient you to a framing of what has influenced the development of the field of ‘futures’ and its disciplinary variations
- support you to unpack why dominant, prevailing and emergent approaches to futures work as they do - and how we might work them otherwise

- engage you in critically mapping some of the methods used in how ‘futures’ is framed with a focus on the temporal

b) VOICING, ENACTING, POSITIONING

-focus on how we ‘voice’ futures through language and relations to world views, context, membership, participation and power (why, with what, by whom, when, where, how)

- develop, facilitate and enact fluency in key vocabulary and terminology to support the teaching and learning of Design Futures Literacies and needs and interests of diverse audiences

- motivate and position the ‘timely’ positioning of pedagogies and literacies for ‘futuring by design’ that actively select, embody and articulate how these may be voiced in designerly ways for futures teaching, learning and researching.

UNIT 02 - VOICING FLUENT FUTURES

COMPETENCIES

Collaborative competency

Critical thinking competency

Fluency in critical futures vocabularies

Self-awareness competency

Affective competencies

DEPTH OF DETAIL

The 3 ACTIVITIES aim to support knowledge and understanding that language and futures are embedded and articulated in dynamic relations of context, culture and world views. These relations are connected to matters of positionality, voice, purpose and power. While futures may be appreciated to be plural and where design anticipatory approaches are growing, the methods we meet for futuring are often infused with logics and practices from Foresight. Such methods and tools are typically located in and directed towards strategic decision-making and linear modes of planning. Anticipatory Design methods ask instead that we engage ourselves and students in dynamic explorations and critical assessments of how futures are languaged and positioned and expressed as design futures fluencies: by whom and in relation to what status of futures we are working with, for what purposes and how terms are linked to specific approaches and positions.

Needed is that we connect related pedagogies to: design domain area knowledges; support for independent critical voices and meta-cognitive awareness of methods and language relations in futures-facing experimentation; and language-multimodal discourse relations and learning by futures designing for long term change with collaborative agency in the present.

LEVEL – BACEHLOR’S
We suggest Activity 1 is suited here.

LEVEL – MASTER’S
We suggest Activities 1 and 2 are taken up at this level.

LEVEL – PhD
Moving from Activity 1 through to 3 would suit PhD supervisors and students.

EXPECTED LEARNING OUTCOMES

A. Knowledge and understanding	Exercise a critical, generative capacity to place and critique where languages of futures originate and circulate
B. Cognitive Skills	Develop meta cognitive framing of futures to ‘deconstruct’ futures terms and position critical design futures vocabularies and power
C. Practical Skills	Facilitate fluency and independence in activating situated vocabularies in methods and pedagogies
D. Generic Skills	Developing and appoint words to methods in pedagogical approaches and practices domains and disciplinary work
E. Collaborative Skills	Realise connected, shared practices for interrogating and articulating futures vocabularies and discourses

ACTIVITY

ACTIVITY 1. Critically wording a futures design brief Identify a futures topic.
Orient it to the future (near, middle distance or far flung).

Think of a short brief (Master’s or PhD)

Go to 50 FUTURES WORDS (with definitions).

Select 3 items that cohere with your aims. Write the brief using the terms. Do they reflect what you intend? What needs clarification?

ACTIVITY 2. Sharpening words and modes of knowing

Write a short brief on futures topic in your discipline/s.
Choose a mode of knowing: Abductive/ deductive/inductive (see PHILOSOPHICAL PILLS).

What kinds of futures words have you used in describing and defining the brief?

Where do the terms originate: professional or pedagogical practice, a design or other discipline, popular use? Are there terms that need to be decolonised?

Go to the 50 FUTURES WORDS (with defintions). Do terms you use appear and align with ones there. What do you need to alter?

Repeat the activity with SURPRISING FUTURES DESIGN WORDS (with definitions). Choose 5 items that challenge your sense of a futures vocabulary.

ACTIVITY 3. Further shaping design futures terms
Please consult NEOLOGISER and UNIT 8.2. MAKING NEW FUTURES DESIGN WORDS
Think of two new terms to decolonise assumed values in vocabularies of design futures.
Refer to LEXICON CHIMERA to generate 4 random terms. Use them as prompts to draw a concept diagram or future scenario.

ACTIVITY

What affinity or distance is there between given defintions and concepts you have visualised? Redefine/rename the terms and add a small visual to each of them (icon, flow diagram etc).

(See also + UNIT 8.4. HYBRIDISING FUTURES DESIGN LANGUAGE) and PHILOSPHICAL PILLS (Anticipation and Speculation).

Turn this activity into one suited to a visual aspect of your pedagogy.

TOOLS AND DEVICES

IO1 NEOLOGISER

CASES AND EXPERIENCES

Case title:
BALLUSION CASE.

Online BALLUSION - Supporting Master's Students in Service Design By Palak Dudani, member F4D. AHO

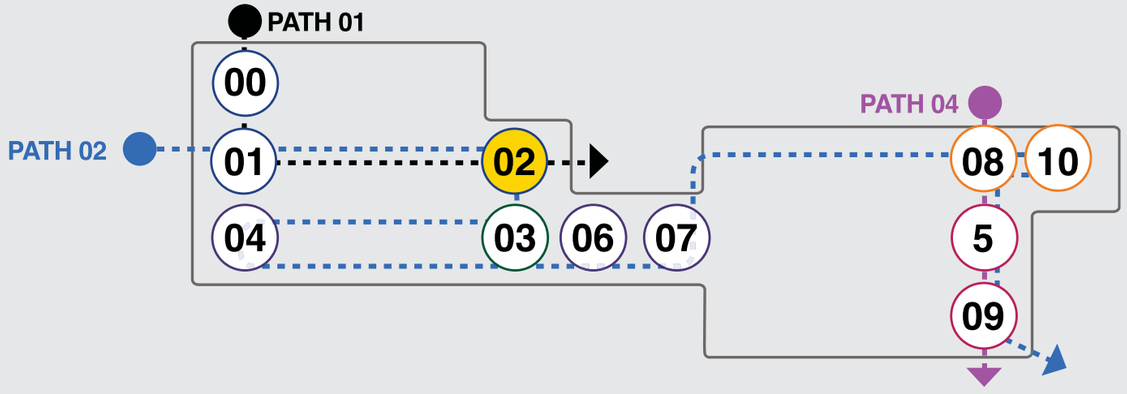
Description:
Palak reflects on a workshop developed for Service Design master's students. It drew on a device in the LEXICON called BALLUSION designed to look more closely at the role of language in a course and design project/s. The focus here was on relating futures terms to service design of public healthcare.

HERE

Case title: SCENARIOS THINKING CASE.
Voicing futures scenarios - Reflections for PhD Methods Pedagogy
By Corbin Raymond, PhD Fellow, AHO

Description:
Corbin reflects as how he used a selection of resources from the LEXICON in a shift from his work as a design educator to being a PhD student. He makes suggestions as to how PhD teachers may access, activate and critically engage with the LEXICON in designing scenario thinking. This is part of a wider project into building scenarios in a 'futures by design' view relating to collaborative governance around water access and resources in a South African city.
Link: (blogpost F4D site to be added)

ROADMAP AND CONNECTIONS



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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 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 of 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.

UNIT 02 - VOICING FLUENT FUTURES

UNIT CONTENT

2. VOICING FUTURES: LANGUAGE, POWER & PARTICIPATION

On shaping Anticipatory Design

We see design, futures and literacies as

being realised and made material through anticipatory and futures literacies (Miller,

2018; Bishop & Hines, 2012) and 21st century contexts of futures framings (e.g. Attali, 2011). In our work in F4D, we take an additional turn towards design futures literacies: as regards to making, anticipation and multimodal emergent practices. (See LEXICON: UNIT 2.3. SPECIFYING DESIGN FUTURES LITERACIES). This is taken up in the MATRIX OF DESIGN FUTURES LITERACIES. We do this to position and query futures related methods and tools as part of our emergent design futures literacies practices and how they may be enacted

and critiqued through the tools and methods through which we embody and reflect on them. Here we draw on the notion that the future is a culturally realized (Appadurai, 2013), generated via the methods we use.

Language, power and multimodality

This Unit takes matters of framing futures to a series of pedagogical activities that address concerns with ways verbal and visual communication construct, communicate and may be used to analyses how futures are articulated, mediated and changed. The activities take up how we may 'voice' futures via language and relations to context, membership, participation and power. This is to do with questions (why, with what, by whom, when, where, how) and responses to ways we variously position, enact and reflect on designing, teaching and learning, and researching (Dudani & Morrison, 2020). Motti (2019:16) reminds us that 'The plural conceptualization of futures rests on limits of natural languages and their cultural articulations.

The DESIGN FUTURES LEXICON covers a range of topics on vocabulary, terms and concepts (lexis) and their relations to contexts of use, meaning making and circulation (discourse). While F4D focuses

on English, the world's many languages all enact relations of sense and reference between words and their sites of use and processes of participative performance, power and change. English is a language with regional and national varieties, spoken most by speakers who do not have it as their first language; it has been appropriated and re-directed in dynamic processes of localisation and standardisation outside metropolitan colonial centres (see e.g Griffiths 2021; Ndhlovu & Makalela 2021).

Extending beyond the verbal, 'language' covers a variety of modes of communicating: proxemic, kinetic, gestural, graphic, spatial etc (e.g. Morrison 2010). The activities in this unit provide some examples of ways to engage with the materiality of words and images in futures design pedagogies in processes of uptake, change and expression. In a post-representational view, following Deleuze (1990), language is realised via social semiotic practice but also in motion, being multi-modal, multi-agential.

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UNIT 02 - VOICING FLUENT FUTURES

INDICATIVE BIBLIOGRAPHY

FUEL4DESIGN

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The Oslo School of Architecture and Design

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FUEL4DESIGN

FUTURES LITERACY METHODS

UNIT 03
FUTURES SCOUTING

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DESCRIPTION

This unit explains the notion of modes of scouting, where gathering, framing, making and enacting are at the center of the process. It explains how designers can identify trends, weak signals - early indicators of change that have the potential to trigger major events in the future - and drivers of change by positioning themselves closer to the researched issues or topics.

It enables the relationship between design and scouting. It connects “immersive scouting” with possible design actions. It shows the connections and possibilities, methods, and tools as well as possible outcomes.

The subject of this unit allows the students to explore and be aware of their agency to shape futures possibilities and probabilities.

It provides some tools to gather insights about the present and futures and to identify, gather and categorize insights about the futures.

AIMS

The aim of this unit is to enable designers to comprehend the plurality and richness of futures and develop an awareness that futures are generative and performative. The goal is not to produce one future but a landscape of futures. This means that futures scouting has to consider the past, do field research in the present and actuate into the future.

Emergent futures, then, need to be explored from a design driven multi-disciplinarity. Understanding near future-oriented design projects may as a consequence enable the characterization of the next futures scenarios.

This too may allow the exploration of futures scenarios through gathering, framing and situating signals that are relevant for the topic or issue of interest the designer is exploring.

COMPETENCIES

This unit will provide competences on futures scouting:

- To gather intelligence about the future within the scope of the general topic or issue through a collection of signals that can be found in the present (trends, weak signals, drivers…).

- To frame these signals, organising and mapping them according to several layers, factors or forces shaping the futures.

-To situate signals taking an immersive approach.

- To identify and relate to trends, weak signals and drivers of change by positioning the students closer to the system they are working on.

- To use the processes above as relational approaches on the practice of futures scouting and be able to shift between the different modes to gain more insights and knowledge valuable for their future-oriented design projects.

DEPTH OF DETAIL

LEVEL 01 - BACHELORS

Futures scanning may be presented to bachelor students to make sense of the socio-technical systems they are entering with their projects and the implications of these. We suggest you use this unit to select signals, trends and drivers by the tutors that may be relevant to further develop their projects. Perhaps try to relate each other to make sense of the futures they are aiming to work on.

LEVEL 02 - MASTERS

Here students use the different modes of scouting according to their issues or topics of interest. They gather and select different weak signals they are going to focus on in their future-oriented design project. They also situate these weak signals in the socio-technical systems they are inscribed and develop futures scouting to detect new signals, trends and drivers that may be relevant for their project.

EXPECTED LEARNING OUTCOMES

A. Knowledge and understanding	Establish a starting point to navigate uncertainty, leveraging weak signals as vectors of possible areas of change.
B. Cognitive Skills	Identify present trends and signals that will have an impact on the future.
C. Practical Skills	Build a scaffolding to understand a systemic view on the area of study.
D. Generic Skills	Assemble a collection of experiments, reference objects, projects, products or materials.
E. Collaborative Skills	Communicate via discussing, identifying and situating weak signals in group activities.

ACTIVITY

Atlas of Weak Signals

AIM OF THE ACTIVITY: Collect and organise a representative group of weak signals that can describe possible vectors, discontinuities, and emerging casualties. These can serve as a keyword taxonomy that offers a starting ground from where to analyse current systems and build possible scenarios.

DURATION: THis can be done as a one-day workshop, or a 4-day course where, in addition to the workshop, groups of weak signals are presented and discussed in class.

DESCRIPTION: In designing for emergent futures, an Atlas of Weak Signals serves as a visible methodology and structure to situate students, designers and a wide range of professionals from different fields, enabling them to start identifying potential intervention opportunities. It offers immediate keywords for research and experimentation and provides a starter design space to gain confidence and direction on where to begin.

METHOD: For the development of the workshop, a physical toolkit is used. The toolkit consists of four decks of cards that can be combined. Deck 1 is the Atlas of Weak Signals itself, consisting of the actual 25 weak signals. Deck 2 compiles areas of opportunity (major areas of innovation that are affecting or offering new opportunities of research for almost every sociotechnical system and industry today). Deck 3 consists of wild cards or trigger cards (for random events that can affect their design process). Deck 4 presents five cards that describe specific challenges for innovation (institution, service, professional role, policy, and product).

Weak Signals in the Wild

AIM OF THE ACTIVITY: This activity will assist the designer on situating and identifying weak signals she/he is working with her/his design project.

DURATION: One day activity is recommended, but it can last more days if needed.

DESCRIPTION: Students will gain a different perspective on the surroundings and some of the topics that they are working with. The exercise will take place outdoors through (auto)ethnographic exploration. A reflection at the end is needed to analyse the gathered observations and visual material.

METHOD: One option is taking a walk in a group to discuss and identify weak signals that they detect during the activity and may be relevant for their projects. Another option is to focus on yourself and your immediate surroundings, and gradually scale up the area of analysis (home, neighbourhood, city, region... planet). It is important not to rush, the goal is to enjoy and reflect. The participants should take a small notebook and a pen to take notes, engage with the activity and enable future reflections.

UNIT 03 - FUTURES SCOUTING

TOOLS AND DEVICES

Tools and devices appropriate to this unit are those that allow designers to understand the futures they are actuating in with their design projects and also creating with those. The outcomes of this unit can be developed through brainstorming sessions along with desk research. The suggested format for framing signals is a canvas or template that should assist the team or individuals in organizing the gathered data about futures. Also, field research activities that will situate the designers and their projects in the system they are working with.

IO1-1 LISTS FOR WORDS

IO3-1 ATLAS OF WEAK SIGNALS

It is a visible methodology and structure that offers immediate keywords for research and experimentation and provides a starter design space to gain confidence and direction on where to begin identifying potential intervention opportunities.

IO4-1 HORIZON SCANNING CANVAS
IO4-2 PESTLE
IO4-3 CIPHER
IO4-5 FUTURE FORCES

CASES AND EXPERIENCES

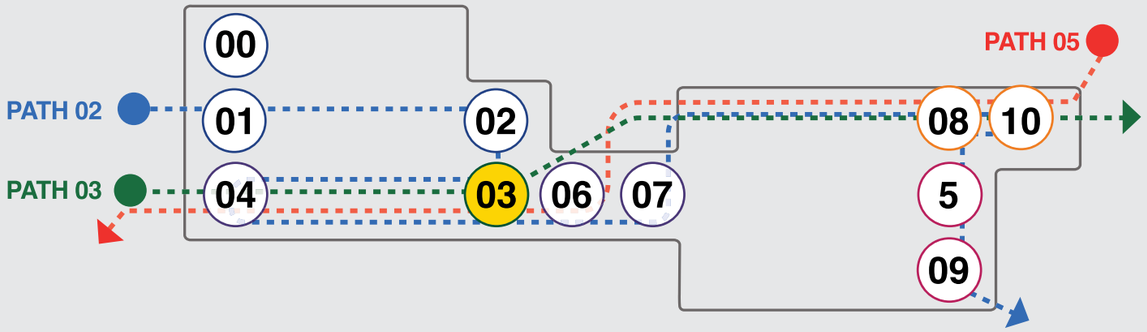
Finding Weak Signals to Design Emergent Futures.

Workshop at Space10, Copenhagen, 26.02.2020.
Fab Lab Barcelona –one of the collaborators in the Master in Design for Emerging Futures program – visited SPACE10 in Copenhagen to try out in a different environment the Atlas of the Weak Signals, hosting a series of inspiring talks on emergent futures and a workshop on the Weak Signals card game. This was a half-day program in which 60 participants – employees from SPACE10 amongst other attendees -were introduced to the Atlas of Weak Signals. This alternative educational experience provided an opportunity to question, disrupt and challenge methods of practice, offering a chance to learn alternative perspectives on contemporary issues.
HERE

Multiscalar-mapping

Participants are asked to take the issues they are concerned about or weak signals of possible futures they have detected and take them in an embodied exercise of reflection on how they might be present from the scale of their bodies, to the scale of the area where they live. Participants are asked to engage in a hike and/or a journey that takes them from their home to the outermost part of their city or region, documenting in a diagram infrastructure, issues, topics, people, situations and insights that reflect their chosen matters of concern. The activity can be done a group or they can complete it in smaller groups or on their own. Situating the Weak Signals at different scales in context supports students to reflect on the meaning their possible design actions can take in society.
HERE

ROADMAP AND CONNECTIONS



The yellow color indicates the position of the current Unit.

UNIT CONTENT

Futures Scouting through Making.

How can we generate and frame possible futures in terms of alternative presents situated in the world?

1. Introduction to Futures Plurality and Richness

Design Futures Scouting innovates by introducing the contemplation of four approaches:

- Generative and Performative. Pushing to the extreme weak signals and crossing scenarios in order to generate multiple options. It is not the aim to produce one future but a landscape of futures.

- Past-Present-Future. Considering the past, evidence from past behavioural cycles and patterns, past trends and their sociocultural adoption, as well as previous design fictional scenarios. Doing field research in the present, in order to be able to observe and detect early futures signals. And actuating into the future, by detecting the current early signals and actuation into the near and next futures.

- Design driven Multi-disciplinarity. Explore emergent futures integrating disciplines, points of view or information from different angles, where design and design projects become the driver of future changes or a tool to materialise futures.

- Near and Next. A collection of weak signals and future-oriented design projects (near futures) in order to map and deploy the characteristics and actuations of futures scenarios (next futures).

2. Gathering Signals

Gathering Signals refers to gathering intelligence about the future within the scope of the general topic or issue. This can be an unrestricted activity looking for macro trends, drivers of change and weak signals.

It allows one to have a clear and wide view about the general topic or issue. Understand the complexity of the issue and to identify the different factors behind it. Make sense of the growing patterns of particular trends or weak signals. See how these patterns are performing and how frequent they are over the different layers and factors.

UNIT CONTENT

3. Framing Signals

At this stage gathered intelligence is organised and mapped according to several layers, factors or forces shaping the futures.

Clearly segment and organize the gathered trends and weak signals according to their nature. Make sense of the gathered insights and identify the leading patterns, breaking down the different types of layers driving the futures.

4. Situating Signals

Situating Signals takes an immersive approach to futures scouting, where making and enacting are the center of the process. Designers can identify and relate to trends, weak signals and drivers of change by positioning themselves closer to the researched issues or topics.

This positioning helps make sense of the context designers are working in. It enables to gain different perspectives on the issues or topics of interest. And allows for a better understanding of the surroundings, resources, stakeholders, materials,etc. that can become related or help on our future-oriented design project.

5. Shifting Between Modes of Scouting

Gathering, framing and situating signals are processes that are relational and nourish each other towards the topic or issue of interest when future scouting. Those have to be seen as a set of tools that work together.

Through a combination of the three processes within an iterative process, designers gain knowledge and get closer to the topic or issue of interest. Also enabling a focus-expansion approach getting closer and also broadening the scope and gaining knowledge on the design project.

UNIT 03 - FUTURES SCOUTING

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FUTURES LITERACY METHODS

UNIT 04
POSITIONALITY

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DESCRIPTION

This unit explains first, second and third person perspectives, highlighting the importance of self-reflexivity and self-reflexive activation by building awareness of the interconnected nature of positionality, boundaries and networks. 3rd person perspective relates to gathering information without getting involved, and a 2nd person perspective is about designing with a sample of the target group. In a 1st person perspective, the designer is part of a system within the existing social structures.

It enables learners through autoethnographic research to create a personal vision to *design for the unknown* by means of a reflective and transformative design process.

The content presented will allow students to re-evaluate their approach continuously, helping them to be more aware of their contexts, scales and location within the relevant socio-technical system.

AIMS

The aim of this unit is to communicate that self-reflexive activation is key to infuse the design process thoroughly with fundamental principles like responsibility, accountability, transparency, empathy and positionality, These principles have become hugely relevant in re-orienting design processes towards regeneration and sustainability.

If focuses on making explicit the routines designers are following, the infrastructure, social connections and tools that could become relevant to them, and ultimately, the motivations, cultural background and interests they are bringing to the research they are starting.

It also supports the creation of new practices constantly related, limited, shaped by and encouraged by the different elements in the socio-technical systems they are part of.

COMPETENCIES

This unit will give learners competences in order to:

-Be aware of the contexts and scales learners are inhabiting and their positionality in them.

-Create ever-evolving new ways of action in which they develop their practice and themselves.

-Develop their practice mapping the tools, materialities, infrastructures, communities of practice and social networks that are part of the socio-technical system they are designing with, and inhabiting.

DEPTH OF DETAIL

LEVEL 01 - BACHELORS

Learners at this level will be able to understand and experience first, second and third person perspectives in their design process. They can undertake self-reflexive activation exercises in order to help them reconsider their positioning.

LEVEL 02 - MASTERS

Gives students tools to design for the unknown providing extensive guidance into the reflective transformative design processes to help them re-evaluate their practice. Focus will be on understanding how the design process reshapes them continuously.

LEVEL 03 - PHD

To inspire learners to apply the autoethnographic research learning gained through this unit to their own practice. Allowing them to critically and instrumentally re-imagine ways of thinking and acting differently, creating their own self-reflexive activation techniques.

EXPECTED LEARNING OUTCOMES

A. Knowledge and understanding	To understand that self-reflexive activation is key to infuse the design process thoroughly with fundamental principles like responsibility, accountability, transparency, empathy and positionality
B. Cognitive Skills	Reflect on who learners are as agentic actors.
C. Practical Skills	Bottom-up and top-down transformation processes using materials at hand.
D. Generic Skills	Assemble a collection of experiments, reference objects, projects, products or materials.
E. Collaborative Skills	Collectively aims to describe and systematically analyse experience to understand its cultural context. By locating several personal experiences within a common socio-technical system one understands more holistically one's own context.

ACTIVITY

My New Me

AIM OF THE ACTIVITY: invite the participants to reflect on who they are as agentic actors constantly related, limited, shaped by and encouraged by the different elements in the socio-technical systems they are part of.

DURATION: it can be done in a single day, but it is recommended to repeat this activity multiple times during a project.

DESCRIPTION: As practitioners, we are influenced by the contexts, materialities, infrastructures, power structures, social bonds and motivations that we embody throughout the day. These, in turn, are always shifting, creating ever-evolving “new normals” in which we develop our practice and ourselves. This exercise can help to bring these inter-relations into awareness in our practice.

METHOD: Any activity that supports positioning yourself in relation to the context of study by means of analysing and reflecting on personal and professional activities and interests. Teachers can ask the students to bring a poster with an image, illustration or picture that represents their fight, meaning, any issue, concern, cause or particular interest they feel strongly about. This deliverable can be a trigger for group discussion among students and teachers.

My New Augmented Context

AIM OF THE ACTIVITY: to gain awareness of the tools, materialities, infrastructures, communities of practice and social networks that are part of the socio-technical system we are designing with. A deeper inquiry into the infrastructure and limitations will be helpful to start framing the spaces and tools that will become part of their practice.

DURATION: it can be done in a single day, but it is recommended to repeat this activity multiple times during a project.

DESCRIPTION: Participants are encouraged to expand their notion of what their workspace is, understanding that it goes way beyond their desk or the lab in the university; that their hyperlocal and hyperconnected workspace can consist of their kitchens, the urban garden next to their apartment, the restaurant in their neighbourhood, their closet, their balconies, their leisure spaces, the sewing machine at their mother’s home, a digital community elsewhere in the world… and so many other possibilities. Observing our habitual spaces with this new set of eyes might bring awareness of how rich our environments are to become part of our working and prototyping infrastructure.

METHOD: Any activity that supports positioning yourself in relation to the context of study by means of analysing and reflecting on personal and professional activities and interests. Teachers can invite participants to actively reflect on their current spaces, routines, connections and habits are shaping them personally and professionally through visual methods (photos, videos, drawings, etc.). The outcomes can be presented in a shared session to trigger discussion among participants.

UNIT 04 - POSITIONALITY

TOOLS AND DEVICES

IO3 – 3 - SELF-REFLEXIVE ACTIVATIONS

Actions aimed at creating awareness in the practitioners on the contexts and scales they are inhabiting and their positionality in them. The routines they are following. The infrastructure, social connections and tools that could become relevant to them. Ultimately, the motivations and interests they are bringing to the research they are starting.

IO4 PROVOTYPING

IO3 A DAY IN MY LIFE

CASES AND EXPERIENCES

A Day in My life

This assignment invites participants to actively reflect on how their current spaces, routines, connections and habits are shaping them personally and professionally. In this example, Morgane Sha’ban (Master in Design for Emergent Futures, 20/21) represents the most important things and activities that are shaping her personally and she would like to bring to her design practice. She called it “my magic ship” as a way to navigate a difficult topic to deal with (ecological collapse).

HERE

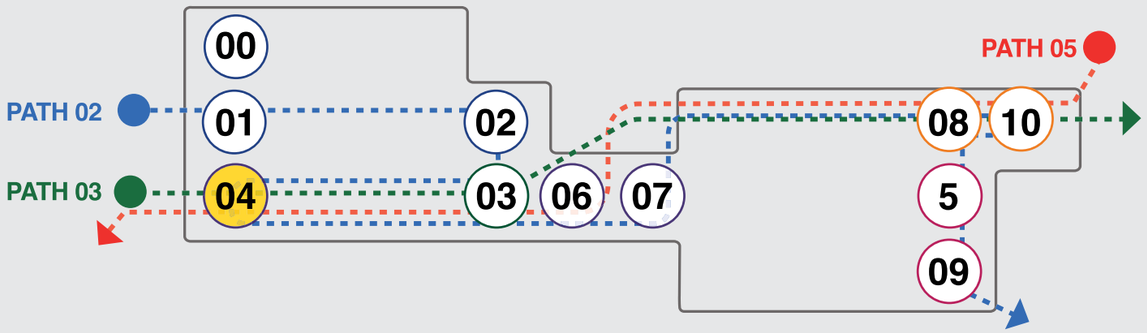
What’s your Fight?

Each participant is asked to bring a poster with an image, illustration or picture that represents their fight, meaning, any issue, concern, cause or particular interest they feel strongly about. When working with a group, not only is this a way to start meeting each other, breaking the ice, but also a means of starting the process of finding resonance to form possible collaborations. For teachers and facilitators, it presents an opportunity to start observing the areas of interest in the group as a whole, but mostly, this strategy ultimately represents a prompt for the practitioner to actively reflect on what they care about, and find fertile ground on which to start inquiring.

In this example, Morgane Sha’ban (Master in Design for Emergent Futures, 20/21) represents the intersection of the topics she most cares about. Some of them being ecological collapse, urban spaces, education, ecofeminism, activism and regeneration.

HERE

ROADMAP AND CONNECTIONS



The yellow color indicates the position of the current Unit.

UNIT CONTENT

Almost everyday now in this first quarter of the century, incoming data about ecosystemic collapse and inequality has been offering a wide range of apocalyptic scenarios which urge us to implement changes in how we do almost everything, but, how can we engage as designers in such wicked, multi-dimensional crises? This unit prepares the learners to position themselves against these challenges, gain agency and develop design interventions that bring about the changes that are urgently required.

1st, 2nd & 3rd person perspectives

There are different approaches to relate to the socio-technical system object of study. 3rd person perspective relates to gathering information without getting involved, and a 2nd person perspective is about designing with a sample of the target group. In a 1st person perspective, the designer is part of a system within the existing social structures.

Qualities of auto-ethnography

Autoethnography understood as a qualitative research method aims to describe and systematically analyze personal experience to understand cultural context. Research

done in social sciences can help us to reflect and self-evaluate design auto-ethnography and autobiographical design. The main qualities are the following: defined study boundaries, authenticity, plausibility or scholarship, Criticality, self-revealing communication, ethnographic material with confessional content and generalisability.

Design for the unknown

A reflective transformative design process is key when exploring futures in design. Fast iterations alternating between envisioning and validating, and making and analysing by means of multiple iterations allows for trial-and-error learning processes. Reflecting on the actions taken allows us to adapt the design direction accordingly.

UNIT 04 - POSITIONALITY

UNIT CONTENT

Self-reflexivity

The main goal of self-reflexivity is self-awareness, to understand the interconnected nature between positionality, boundaries and networks. The aim is to acknowledge the contexts and scales that the designer inhabits and their positionality in them. By using tools such as self-reflexivity, designers are critically reconsidering their process, positioning and connections within their contexts.

Typologies of self-reflexive activations

As practitioners, we are influenced by the contexts, materialities, infrastructures, power structures, social bonds and motivations that we embody throughout the day. These, in turn, are always shifting, creating ever-evolving “new normals” in which we develop our practice and ourselves. Self-reflexive activations help us through a series of guided exercises to do just this.

UNIT 04 - POSITIONALITY

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UNIT 05 - FUTURES PHILOSOPHICAL PILLS

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FUTURES LITERACY METHODS

UNIT 05
FUTURES PHILOSOPHICAL PILLS

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DESCRIPTION

The future can be envisioned in so many ways: as a space of the unknown, as a horizon of potential, as a risk to manage, as a problem to pre-empt. It can be said that this variety of approaches is what drives humanity to a constant search for strategies of inquiring, forecasting, divining, and prophesying. These are, however, always culturally and contextually determined.

Powerful narratives circulating in any given society sustain the formation of situated collective imaginaries where society's hopes, anxieties, fears and aspirations tend to coalesce. Often crystallizing around utopian and dystopian themes, these stories colonize the imagination in ways that can be self-actualizing and, by fostering denial, polarisation and disavowal, acutely disenfranchising. It becomes necessary to counteract this capture of futures by inserting new stories and new configurations of what kind of futures may be possible.

The Philosophical Pills Unit shows how philosophical theories can be deployed to this task. It foregrounds the importance of philosophical concepts to critically interrogate established notions, beliefs and assumptions around the future; it provides strategies to amplify our capacity to imagine, speculate and anticipate different futures; it enables learners to generate ideas for practical implementation that will feed into pragmatic-speculative design propositions.

The Philosophical Pills are philosophy-in-action informing future-building by design.

AIMS

Unit 5 is built around the Philosophical Pills: critical lenses to examine, interrogate and position existent notions of futures, and to furnish design educators and design learners with theoretical tools that can amplify their capacity to imagine different futures. Drawn on a selected philosophical corpus (with emphasis on process philosophies), the Philosophical Pills should be seen as both portals to alternative notions of future, and as diagnostic devices to decode the present as it morphs into futures. The Philosophical Pills are packaged into a deck of cards for ease of use, better communication and a more playful engagement. Cards may be either chosen or picked blindly to enable randomness entering the process.

The key aim is to kickstart the cultivation of novel imaginaries that can introduce different non-existent futures into the present so to shape practice and design outcomes. Further aims:

·Understand the role of imagination, anticipation and speculation in building narratives of the future

·Familiarize with key theoretical concepts and examine their relevance in unpacking existing narratives and build others

·Interrogate and discuss one's own positionality as a practitioner in relation to futures

·Draw insights from key theoretical concepts to inform design research and the generation of pragmatic-speculative design interventions

·Connect anticipatory skills to design multiple ways of interpreting and enacting the future.

UNIT 05 - FUTURES PHILOSOPHICAL PILLS

COMPETENCIES

Critical thinking competency: developing the capacity to think critically through a range of sources and materials; applying criticality to researched outputs
Anticipatory competency : refining the capacity to identify and think about a wide range of future positions and possibilities

Self-Awareness /reflective competency : cultivating the capacity to embed your own positionality in the work suggested by the Unit, by bringing your own voice and experience in the interpretation of the Philosophical Pills

Collaboration competency : developing and enacting strategies to work and negotiate and communicate effectively in diverse teams, and relying on, and growing, through peer – to – peer feedback, and discussion.

DEPTH OF DETAIL

While learners' competences in grasping and managing increasingly sophisticated concepts are expected to develop as learners progress in their studies, each level (BA/MA/PhD) introduces in the process an increased self-diagnostic capacity, together with the ability to respond to randomized inputs. As the post-qualitative methodological approach suggests – doing inquiry by capitalizing on the unknown as a field of potential – students learn to engage with meta-inquiry: using the unknown (random card) to explore the unknown (futures).

LEVEL 01 – BACHELOR

Tutors identify one or more cards for learners to work with and to respond to. The deliberate intervention (e.g. "your project needs this Pill") is informed by an understanding of learners' existing competences and by the requirements of their current projects. The constraint is designed to enhance learners' focus.

LEVEL 02 – MASTERS

Learners randomly extract one or more cards, and this unpredictability of the inputs is the key factor they work with and respond to. Learners are expected to show cognitive flexibility, lateral thinking, improvisation and creative skills.

LEVEL 03 – PhD

Learners examine the whole deck and choose one or more cards based on self-assessment and self-initiative. They are expected to justify their choice, identify connections across the selected Pills, and build systematic mapping. They must evidence advanced skills in analysis, interpretation, systemic thinking, and self-diagnostics.

EXPECTED LEARNING OUTCOMES

A. Knowledge and understanding	Identify key philosophical concepts and theories to use to interrogate narratives of the future. Learn how to use fundamental philosophical concepts in identifying and questioning future narratives.
B. Cognitive Skills	Develop theoretical and critical skills for the interrogation of future narratives.
C. Practical Skills	Develop research questions to support your project, design brief and scenario generation.
D. Generic Skills	Develop critical responses to theoretical discourses, methodologies and practices, incorporating a critical dimension in your own practice.
E. Collaborative Skills	Develop a collaborative mindset and an ability to negotiate roles within multidisciplinary and cross-cultural teams.

ACTIVITY

Taking the Pills (workshop)

How the decks work
• Tutor to explain the 10 different clusters, using examples on how to use the cards

•Tutor to explain ways of 'taking the pill' either by prescribing one or more cards, or by asking students to randomly select their own cards (blindly).

•Tutor to ascertain workshop content and format according to whether students are already working on their own design project, or not. If they are, then the Philosophical Pills can be used to mobilize their existent work ("Examine your project through the lens provided by this/these Pil(s) and this/these Prompt(s)". Show an example.

• In the latter case, students will use the Pill(s) and Prompt(s) as described in the workshop activity above and furthermore to mobilize discussion, as brainstorming devices and icebreakers. Show an example.

Workshop*: Students work in small groups (5-7 participants), explore their visions of the future, take the Pill(s) (either prescribed by tutor or randomly picked) and apply them as critical filters to develop future scenario.

Set the scene (40-45 min): Imagine/ anticipate 2050. How do you imagine this near future (provide students with typologies e.g. Wellbeing/Community/Technical machines/ Scalability/ Infrastructures etc)
• Silent brainstorming (5 min max)
• Find images & keywords for your chosen category in 2050: Populate the board
• Use images as prompt for discussion: what kind of future they evoke?

Take the Pill(s) (80-90 min)

•Research the Pill(s) using the reference material provided as a guide. Conduct own supplementary research.
•Continue populating board with relevant images, keywords and insights.
•Formulate a collective question to inform the development of a future scenario.
This can be a research question, a design question, a question for the future…
•Add one or more Prompts from the Prompts deck to insert extra filters and constraints

UNIT 05 - FUTURES PHILOSOPHICAL PILLS

ACTIVITY

Build your future scenario (120 min): Develop your storytelling; think who, what, when, how, why. Be specific. Synthetise your proposition for group presentation followed by discussion. [see Unit 7]

Task/Assignments:

•Research and produce a Visual essay/sound piece/or other media agnostic intervention
•Produce annotated bibliography + design precedents examples as support to research

Facilitated activities

Flipped classroom: the workshop detailed above to be facilitated before the talk on futures

*All activities described are meant to take place remotely using collaborative working platform (e.g. Miro)

TOOLS AND DEVICES

For the beginner learner (with no background knowledge of philosophy):

Experiment with using the Pills in combination with Self-reflexive activations, and support research through the Lexicon activity no.3

IDENTIFYING FUTURES DESIGN TERMS

HERE
HERE
AND HERE

For the more advanced learner (with some knowledge of philosophy):

Deepen the understanding of key terms through the following Lexicon activities:
•Reflexicon
•Neologiser
•Chimera

Activate emerging interpretation through:

• Atlas of Weak Signals

Expand the directions of research and potential intersections with practice through the Framing Signals activities

• CIPHER
• PESTLE
• VERGE
• FUTURE FORCES

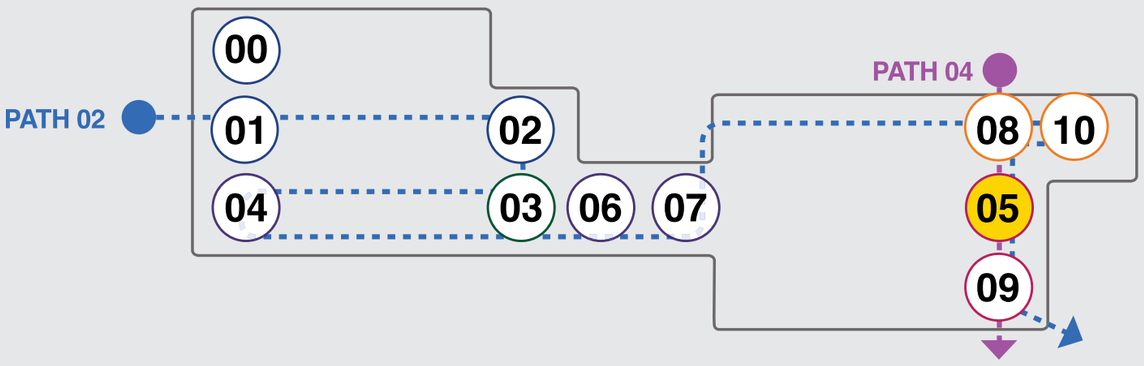
CASES AND EXPERIENCES

Case title: Hybrid Futures Hackathon

Short descriptions: The Hybrid Futures Hackathon took place during the Digital Innovation Season – a series of talks, lectures, events and technical skills workshops bringing together critical thinking and creative expression around the theme of human-machine encounter at Central Saint Martin UAL (October 2020-January 2021). Facilitated and delivered entirely remotely, the Hybrid Futures Hackathon was designed as a platform for community-building, exchange and cross-course learning for UG and PG students engaging with the key themes of the season [How can we re-imagine human-machine encounters?]. A selection of Pills (Animism; Counterfactuals; Decolonization; Heterotopia; Post-Anthropocene; Superstition) were prescribed to mobilize students' different expertise, locate a shared theme/research question, and as a gravitation point to form the hackathon teams with the final objective to land on a research question which would inform the production of short video submissions.

The Pills proved highly versatile as they performed a variety of functions: icebreakers, brainstorming devices, critical lens for the production of the research questions. The Hackathon had a total of 40 participants, with 9 competing teams, 6 shortlisted and 4 winners. Produced by international teams working across several subject disciplines, nationalities and time zones, the videos were showcased during the Hybrid Futures symposium which concluded the season, vividly illustrating, anchoring and counterpointing the debate.

ROADMAP AND CONNECTIONS



The yellow color indicates the position of the current Unit.

UNIT 05 - FUTURES PHILOSOPHICAL PILLS

UNIT CONTENT

The Philosophical Pills use a transdisciplinary and transversal perspective to articulate call philosophy-in-action or practical philosophy (Deleuze 1988). The key characteristic of this approach concerns working at the hinge of the speculative and the pragmatic so to develop intellectual interrogations that can scaffold tangible design-led interventions which in turn are able to feedback on to speculation. It's important to stress this point: the speculative and the pragmatic are not opposed to each other: pragmatic doesn't mean practical as opposed to speculative or theoretical. Rather, we talk about speculative pragmatism (Massumi 2011): how to stay open to invention and future making (speculative) while staying with what is happening, the now, and figure out ways (methods) to enact this (pragmatism). The 'how' is crucial. It means that philosophy in action is in the business of activating ideas through prototyping techniques that engage with what does not exist yet, that turn uncertainty into modes of knowing, that use uncertainty as an opportunity to create meaning.

The Philosophical Pills are critical lenses to furnish design educators and design students alike with theoretical tools to amplify their capacity to think about possible futures, diagnostic devices to cultivate imagination and introduce different non-existent futures into the present in order to shape practice. This again is a crucial point: to connect these anticipatory skills to design – and design's many ways of seeing, interpreting and enacting the future.

Consolidate into two distinct decks of cards, the Philosophical Pills offer 40 concepts. For each of them a short introduction is available together with key reference texts – written thinking about an audience of design students. While all these terms belong to a repository of concepts that we can use to articulate multiple versions of the future, at this stage this is highly situated work which draws largely on European thought (process philosophy in particular)

Why Pill?

The metaphor of the 'pill' should be read in two ways. On a first immediate level, the pill suggests that these philosophical ideas are like active ingredients, they possess curative properties, they are easily digestible, produce tangible effects, and can be prescribed as fast, reliable, effective and targeted cure to assist design students with their inquiry. The second layer evokes the 'pharmakon', which in Greek stands for both medicine and poison, something that according to dosage and mode of intake can be either beneficial or disruptive.

The ambivalence inherent in the act of 'taking the pill' – where curative properties coexist with side effects or even with the risk an overdose, and where the remedy may turn to poison – is an appropriate metaphor that reinforces the methodology and the ethos of using a practical philosophical approach that interrogate futures by staying with uncertainty, and indeed turning uncertainty into a material to work with.

The ethos

The Philosophical Pills use chance-based interrogations into the unknown to generate opportunities to make meaning, create inspiration and build knowledge. This 'divinatory' ethos is embedded in their method of use. By the random selection of one (or more) Pill card and of several Prompt cards users are able to build a random transversal collection of insights, ideas and references. The way these insights resonate with each other, producing further thoughts, is a combination of the 'chance-based' together with the individual engagement of the participant – and interpretation – co-production. Your own way of interpreting the cards that chance has served you, and the content each card has to offer, become a narrative journey to help you reflect critically

UNIT 05 - FUTURES PHILOSOPHICAL PILLS

UNIT CONTENT

on your design practice and its future orientations.

This chance-based method is significant for a number of reasons
·It is based on a radical openness to what the future may (or may not) bring, thus counteracting ingrained risk-averse tendencies to predict, control, and prepare for the future (futureproofing).

·It disrupts established academic research by leading the participant through an 'unchosen' path where serendipity trumps intention, and where you are called to co-create meaning

·Finally, it wants to make a stand in favour of uncertainty and reclaim it from the rhetoric of contemporary capitalism where it is deployed (together with agility, resilience, mobility, flexibility) as a mode of anxiety-inducing neoliberal governance

Put differently, the Philosophical Pills are a response to the challenge of conducting inquiry when conditions are volatile, times are turbulent, and complexity increases. How do we attend to the multiple instabilities and contingencies of a world in continuous transformation, and how do we capture this unfolding of events within our inquiry? What kind of conceptual frameworks and methodological practices can be used to engage with becoming and all the mess it entails? The Philosophical Pills offers a possible way: by firmly knitting together theory and practice, thinking and making, design and philosophies, the speculative and the pragmatic.

This is not only a methodological but also an epistemological shift: from seeing inquiry based on the analysis of data (and the assumption that data are raw and mute and will acquire meaning only by external coding) to seeing inquiry and knowledge-production as 'diffractive' (Barad 2007) – rooted in the entanglement of theory and practice, of researcher and research, speculative and pragmatic, and in the awareness that as researchers, educators, practitioners we are never external observers but always implicated with the research we are co-producing within the flow of events. Seen in this way, the Philosophical Pills are an experiment in post-qualitative methodology: a way of doing inquiry that capitalizes on the unknown as a field of potential, rather than imposing a blueprint (St Pierre 2019), and an instance of "serious play of rigorous experimentation" (MacLure 2020) through which uncertainty finds its way into the frameworks and methods of research to produce creative encounters with the unforeseen (Manning 2015).

To sum up, the Futures Philosophical Pills we have produced help to imagine and enact a plurality of futures by design. They are

· Philosophy-in action: working at the hinge between the speculative and the pragmatic.
· Transdisciplinary: Devised by a hybrid team of theorists and designers with design practitioners in mind
· They pertain to post qualitative inquiry – based on understanding becoming
· They do meta-inquiry: they use the unknown to capture the unknown
· They are diagnostic devices: to decode the present as it morphs into futures

Crucially, while they concern futures, they are "not about predicting predicting, but being attentive to the unknown knocking at the door (Deleuze 2006, 346)

1: Interrogating Futures (tutor's content)

01. Introduction: Narratives of the Future
In this section students learn about different viewpoints and perspectives that can be used to describe "the Future". This section introduces a range of ideas (from western and non-western cultures, and from other fields such as science, physics and ancient philosophy) and definitions of key terms (imagination, anticipation, speculation). The aim is to offer learners a broad understanding of the many ways in which the things called 'future' can be conceptualized and constructed culturally.

02. Why do we need Philosophy?

This section explains the methodological approach underpinning the Philosophical Pills and its philosophy-in-action ethos. It explains the notion of the 'pharmakon' (the idea that something can be both remedy and poison); it positions the Philosophical Pills within post-qualitative modes of inquiry concerning the process of becoming (rather than the essence of being) and methodologies fit for a world that is continuous (rather than discrete), uncertain (rather than determinate) and volatile (rather than predictable).

03. Working with Uncertainty

This section deepens students' understanding of uncertainty (e.g. from physics, risk management, philosophy, epistemology) and suggests ways in which it can be used as a material to work with, including the awareness of the limits of one's one knowledge. Two trajectories are offered: negative knowledge (the knowledge of the boundaries around unknown objects of research); and conjectural knowledge (knowledge that allows for elements of chance and unpredictability to enter the outcome).

04. What are the Philosophical Pills?

This section explains in detail what the Philosophical Pills are: a series of curated philosophical insights to interrogate and challenge established approaches and assumptions around the future and catalyze research. It explains how the Philosophical Pills came to be, and the key purpose of doing philosophy in action by scaffolding the development of design propositions through the means of selected philosophical concepts with the aim to amplify, disrupt and expand existing visions. The broad objective is to push students outside their received notions, prompt them to question and justify their choice, and build increased awareness around the social construction of collective future imaginary, so that they can be exercising a more fine-tuned sense of agency and openness in relation to possible futures.

05. The decks

There are two decks of cards: the Pills deck and the Prompts deck – each containing 40 cards. By combining cards from the two decks participants can create a number of chance-based, situated 'readings', where the philosophical terms (Pills) intersect with directives, questions, provocations and nudges (offered by the Prompts). This process has been designed to open routes for adventurous thinking, conceptual exploration, and playful philosophy-in-action to amplify and disrupt the speculative-pragmatic hinge and inform design practice.

2: Taking the Pills (workshop) - see above section 06 for details

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FUTURES LITERACY METHODS

UNIT 06
SCENARIOS GENERATION

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DESCRIPTION

This unit introduces the concept of scenario generation in Design Futures. It provides Educators with the theoretical basics of scenarios, their aims and rationale. The unit explains the basic pillars of scenarios reflecting on their impact and readiness for development.

The unit is divided into four sections. The first one is defining scenarios as terminology in design futures, the second is the relevance of scenarios to design futures, and the third is the typology of design futures. The last part is the positioning of scenarios within the design process.

This unit is concerned with the theoretical framework of scenarios. While unit 7 “Scenarios’ development” is concerned with Scenarios as a process. This unit answers What and Why Scenarios while unit 7 tackles How scenarios

AIMS

The aim of the Scenarios units (unit 06 and unit 07) is to help students build the necessary knowledge needed to develop design scenarios. That aims of this particular unit as a theoretical foundation to scenarios is to

1. Supports you in identifying scenarios’ structure and foundational pillars. The purpose is to gear students with the basic elements of scenarios as a structure so that they reflect on their design researches or projects.

2. Identify the different types of design futures scenarios.
The aim is to provide a pool of possibilities and different typologies of design scenarios. What type is relevant to what purpose? When should a specific type be used instead of the others?

3. Learn how to generate design futures scenarios. Synthesizing the gathered future intelligence and putting them into

COMPETENCIES

Anticipatory Competency
The unit develops competency and skills for students in anticipating futures. It develops skills in understanding possibilities and projected timelines through scenarios generation.

Strategic Competency
Scenarios generation and futures trajectories help students to build strategic thinking skills and understanding of complex future situations.

Critical- thinking Competency
The unit develops critical thinking skills by unpacking and reflecting upon future possibilities. Scenarios encourage students to break down the elements of the present, identify patterns and project possibilities.

DEPTH OF DETAIL

LEVEL 01 – BACHELOR

Scenarios can be implemented in Design futures bachelor courses in order as contextual platform to position design projects within.

LEVEL 02 – MASTERS

In master’s level, scenarios can be used to tackle complexities of future issues in order to develop students’ awareness about global challenges.

LEVEL 03 – PhD

In PhD activities, scenarios can be used as a tool to envision possibilities, test it with experts or target users as a way to build knowledge through reflection on possible futures scenarios.

EXPECTED LEARNING OUTCOMES

A. Knowledge and understanding	-Understand the notion of design scenarios -Identify the different types of scenarios and use them adequately within the needed design process -Understand the concept of futures plurality and alternative futures.
B. Cognitive Skills	Develop the intellectual skills of anticipation and speculation for alternative futures scenarios.
C. Practical Skills	Learn how to generate scenario in a design project.
D. Generic Skills	-Understand speculative scenarios and design fiction proposals
E. Collaborative Skills	-Develop co-design and collective thinking skills about the futures

ACTIVITY

Activity A | Future Metaphors

Description: An activity developed by Draper Kauffman (1976) to orient students to futures thinking.
The basic concept of understanding futures is very ambiguous; and in many cases unclear to students. This exercise helps students to seeing the different and conflicting meanings of Futures as a concept.

Aim: Reflection and identification what does the word “future” mean to each one
Generating a discussion about the futures and how do we tackle future challenges
Understanding the plurality of futures

Method: Give students 4 metaphors of the future and let them try to interpret and reflect upon them the 4 metaphors are:

01- Future as a Roller Coaster on a moonless night: It moves in the dark, we can see each part as we come to it, we can see some parts of where we are heading to, but it doesn’t help as the future is predetermined an fixed over the path.

02- The Future is a mighty river: the force of the history flows without stop, carrying us with it, we attempt to change, but our attempts are just pebbles thrown in this river, they cause momentary splash and few ripples. But no difference. The river can change the path but only by natural disasters or massive concerted human efforts. By looking ahead, we can see sandbars and whirlpools and we can push the best path through any rapids.

03-The future is a Great Ocean: There are many possible destination and different paths for each destination. a good navigator takes the advantage of current changes, moves carefully in frog or uncharted waters. Adapts his course to the winds of chance. This ensure getting safely to your destination.

04-The future is entirely random: Every second, millions of things happen which could have happened in other ways and changed the future. Since everything is random, all we can do is to play the game, pray to the gods of fortune and enjoy what good luck comes our way.

Ask questions about:

Which metaphors best describes your idea pf futures? Which one is the most valid or realistic? What would be the consequences of one of the metaphors? What are the implications of on society assuming that truth of one metaphor instead of the others? Can one of them be right or wrong?

Activity B | Identifying polarities

Description: Use the gathered trends, signals and gathered insights about the futures in creating futures
Starting from the horizon scanning to identify issues and polarities of the polarity mapping. The polarity mapping is a way to generate scenarios by understanding the main drivers of change in around the issue under investigation. The polarity mapping tool is used to identify scenarios by creating four contrasting scenarios in regard to the high uncertain/high impact drivers.
Aim: Recognize and describe the future directions and polarities of particular issue under investigation.
Duration: 3-5 hrs.
Method: Please refer to IO4 Futures Design toolkit Polarities mapping

TOOLS AND DEVICES

Activity C | Four Archetypes

Description: Developed by Jim Dator, The 4 Archetypes is a method used to identify the uncertainties of the futures. It helps to investigate the assumptions about the direction of the future in regard to particular drivers of change. The 4 Archetypes are:
Grow, Collapse, Discipline and Transform.

Each one of them resembles a particular path the scenarios might be go.

Aims: Understand the plurality of futures
Generate different scenarios
Duration: 5-7 hrs
Method: Please refer to 4 Archetypes IO4-

TOOLS AND DEVICES

- **BRANCHING**
- **FUTURES WHEEL**
- **POLARITY MAPPING**
- **FOUR ARCHETYPES**

CASES AND EXPERIENCES

POFF: PoliMi Futures Fictions.

Polimi futures fictions is part of the concept design studio for master’s students of integrated product design at Politecnico di Milano

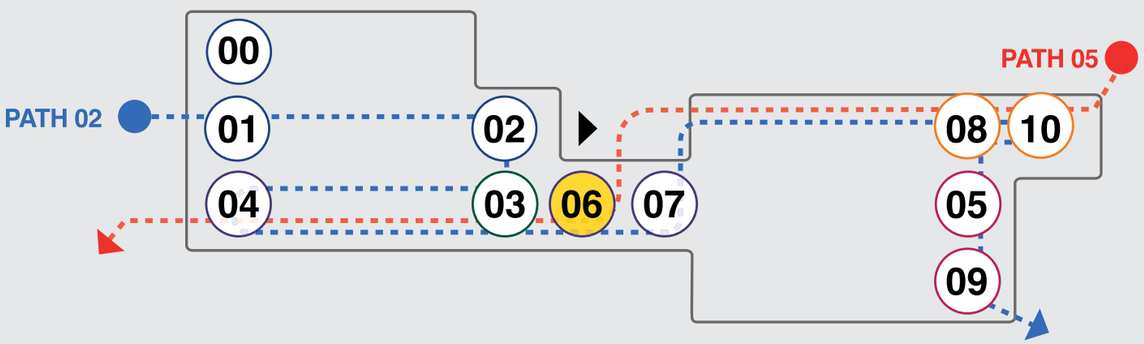
the aim of concept design studio is to stimulate the students for the definition of a product/service concept and scenario, valorize the experience and creative dimension.
The course – placed at the beginning of the Concept Design Studio – had the objective to open the envisioning capacity of the students. The course has adopted a Research through Design method in the conviction that the activity of designing artifacts (more or less consciously) is a way of learning and this – in a meta-knowledge system – is a way to uncover, or better let insights and new concepts emerge, the different steps of trend research and scenario building had initially triggered the student’s ability of exploring frontier topic and future perspectives through some specific tools and techniques. Rough prototypes have been developed and transformed into ‘performative artefacts’ or the so called ‘diegetic prototypes.’
The results are narrated through Design Fiction: a short movie’s narrative structure contextualizes new concept technologies with the futures’ social sphere.

Students worked in teams of 10 members over the course of 5 weeks that led to a future product concept for each team:

Challenge 01: Horizon Scanning; Challenge 2: Framing Signals; Challenge 03, Building Scenarios and Personas and Challenge 04: Design Fiction

Tools from the Futures Design Toolkit have been used and tested in PoliMi Futures’ Fictions course to test and evaluate the toolkit.

ROADMAP AND CONNECTIONS



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UNIT CONTENT

01. What is a "Scenario" in Design Futures?
Definition, positioning and introduction to the unit

This section is concerned with what does the word "scenario" mean in design futures practice. The aim is to disambiguate the meaning for students and to facilitate the understanding of scenarios as a pillar in design futures practice.

Scenarios were originally developed to imagine possible visions of the future so that they be used as a tool for decision making and to map the possible implications and consequences of particular decisions (Wack, & Shell, 1970; RAND). Scenarios are built on constructed plots, at which the future can be imagined and experienced (Schwartz, 1991), they can be the representation of a future vision and they can answer the question of "what would be if?" (Manzini & Jegou, 2000). They are an elaboration of meta-projects in the form of storytelling.

Scenarios can call the attention in a persuasive and dramatic way to the wide probabilities and possibilities of the futures that can or might be considered. They accentuate and highlight the interaction between the psychological, social, economic, cultural, and political factors. Scenarios can be used as artificial "case histories and "historical anecdotes" to make some instances of situations that don't or didn't exist. (Kahn, 1967) Scenarios can be considered as a bridge between the analytically oriented foresight or planning and the creative visons of the future (Celaschi,2007). This is the intersection between design studies and futures studies where "design futures" as a practice lies.

02. Disambiguating the term

When it comes to scenarios, there are many interpretations that often gets confused with each other and sometimes used interchangeably. This section aims to showcase some of the different definitions for scenarios. The aim is to further the knowledge and understanding of the students about what does a scenario really mean.

UNIT CONTENT

A list of different definitions in a chronological order might be needed to distinguish the differences as follows

AUTHOR	DEFINITION
Howard et al., 2002	"Scenarios are 'sketches' of use that capture the context within which a system is used, the human actors involved and their objectives, the sequence of relevant actions and contingent outcomes. Though they can take many forms (e.g. storyboards, formal symbolic representations) typically they are encoded as textual 'vignettes', capturing a few moments in a user's life."
Ogilvy and Schwartz, 2004	"Scenarios are narratives of alternative environments in which today's decisions may be played out."
Kok, 2009	Scenario is "a story about the future that can be told in both words and numbers, offering an internally consistent and plausible explanation of how events unfold over time."
Goodier and Soetanto, 2013	"A scenario is a storyline comprising a range of interconnected and uncertain future events and their possible consequences.
Lelah et al., 2014	Scenarios are descriptions of possible futures that reflect different perspectives on the past, present and the future in order to improve the quality of decision making.
Celaschi, 2007	Scenarios are the elaboration of meta-projects in the form of storytelling, of one or more possible futures, aimed at defning the trajectories of innovation to conceptualize at the stage of product development. In the design world, scenarios are generally elaborated by maps, in a graphic format, which create a sort of topographical representation of innovation allowing, through the interpretation of strong and weak signals, to trace the trajectories of the project

03. Introduction to scenarios as a tool for explore futures plurality
The relevance of Scenarios as a tool for design futures

This section aims to position scenarios as a practical tool to be used in generating alternative futures. The plurality of futures and developing possible alternatives is an essential skill in design futures. In this section, students will learn how scenarios can support in the understanding of plural futures.

According to Manzini and Jégou (2000), Design oriented scenarios as a framework for "design and realization of new products and product-service systems" . In this framework scenarios can be developed on either an inductive or deductive approach, whether students can start from
a) Inductive: By developing scenarios from the gathered intelligence, signals, and trends of the future. Then, these collected knowledge can be segmented and clusters on the polarities map for example (see IO4- in Annex 01)
or b) Deductive: Students can start from the polarities created to develop scenarios on a selected polarization based on the project.

04. Elements of scenarios
Foundational pillars and structure of scenarios

In this section, students will learn the foundational pillars and structural elements of a scenario, how scenarios are formed? What are the main elements connected and how they are connected? Students will also learn what elements consolidate a strong and consistent design scenario.

Scenarios consist of several key elements that exist in one form or another in the various methodologies adopted that can be adopted in an educational sense. The basic idea behind scenarios is to collect the relevant information from a vast and wide

UNIT CONTENT

range of resources, then to interpret segment and organize this gathered intelligence in a meaningful and understandable form which is inform a future proposition in design. (Fahey & Randall 1998)

Evans (2003) constructs the basic elements as follows:
Current world: based upon data gathered from scanning of information forum the sources
Plot or story: what must happen for the scenario end state to arise
End State: The conditions and circumstances that prevail at the end of the scenario period
Logics: the explanation or rationale for the content of the plot

05.Rationale and purpose in design futures
The aims of creating a scenario and rationale behind it.

This section explains the rationale behind design scenarios, and the purpose of developing scenarios within a design future educational module. In what cases to use and for which objectives.

Scenarios can be used in the design driven process to present alternative and plural scenarios as well as presenting disruptive vision of strategy, product, or services:

Zindato (2016) introduced the following aims and rational for design scenarios

• To present a set of alternative futures, with their implications, opportunities, and risks
• To support and orient the decision-making process
• To involve all the actors in the same process using a common language
• To obtain a convergence towards the same option
• To analyze different stage of the process, from a context to a product.

06.Different types of scenarios
Typology of scenarios in relevance to design purpose

This section explains the different types of scenarios, what type to be used in which context and for which purpose. The aim is to provide you with the essential understanding about the different typology of scenarios.

Exploratory Scenarios

Exploratory Scenarios aim to identify new areas of opportunity, explore alternative futures. They are often used in as an answer to the enquiry of “what is there?”

Strategic Scenarios
Strategic scenarios are the type that can be used at preliminary stages of the design process, at this preliminary phase, scenario developers can put context and direction to where a design project can be directed or where it should stand.

Opportunities Scenarios
Opportunities Scenarios are a type of scenarios that has double role, one role is to create a filter through which one can identify possible trajectories of innovation for products or services. The other role is to be developed as a tool to communicate design thinking process and to re-orient decision-making process

Concept Scenarios
Concept Scenarios are the most popular type of scenarios. In design, concept scenarios can be developed to showcase a product and service as well as showcasing the context around it. It makes it easier for target audience to understand the scenarios, it makes it digestible and understandable.

Focus Scenario
Focus scenarios can be used to define a particular path, agreed-on by the stakeholders and selected by the designer, it

UNIT 06 - SCENARIOS GENERATION

UNIT CONTENT

aims to define one path rather than focusing on alternatives. It aims to explore and define one context.

Testing Scenario
Testing Scenarios are the scenarios used to hypothesize and probe about a particular concept, solutions, usage, or function. It aims to test several alternatives or different scenarios so that th end users might be involved.

07. Scenarios within the design process
Positioning of design scenarios within the design futures practice.

In this section, you’ll understand how scenarios can be positioned at the different stages of the design process. You’ll also learn the different ways to use scenarios in a design project and how to situate it flexibly as per project objectives. Scenarios can be positioned within the design/research process at six different stages:

A. Before problem (enquiry) definition
B. During problem(enquiry) definition
C. During the definition of opportunities and trajectories of innovation
D. After concept generation
E. After electing possible solutions for product development
F. During the testing phase

While structuring the course, educators can suggest the positioning of scenarios in the overall process. Different types of scenarios can be placed as educational activities and exercises during the design process. (e.g in design fiction, students can use exploratory scenarios in the beginning of the process while they can create a concept scenario as the foundational basis of the design fiction video)

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UNIT 06 - SCENARIOS GENERATION

FUEL4DESIGN

FUEL4DESIGN

Co-funded by the
Erasmus+ Programme
of the European Union

FUTURES LITERACY METHODS

UNIT 07
SCENARIOS DEVELOPMENT

Co-funded by the
Erasmus+ Programme
of the European Union

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POLITECNICO MILANO 1863
DIPARTIMENTO DI DESIGN
ELISAVA
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ual: university of the arts london

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DESCRIPTION

This unit is concerned with scenario development in design futures. The unit furnishes educators with practical and speculative techniques to develop a plurality of visions through scenarios. It introduces the tools to understand how to implement, use and narrate design scenarios. This unit should be connected with Scenario Generation (Unit 06); In which Scenarios are explained in terms of theory and rationale. While in this unit, scenarios are introduced and explained in terms of the methodological framework.

AIMS

The aim of this unit is to introduce the methodological framework of developing design futures scenarios, it furnishes educators with tools, devices and directions that would support them in formulating developing their courses. Aims can be summarised as follows:

1. To explain how to develop design futures scenarios. Explaining to students how to frame scenarios and to connect them with the horizon scanning exercises (unit 03).

2. To provide educators with tools and devices to be used in developing scenarios. Furnish educators with the extra tools and devices to facilitate scenario generation in design future courses

3. To explain how to transform scenarios from verbal to visual
Focusing on the process of taking scenarios from its literal nature to visual and visceral design output. The purpose is to gear educators with the basic elements needed to facilitate scenarios development activities.

4. To introduce Speculative design and Design fiction scenarios as alternative futures practices. The purpose is to accentuate and highlight alternative scenarios typologies of critical nature such as “what if” scenarios the aim is to highlight implications and consequences of present actions and events.

UNIT 07 - SCENARIOS DEVELOPMENT

COMPETENCIES

Anticipatory Competency
The unit develops competency and skills for students in anticipating futures. It develops skills in understanding possibilities and projected timelines through scenarios generation.

Strategic Competency
Scenarios generation and futures trajectories help students to build strategic thinking skills and understanding of complex future situations.

Critical- thinking Competency
The unit develops critical thinking skills by unpacking and reflecting upon future possibilities. Scenarios encourage students to break down the elements of the present, identify patterns and project possibilities.

DEPTH OF DETAIL

LEVEL 01 – BACHELOR

Scenarios can be implemented in Design futures bachelor courses in order as contextual platform to position design projects within.

LEVEL 02 – MASTERS

In master’s level, scenarios can be used to tackle complexities of future issues in order to develop students’ awareness about global challenges.

LEVEL 03 – PhD
In PhD activities, scenarios can be used as a tool to envision possibilities, test it with experts or target users as a way to build knowledge through reflection on possible futures scenarios.

EXPECTED LEARNING OUTCOMES

A. Knowledge and understanding	-Understand the concept of futures plurality and alternative futures. -Learn how to transform scenarios into a design output.
B. Cognitive Skills	-Develop the intellectual skills of anticipation and speculation for alternative futures scenarios.
C. Practical Skills	-Learn how to develop and generate scenario in a design project. -Create fictional persons and position them in design futures projects
D. Generic Skills	-Understand speculative scenarios and design fiction proposals
E. Collaborative Skills	- Work cooperatively in generating futures vision building on shared knowledge and cultural differences.

ACTIVITY

Activity A | Scenario Timeline

Description: Building a timeline for sequential possible events (ones are prospective, some are fictional and some are consequences of present events or occasions)

Aim: To understand how plural futures can be formed by consequences and implications of particular events.
To formulate a coherent scenario that is built over a time period

Method:
1. Define the timescale (how far in the future)
2.Segment and organize the outcome of the horizon scanning activities and place them on the timeline (Unit 03)
3.Develop the evolution of trends over time by highlighting, events, implications and consequences.
Duration: 6-8 Hrs.

Note: Educators can give some constraints and leave others

Activity B | Scenario Building Canvas (IO4-11) See Annex

Description: Scenario building canvas is a device that can be used to support writing design scenarios fluently and translate them into visuals. The structure of the canvases uses five pillars (Immediacy, Sensoriality, Provocation, Consistency, and Coherence) these pillars facilitate scenario development process.
Aims: Developing coherent and consistent design futures scenarios.
Breaking down the elements of scenario and turning them into visual elements.

Method: See Scenario section in the Futures Design toolkit here

Students should be encouraged to use visual material in describing the notions in the scenario canvas, this includes (Sketches, images, material boards, film, and rough prototypes)
Duration: 10 Hrs.

Activity C | Future Personas

Description: Time traveler helps the team to develop profiles of the future by relying on current evidence and historical facts. The resulted profile is deeply grounded in reality. This tool helps you to create a persona that evolved over time and helps you to mark important events in the persona's life.

Aims:
The aim of future persona is to further deepen the scenario through the creation of a fictional character that is situated in a specific point over the developed scenario timeline. The purpose is to contextualize this particular point of time and to imagine how the persona world would look like in detail.

Method:
See Future persona section in the futures design toolkit here
Duration: 6-8 Hrs.

TOOLS AND DEVICES

• SCENARIO CANVAS

. STORY WORLD

• TIME TRAVELER

• A DAY IN A LIFE

• PALMISTRY

CASES AND EXPERIENCES

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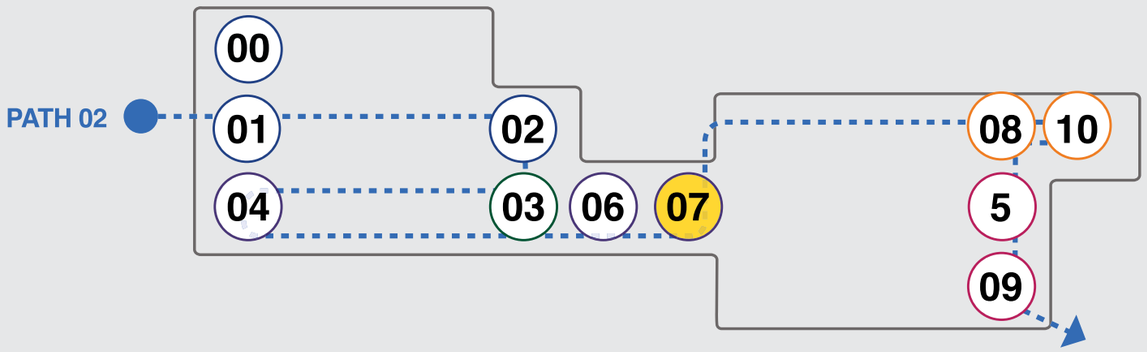
ROADMAP AND CONNECTIONS



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UNIT CONTENT

01. Scenario building process

Scenario generation & development structure and phases
This section is explaining how to build and develop design scenarios. Where to start and what to include. Besides this, it introduces the essential steps to formulate a scenario.
The different modes of building scenarios are varied and can be selected by the educator based on the design project or design brief.

Scenarios are originally created in the Futures and Foresight studies. There are numerous Scenario planning methods that are proposed in order to methodologically create a framework for scenarios' development. For instance, Rowe and Right (1999) developed a Delphi method that includes several expert interviews to take opinions and validate insights which can then be complied in a scenario. Another example is the TAIDA method which indicated five steps for building scenarios: Tracking, Analyzing, Imaging, Deciding, and Acting (Lindgren and Bandhold, 2009). A different example would be the method developed by (Wright and Cairns, 2011) which introduces scenarios as a co-operative work which can be carried out in a group. The steps to develop scenarios in this case is to focus on sequential process to define an issue of study, then to creating a scenario timescale. After this scoping and then the last phase is to develop the scenario.

To conclude, Scenarios as a generic process can be summarized in the following generic structure according to Cornish (2004):
"(i) studying the facts of a situation,
(ii) selecting something that might happen, and (iii) imagining the various ways for that development to occur and the sequence of events that it might follow"

Scenarios do not attempt to reshape the present but rather they "provide distinctive turning points from which to study how particular events, situations or occasions are happening and what forces are shaping the evolution and development of such events. Why might they evolve one why this way rather than the other way? (Fahey, 2003)

Scenarios as Visioning

Scenarios as visioning exercise is used to identify set of future alternatives, rather than a univocal one. This is relevant to back-casting (Voros, 2003) where the trajectories can explain and reveal many insights about the creation date of scenarios rather than the target date (List, 2004).

In his book "A Noticer in Time" (2019), Jim Dator defines Scenarios as (Alternative futures). He puts these components as futures visioning process:

1. Appreciating the past
2. Understanding the present
3. Forecasting aspects of the futures
4. Experiencing Alternative Futures
5. Envisioning the Futures
6. Creating the futures
7. Institutionalizing Futures research

For Dator, Scenarios (or Alternative Futures) are usually developed to help a community or organization to plan forward and move towards a preferred future (Dator, 2019)

Scenarios as an ongoing process
Elenora Masini (2000) discuses that drawing scenarios is an ongoing process, it's a continued quest for data to compare "perceptions with reality". This process needs all the participants to thoroughly explore the existing knowledge, trends, and weak signals. Critical reflection is essential taking care not to reproduce the present or the status quo. The process of formulating scenarios needs imagination, with a balance between the factors and parameters to make sure that the analysis is rational, and the scenarios interests are validated collectively.

02. From verbal to visual

Turning written and verbal scenarios to digestible design output

This section presents the process of turning the developed scenario into a visual output. Turning scenarios into solid and visually understandable material is an essential skill for designers to communicate scenarios. This is a foundational element for creating discussions and conversations around the developed scenario.

Using visual elements or metaphors in Scenarios is central to make the scenario memorable and understandable. For some practitioners, the starting point can be the visual representation of the scenario which they use as a method to create the transition to the scenario world (Flowers, 2003)

Other ways to present ideas and to find inspiration through art, film, science fiction and some fiction works. This helps in hybridizing, exploring, and borrowing some other visual references from other adjacent arenas. In design, turning scenarios into a visual communication tool is fundamental. The elements of scenarios can be represented visually by

a- Illustration of specific events/occasions over the timeline of projected scenarios
b- Visual research of relevant references, keywords and concept of the scenarios being developed
c- Collages of materials and textures to tangibilize scenarios
d- Infographic representation of projected statistical data
e- Scenarios as clusters of images
f- Scenarios as storyboards

In FUEL4 Design, we developed a device to facilitate developing scenarios. This tool can be combined with visual metaphors along with the literal or verbal description of the scenario, it's divided into five sections as follows:

IMMEDICAY: The scenario should be understood quickly, its meaning must be unique, non misleading, and engaging. The images must be strongly evocative, vivid, must be both rapid and icastic (Calvino, 1988)

UNIT CONTENT

SENSORIALITY: Images and words that make up a story should be able to produce

certain effect to provoke emotions, evoke sound or tactile through the combination of various elements: cutting, framing and juxtaposition of contents emphasize meaning.

CONSISITENCY: A scenario can often be hard to believe, sometimes for the very distant horizon, sometimes to the “disruptive” effect that wants to produce. If it is oriented towards a future dimension is not important that it is probable, but plausible.

COHERENCE: The scenario must always show its internal consistency. It is possible to decontextualize the use of a service from one place to another but at that point the whole narrative must comply with the new choice.

PROVOCATION: The stories should fascinate the audience and persuade it to act in relation with the long-term goals, making people feel empathetic and then motivate you to adhere to the scenario. The scenario is much more effective when the narrative has the power to break stereotypes.

03. Speculative Design and Design Fiction scenarios

Speculation-led scenarios

This section explains the process of creating design scenarios by using speculation. It introduces the speculative-led futures scenarios that aim at activating the critical aspects in design futures. This section introduces speculative design and how and why criticality should play a role in designing futures.

The scenarios of Speculative design and Design fiction can be generally described by being “critical”: this doesn’t mean that it should be either negative or positive, utopian, or dystopian. They are characterized by being analytical, reflective, and comprehensive. (See unit 9 for further

explanation on critical reflections in design futures)

Scenarios lies the basis and the platform for creating speculative design or design fictions as they are the main building unit behind critical futures proposals.

Dunne & Raby the researchers who coined the term Speculative design define it as an activity where conjecture is as good as knowledge, where futuristic and alternative scenarios convey ideas, and where the goal is to emphasize implications of “mindless” decisions for mankind.”
The aim of speculative design is to explore the borders of the problem not to find a solution for the problem. It aims to explore the consequences and implications and to highlight them. Dunne & Raby accentuated that designers should “act as catalysts for public debate and discussion about the kinds of futures people really want” (Dunne & Raby, 2013).

Speculative design uses a “What if scenario” the purpose of a what if scenario is imagine possible alternative futures from a critical perspective. It aims to reshape the relationship with the future, it’s focus is to generate insights about future rather than materializing or visualizing products or service (Lukens & Disalvo, 2011) “It is not only to encourage contemplation on the technological future but can also provide a system for analysing, critiquing and re-thinking contemporary technology” (Auger, 2014)

Design Fiction
Design Fiction is an adjacent practice to Speculative Design. It is often defined as the “deliberate use of diegetic prototypes to suspend disbelief about change” (Sterling,

2012). In this, fiction plays the role of being a medium for enquiry, it is here “not

to show how things will be but to open up

a space for discussion” (Dunne & Raby 2013,). Besides using diegetic prototypes (which are prototypes that showcase the changed world not the fiction itself as it doesn’t tell a story), it uses media and video, to showcase and tangibilize the scenario, it forms a path between the today and the world that is create in the scenario. This makes the audience see the scenario as a believable possibility that might happen, thus provoking the debate and discussion about possibilities. Hales (2013) notes that Design Fiction uses “the power of media design to craft and deploy compelling visions of the future”

The relationship between Design and fiction evolved as an overlap between paths of (technology, art, science fiction (Celi and Formia, 2017), in order to find opportunities, for design, “to re-imagine how the world may be in the future”. Design fiction has the power to experiment with technology, science and situations that are yet to come, their aim is to “create a discursive space within which new forms of cultural artefact (futures) might emerge” (Lindley and Coulton, 2015)

Design fiction and its scenarios can be used in many cases in to showcase possible alternative futures. It can produce knowledge to by research through design approach (Coulton et al., 2016) it can also be included in the contextual research phases of some other design practices.

05. Personas
Creation of a scenarios-based personas

This section explains how to position personas in design scenarios. Educators might introduce the features of personas and how to create them. It also explains how to develop solid connections between the fictional personas and the scenario under development.

The creation of a persona can be situated in the projected scenarios. This is very crucial to make sense of the scenarios

from the eyes or perspective of a particular character (either human or non-human) this helps in seeing the scenario from a specific perspective(s). The actor in a scenario also helps in the creation of situations to be used in further applications of the design process (Provo-types or experiential futures for example)

Personas are “Fictitious characters that represent the needs and requirements of larger groups of users in terms of their goals and personal characteristics (Cooper and Reimann 2003; Cooper 1999; Pruitt and Adlin 2006).

Please refer to Futures Design Toolkit 12-15 for further explanation and assisting devices.

UNIT 07 - SCENARIOS DEVELOPMENT

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FUTURES LITERACY METHODS

UNIT 08
PROVOTYPES

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DESCRIPTION

This unit creates a space for students to explore the role of provocative prototypes (provo-types) in the shaping critical future visions of Designing Futures. You should draw upon examples of provo-types from cultural, economic, social and political arenas.

Provocation in design futures is used as a tool for critical reflection upon practice. Provocative prototypes can be introduced by educators to trigger the critical dimensions for design students. It encourages the arena of alternative design practices and injects the design process with other views about future challenges. Provo-types challenge user expectations; sometimes with intended “frustrating artifacts” to accentuate and highlight the issue of debate.

AIMS

This unit aims to furnish educators with the resources needed to use provo-types in design future courses. Provo-types can be used to trigger enquiries, provoke discussions, expose assumptions through making. provo-types can be introduced in design futures courses as Research-through-design activities.

1. Explain the notion of designing objects to trigger debates and provoke audience.
The aim here is to introduce the aspects and elements of a provo-type that facilities the probing processes through making.

2. Define the different types of provocative prototypes and their rational
Linking the purpose of a provo-type with the different typologies is essential for students to understand the goal a provoking through making as an activity.

3. Explain the process of developing a provocative prototype

UNIT 08 - PROVOTYPES

COMPETENCIES

This unit will provide competences on futures scouting:

- To gather intelligence about the future within the scope of the general topic or issue through a collection of signals that can be found in the present (trends, weak signals, drivers…).

- To frame these signals, organising and mapping them according to several layers, factors or forces shaping the futures.

-To situate signals taking an immersive approach.

- To identify and relate to trends, weak signals and drivers of change by positioning the students closer to the system they are working on.

- To use the processes above as relational approaches on the practice of futures scouting and be able to shift between the different modes to gain more insights and knowledge valuable for their future-oriented design projects.

DEPTH OF DETAIL

LEVEL 02 – MASTERS

Provo-types for master level students can be an essential tool to trigger debates, reflect on practice or deepen an issue for deeper understanding. They can be implemented in concept design studios taught modules as a terminal design output. They can also be implemented during research phases as probing artifacts.

LEVEL 03 – PhD

For PhD level, a provo-type can be implemented in a research through design approach. In a constructive design research paradigm, provo-types can be used as a tool to probe, test and create discourse around intangible and challenging design issues. Provo-type can be implemented in practice-based doctoral researchers.

EXPECTED LEARNING OUTCOMES

A. Knowledge and understanding	-Understand the notion of Provo-types -Identify the different types of provocative prototypes
B. Cognitive Skills	-Develop the intellectual skills of anticipation and speculation through making
C. Practical Skills	-Learn how to develop and generate provocative and diegetic – prototypes that are situated in the future
D. Generic Skills	-Develop making skills for future context
E. Collaborative Skills	-Develop co-design skills in making and discussing design future issues.

ACTIVITY

Activity A | Rough Provo-typing

Description: Develop rough and quick provo-types as a medium to discuss particular design futures issue. This can be one through any media or communication material. A product, a digital experience or even an advertisement.
Aim: To trigger and provoke discussion about a particular issue future issue.
Duration: varies according to course length
Method: Refer to IO4 Futures Design toolkit-Provot-yping
Rough provo-types (product, communication, advertisement, and paper models)

Activity B | Future Telling

Description: Acting a future situation by using the Provo-type. This might include outsider participants to be involved in the future-telling workshops with students.
Aim: use the Provo-type in a specific situation.
Method: Refer to IO4 Futures Design toolkit-Provo-typing
Duration: varies according to course length

Activity C | Future Filming (Design Fiction)

Description: Creating a Design fiction video that includes the developed provo-type. The video can be a situation or story about particular issues or activities.
Aim: Contextualize and situate the provo-type in the story world created in a video medium.
Method: Refer to IO4 Futures Design toolkit-Provotyping
Duration: varies according to course length

TOOLS AND DEVICES

1PP DESIGN INTERVENTIONS
HERE

PROVOTYPING
HERE

STORYBOARD
HERE

FUTURE TELLING
HERE

FUTURE FILMING
HERE

CASES AND EXPERIENCES

POFF: PoliMi Futures Fictions.

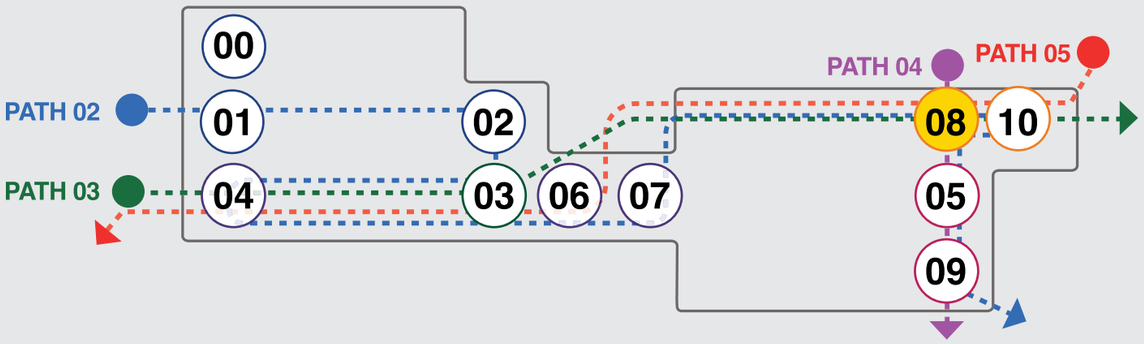
Polimi futures fictions is part of the concept design studio for master's students of integrated product design at Politecnico di Milano

the aim of concept design studio is to stimulate the students for the definition of a product/service concept and scenario, valorize the experience and creative dimension.
The course – placed at the beginning of the Concept Design Studio – had the objective to open the envisioning capacity of the students. The course has adopted a Research through Design method in the conviction that the activity of designing artefacts (more or less consciously) is a way of learning and this – in a meta-knowledge system – is a way to uncover, or better let insights and new concepts emerge, the different steps of trend research and scenario building had initially triggered the student's ability of exploring frontier topic and future perspectives through some specific tools and techniques. Rough prototypes have been developed and transformed into 'performative artefacts' or the so called 'diegetic prototypes.' The results are narrated through Design Fiction: a short movie's narrative structure contextualizes new concept technologies with the futures' social sphere.

Students worked in teams of 10 members over the course of 5 weeks that led to a future product concept for each team: Challenge 01: Horizon Scanning; Challenge 2: Framing Signals; Challenge 03, Building Scenarios and Personas and Challenge 04: Design Fiction

Tools from the Futures Design Toolkit have been used and tested in PoliMi Futures' Fictions course to test and evaluate the toolkit.

ROADMAP AND CONNECTIONS



The yellow color indicates the position of the current Unit.

UNIT CONTENT

Section 01: What?

01. Futures by Provo-Making

This section highlights the role of provocative design outputs in making futures visceral and tangible.
Provocative prototype or (provo-type) indicates a type of a design output that aims to open a discussion or a conversation around a particular issue of the future. It acts as a catalyst to provoke reflections from the viewers. It amplifies the issue under discussion through physical or digital means.

Theoretically, provo-type capitalizes on activity theory that considers external and internal contradictions of activities. In this view, contradictions or tensions can be considered as dialectical processes of change that, in turn, develops new forms of activity. The aim is to expose the issue in order to find other ways of doing, making or enacting social change (Boer & Donovan, 2012).

The relationship between provo-types and futures arises from the overlap between activities of investigation and new possibilities of design. Provo-typing lies in this intersection area and acts as a bridge between both sides. Provo-types expose and accentuate tensions around the area of investigation, the aim is to make these tensions explicit, so designers and participants can reflect and look at them from a different perspective(s).

Provo-typing can be “tools for creating meaning” (Disalvo, 2012) and evoking discussion by creating discursive space. Tharp and Tharp (2019) define key views for creating a discursive artifact. Provo-types can be seen from these five lenses:

Clarity: What is presented? is it clear or unclear on purpose?
Reality: Could the provo-type be technically feasible? is it connected to reality in a sense?
Familiarity: How familiar is the provo-type? would it be easy or intentionally difficult to relate to?
Veracity: Is this a true object, or a spoof? How truthful is this artifact?
Desirability: would this artifact be desirable or needed? Or an artifact that forms an undesirable

Looking at provo-types from those five

UNIT CONTENT

lenses, it’s apparent that provo-types are tools to deliver meaning. Malpss (2018) notes that this perspective is aligned with Krippendorff (2006) thesis that users build “situated meaning when they encounter artifacts”. In this case, the designer is the mediator who pilots how the provo-type should look like. Should it be clear or ambiguous, frustrating or satisfying? A rational object or a subversive one? These decisions depend on what meanings and issues does the project intend to achieve and deliver to the audience.

Provo-types and Diegesis

Provo-types in futures practice can be considered as a kind of a diegetic prototype. This is a term that came originally from cinema studies. David Kirby (2010) explained diegetic prototypes as unreal objects that depict scientific concepts in fictional worlds. (Celi and Formia, 2015)

Bruce Sterling, the futurologist who coined the term design fiction defines it as “the intentional use of diegetic porotypes to suspend disbelief in the future” (Sterling, 2005). From this premises, we can identify one role of provo-types to suspend the disbelief about futures, and to make use of a design object not only as terminal but as medium.

Another role of provo-types is to go beyond the mental models of the future. Gives users the chance to touch, feel, and interact with possible futures. It turns futures from verbal to visceral (Candy & Dunagan, 2017).

Diegetic provo-types

The word diegetic comes from diegesis. Coulton and Lindley (2016) define diegesis as the ‘world of the story’. The diegesis of a story is built from any element inside that specific story “world”. In this sense, if the actors in the story can hear or touch or feel this element, it can be diegetic. Any element

that can be called diegetic is “contextually consistent” with the other elements in its diegesis. “Diegetic prototypes don’t need to exist in reality and must only be consistent with their own diegesis”. These diegetic prototypes, allow the audience and viewers to be “situated” in the diegetic reality of the design fiction, and this makes diegesis to “situate via proxy” (Coulton and Lindely, 2016)

Provo-types can be part of the design fiction process. Explaining the rationale behind design fiction, Lindley and Coulton propose that they:

(1) are something that creates a story world,
(2) have something being prototyped within that story world,
(3) do so in order to create a discursive space.

A provo-type can be situated within this framework, where a provo-type can be considered a diegetic prototype to be situated in a specific story world.

02. Different types of Provo-types and purposes
Typology of prototypes in relevance to design purpose

A typology of a provo-types maybe extensive. As Candy and Dunagan explain (2017), Provo-typing are not exclusively restricted to futures situated of conventional design outputs such as a) Print, b) Concept images, c) Prototypes, d) Physical artefacts. It may also include any other medium or objects that might be created to evoke and think about possible futures. This can be extended into installations, mail art, advertisements, immersive theatre, guerilla intervention, digital simulation (VR/MR/AR) and games. Candy and Dunagan, 2017: P.137) elaborate that “Tangible, immersive,

UNIT 08 - PROVOTYPES

UNIT CONTENT

interactive, live, and playable modes are all in scope".

Post optimality and para functionality: Another dimension of the provo-type is the post-optimal and para-functional design output. Anthony Dunne proposed the concepts of post optimal and para functional design in his book Hertzian Tales (1999). The post optimal object is suggesting user-unfriendliness approach, this approach distances the gap between people and the object. It critiques the conventional functional and ergonomic uptake of the commercially driven design. The prefix para- explains the and suggests crossing the borders of and realms of functionalism and utility. This approach precludes the interaction and pushes towards interpreting the meanings behind the design object. Which is the purpose of a Provo-type. (Malpass and Maze)

Section 02: Why ?

05.Rationale and purpose in design futures
The aims of creating a provo-type and rationale behind it.

The ultimate goal of a provo-type is to encourage discussion, communicate ideas about certain issues of the futures and to provoke reflection of the audience (Bardzell et al., 2012) . It develops awareness, expose implications and consequences. Feeling futures can work as a catalyst in this process and turns to be an agent in social change. A more recent formulation of experiential futures practice; "the design of situations and stuff from the future to catalyse insight and change" (Candy & Duganan, 2017).

A provo-type is usually developed as a part of a critical or discursive design process, it operates byind the market driven deign enquiry. The goals of provo-types depend on the goals of the project and the purpose of the practice. For instance, If the project i s directed towards discussing a socio-political issue, so the artifact might follow an adversarial design approach, while a project that discuses an issue about technological futures might follow a speculative design approach.

The role of provocation here is intended to induce critical reflection. Tharp and Tharp (2019, P. 151) Identify the goals for discursive design project as follows:

Remind: Increase awareness of the familiar
Inform: offer new understanding
Inspire: motivate with positive thoughts and feelings
Provoke: Incite reactionary response
Persuade: Convince a position.

These goals can be reached through provo-types. Provo-types or discursive artifacts are part of the process -a central part - yet they are not the only element. They are preceded by extensive background research and scenarios development (check Unit 6 and 7). Both follow a design direction or approach as well as a thorough diegesis where the provo-type should be situated within.

Section 03: How?

07. Provo-type generation process

Making process of a futures prototype
How can a prototype tell a story?

A provo-type is created to follow a particular scenario, setting and setup. It has to be connected with particular diegesis. Candy and Duganan (2017, P.148) suggested the following triangulation for experiential futures, at which a provo-type can be situated.

SETTING: The theme or kind of future (e.g. generic image of the future).
SCENARIO: Specific narrative proposition and sequence of events.

SITUATION: The circumstances of encounter; particular events given physical form at 1:1 scale in various media.

UNIT CONTENT

In this sense, provo-types can be developed within a particular setting or theme, in a specific scenario that was developed through a sequence of prospective events and positioning within a specific situation. A provo-type can respond to these enquiries:

What media (or combination there of) is used to build
the story world?
• What prototypes are introduced?
• What impact do these prototypes have on the people and
their environment? (Lindley and Coulton, 2016)

Please refer to IO4 Toolkit on Provo-typing for further explanation on making Provo-types.

Section 04: Positioning

Positioning of design Provo types within the design futures practice.

From a practical perspective, Provo-types do not have a particular and defined position within a futures design process. They can be used either as an exploratory device at the very beginning of the process. They can also be positioned in the very end as a terminal of the design process or outcome. They can also be used throughout the process to verify a hypothesis or to develop one.

For students, it's important to accentuate the distinction between a typical prototype from the provo-type. A typical prototype can be described as a design output that is developed to test, explore or involve stakeholders for focus groups or discussion during the design process the purpose here is to evaluate the design output (Bowen, 2009). While the provo-type is meant to

disrupt normality, challenge assumptions, provoke reflections, initiate debates, and trigger discursive spaces.

A provotype is usually positioned within a practice-based design research, where the aim is to study a futures issue through making. A provo-type is usually situated as a terminal in the design process; yet what applies for the typical design process in terms of being iterative also applies for designing provo-types. As a critical reflexive analysis on practice, provo-types can be designed, presented to participants, and then revisited after collecting insights.

In an educational setup the positioning of provo-typing as exercise highly depends on their role and intended goal of designing them. For instance, In PhD research project; provo-types can be used as an extended case study in an action research methodology where the researcher reflects on his/her own practice. The end result would be contribution to knowledge through reflection on practice. While in Master's level, Provo-types can be implemented as a design output in design studio courses or taught modules. The result in this case is presenting a design project.

UNIT 08 - PROVOTYPES

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FUTURES LITERACY METHODS

UNIT 09
CRITICAL REFLECTIONS

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DESCRIPTION

This Unit encourages you to place criticality at the centre of your engagement in the intersections Design/ Futures /Literacies. The Unit should be read in conjunction with Unit 00 – Orientation as these two Units bookmark the series of IO5 Units: Unit 00 sets the scene and Unit 09 invites you to critically re-examine the work done so far. This is to twist the perspective already gained during one of the other units (eg. Unit 07- Scenario Making; Unit 08 – Provo-typing); it is also to challenge the trajectory taken and the assumptions behind it so that the final design propositions are re-invigorated and critically galvanized.

By working in this way you'll operate transversally, that is, cultivating relations so to establish further relations. Put differently, this Unit facilitates and supports personal reflection and, therefore, builds self-awareness relating to the strengths of students as active learners. One reflects on practice to expand it further.

Criticality is necessary to unpack and decode existing discourses, to propose meaningful alternatives, and to develop discerning capacities. To be discerning or discriminating is the capacity to make informed distinctions. The etymology of critical is from the Greek root krinein ("to separate, to decide"), thus kritikos ("able to make judgments"). Being 'critical' means to intentionally adopt a stance of 'detached evaluation' so to create enough distance between you and what you are investigating (project, brief, reading etc.) so that you can appraise it, review it and question it further.

This space is necessary to think about, consider and engage with, your own thinking, reflect on how your position may change because of your learning, and articulate meaningful ways to enact this learning in your practice. Note that while the word critical has connotations of "censurer" or "faultfinder", however being critical does not mean being negative, or being in disagreement.

AIMS

The aim of Unit 09 is to activate criticality by mastering and enacting critical activities to be applied to the work done in the other Units. Unit 09 suggests practical applications using a range of de-familiarization techniques that encourage you to create the space needed to enhance sense-making skills by 'doing criticality in action'. De-familiarization works by moving your awareness out of what you know and plunging your attention into a different realm.

Some techniques to enhance criticality are to:

- Re-visit
- Re-imagine
- Reverse
- Twist
- Swap: working in small groups students to swap their work with each other
- Decode + Recode
- Make it happen (act as an activist)

UNIT 09 - CRITICAL REFLECTIONS

COMPETENCIES

- Critical thinking
- De-familiarization
- Research skills: capacity to find sources, contribute to the advancement of knowledge
- Media and visual literacy
- Discourse analysis
- Self-reflection

DEPTH OF DETAIL

LEVEL 01 – BACHELOR

Critical thinking might be difficult to develop in autonomy at this stage. It would be suitable to propose a cross-critical activity between different students and/or groups proposing to shift roles and topic between two different stages of activities.

LEVEL 02 – MASTERS

At this level student must develop self-critical analysis and – maybe starting from a Philo pill – subvert their previous vision / reasoning/ project re-coding values from another perspective embracing others' points of view..

LEVEL 03 – PhD

At the highest level the critical thinking should grow and mature. A possible way to challenge this task would be to propose different authors' reading and introduce/ discuss their critical perspective in comparison or relating it to a specific project.

EXPECTED LEARNING OUTCOMES

A. Knowledge and understanding	Become familiar and conversant with criticality, sense-making, creating space for reflection as well as with sourcing appropriate content
B. Cognitive Skills	Develop an advanced level of critical thinking and reflection, and apply methodologies from multiple disciplines and practices
C. Practical Skills	Understand complex and unexpected challenges in order to establish processes/strategies to apply to practices
D. Generic Skills	Learn how to embody these skills continuously and adaptively in your own practice
E. Collaborative Skills	Develop and evidence effective communication and negotiation within highly diverse teams

ACTIVITY

Activity A |

Description: Like Unit 00- Orientation, this Unit recommends that participants gather their reflection by keeping a reflection journal, a series of blog entries or a mini-portfolio or diary of notes and insights throughout. The purpose of these activities is to document your response to work done to date, and track the development of your critical skills and of your ability to reflect, e.g. go back and look again at what you have already done, observe it and analyse it through different eyes, try to explain it differently or to other different audiences, reference it through a different set of theories or models. Importantly, no reflection is fully concluded unless it also allows you to reflect on your own trajectory as practitioner, and your futures.
Aim of activity: stimulate criticality so to re-energize your practice both in terms of outputs and in terms of collaboration (see Learning Outcomes above)

Method: discourse and visual analysis, peer-to peer discussion and assessment, critical review by facilitated group discussion.

Example: Critical 'warm-up' exercise / workshop (based on media and visual literacy)

• Source and examine a selection of advertising campaigns of technology products in various decades; unpack and interrogate the future narratives informing roles, contexts and social expectations.

• Ask students already working on brief/ project to locate a series of adverts for the product typologies they are designing, in various decades. Then, ask them to reflect and position their work in relation to the narratives presented in the selected adverts. Is their work aligned/matching existent narratives or disruptive? How?

• Students are tasked with the production of adverts for fictional products or experiences (use examples of social critique campaigns)
• Peer to peer activities: students working in different groups: ask one groups to make a commercial for each other work

Example: Pills to use for activity:

CAPACITIES Cluster :

POSSIBLE/PROBABLE/PLAUSIBLE/ PREFERABLE - Types of reality that: might happen [possible]/is likely to happen [probable]/could happen [plausible]/you wish to happen [preferable]

TRAJECTORIES Cluster:

TRANS-EVERYTHING - Use a diagonal to go beyond the vertical and the horizontal. Find connections across planes and dimensions.

UNIT 09 - CRITICAL REFLECTIONS

TOOLS AND DEVICES

1) See Philosophical Pills below in general but consider that:
- The Pills from the deck belonging to this categories Crisis, Trajectories, Stewardships are easily usable for each depth of detail.

- Strategy and Charts are more devoted to a higher level of complexity.

2) To deepen a week critical basic research and/or horizon scanning also the PESTL, VERGE and Future Forces might be suitable

CASES AND EXPERIENCES

PhD Futures Thinkathon 2020

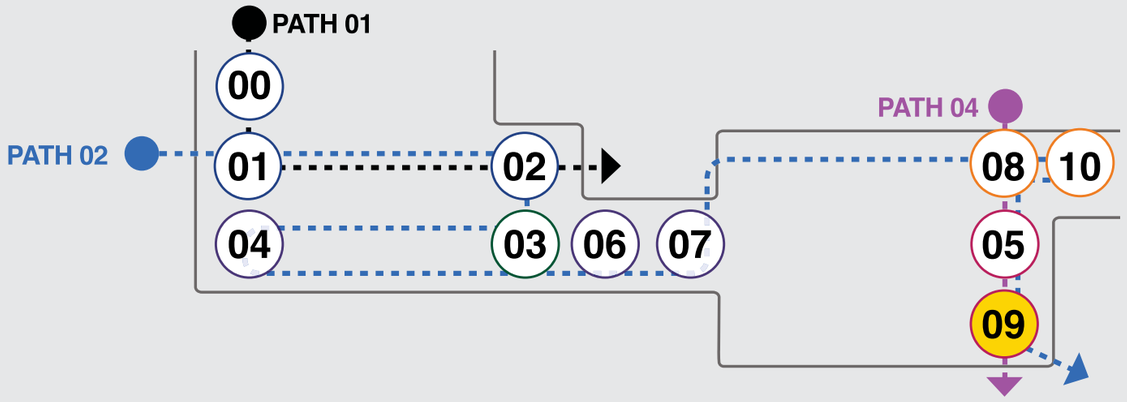
The aim of this intensive workshop was to introduce contributing partner institutions' PhD Design students to the current development and research in futures literacies; to connect them to research methods and content of futures literacies; and to train them in applying futures literacy methods and content in the PhD research practice.

Due to the COVID-19 emergency, the workshop was conducted in a digital mode using platforms suitable for teams working remotely: "Microsoft Teams" and "Miro: An Online Visual Collaboration Platform for Teamwork". The workshop was managed by Politecnico di Milano FUEL4Design research team. The platforms, canvases and tools used during the presentation had been prepared beforehand in order to ensure a smooth process and time saving in the three days' intensive workshop. It's worth noting that the digital mode of the workshop provided many opportunities and opened up new spaces of creativity that enhanced the cooperation and collaboration between the participants during the days together.

Canvases were designed to allow participants to brainstorm freely as well as including a design space which was a blank a space for each team to gather ideas, visual material and rough concepts, before adding them to the canvas as a final output. Each phase had its own canvases that were used to systematically allow participants to organize their thoughts and to capitalize on the diagramming capabilities of the canvases. These diagramming capabilities were on offer to foster creativity in brainstorming and to open up a space for discussion. The canvases were made in the form of templates that participants filled out with brainstorming items and discussion results.

HERE

ROADMAP AND CONNECTIONS



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UNIT CONTENT

What does it take to become a critical thinker in relation to designing futures?

As humanity has entered an era of systemic issues, challenges and instabilities, it is clear that a plurality of diverse perspectives is required to address what the planet is facing, not necessarily to provide solutions, but to frame problems differently. The capacity to ask novel, relevant, penetrating, and difficult questions is key to future-building. We need to develop the capacity to ask questions that challenge current operating assumptions, that are able to surface cause-and-effect relationships not immediately apparent, that open up spaces of understanding, empathy and learning.

The capacity to ask questions is essential if we seek to amplify the generation of different types of imaginable futures. Without questioning, criticality, and persistent interrogation, the future you envision will very likely be a repetition of what has already happened. To create futures that genuinely strive to diverge from the known, we must cultivate critical thinking. Further, this thinking needs to be connected to processes and practices of designing and analysing design for shaping meaningful and sustainable shared futures.

In Teaching Critical Thinking (2010) educator and activist bell hooks writes that critical thinking is about asking questions around the who, what, when, where, and how of things – very much like a curious child would do – and then use the knowledge generated to determine “what matters most”. This is where the relevance of critical thinking to future-building becomes clear. To say that critical thinking is essential to the process of figuring out what matters most means to acknowledge critical thinking’s role in paying attention to where our efforts (as designers, practitioners, theorists, change-makers, future-builders, citizens, activists, learners...) should be directed. In this sense, then, critical thinking cannot be disjointed from a reflection on how our own position (as designers, practitioners etc...) informs our understanding of ‘what matters most’. It becomes an indispensable tool to approach designing futures as a gesture imbued with care, stewardship and empathy. Designing futures is an ethic-political project attitude. However, it is more than this because criticality is also realized in designing and engaging with designs (artifacts, processes etc). It is performative an enacted, that is

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socio-technically, culturally and in terms of activity, participation and change.

It’s important to specify that the need to develop a critical perspective in design learning, and in design future learning in particular, derives from the awareness that design can no longer be considered only a practice dealing with the “artificial world”. It is also about specific knowledge that embeds skills, values and critical capacity applied through the techniques of the artificial. Already in 1999, Susan Roth stated that design studies ought to consider objects and processes from a critical theory perspective and through a multi-perspective inquiry: “The distinction between project oriented design research and the scholarly area of design studies reflects the extension of design from a form-giving activity to an interdisciplinary process dealing with complex systems and solutions.” (Roth 1999: 19). The dichotomy, often traced back to the terms “technique” and “culture”, which historically has positioned design at a crossroads of disciplines where it assumes a role of mediation or direction, is currently incomplete as well as unresolved. Further, in a context increasingly determined by a more-than-human agency, it also asks us to interrogate the techno-deterministic narratives that inform the project. Depending on the focus of the project, design can act as a technical discipline that draws tangible elements (form, function and materiality of the product) or it can act on a cultural level by designing intangible elements (such as meaning and value).

The transdisciplinary approach as well as the mutuality between disciplines can have repercussions both in the theoretical-critical sphere and in the applicational-experimental one. The cooperation between design and human and social sciences can be described, on the one hand, through a comparison of cognitive and epistemological models and, on the other, through a comparison of analytical and generative tools.

In this sense the critical thinking for design futures can take into account different approaches:

• Engage with a multiplicity of perspectives, and think in terms of participatory practices involving student in reading design realities according to different filters (social, political. philosophical...etc)
• Interrogate today’s new mythologies (efficiency, growth, speed, just in time (JIT), last mile, carbon offsetting/carbon footprint)
• Articulate critique of speculative and critical design (SCD); source examples that traverse the confines of the gallery space and engage sensorially/experience e.g. Superflux
• Articulate critique of the ‘user’ and the blueprint of ‘user-centred-design’. Who/what is the (invisible) ‘used’ in these formats? Think about the wider community and shift from user to citizen, positions stakeholders within an ecology of the human and the nonhuman, and within wider systemic networks (that go beyond the narrow confines of the user as universal entity)
• Engage in dynamic, individual and shared critical acts of collaborative working and knowing how to: with diverse materials, via ‘sculpting’ artifacts and processes, through inputs and responses from stakeholders and participants and by way of feedback and insights generated in use, by users and as usage.

Which are the motivations to engage in a critical design future practice?

The growing complexity of our contemporary ecosystems are positioning Design at the front end of future inquiry: risk, innovation, critique, and cultural expression are crucial for projected experience, engagement, and critique. The capacity to achieve critical thinking skills may be connected to Piaget’s concrete and formal operations since stages of cognitive development are linked to intellectual potential and environmental experiences (Ornstein & Hunkins, 2004). In

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particular, in the Design field Critical Design may be endorsed in a framework of

reflective practice where “Reflective practice is understood as the process of learning through and from experience towards gaining new insights of self and/or practice. This often involves examining assumptions of everyday practice. It also tends to involve the individual practitioner in being self-aware and critically evaluating their own responses to practice situations. The point is to recapture practice experiences and mull them over critically in order to gain new understandings and so improve future practice (italics added). This is understood as part of the process of life-long learning (Finlay, 2008).”

Despite the fact that teachers, psychologists and philosophers differ in their beliefs as to whether critical thinking skills can or cannot be taught, it is clear that through experience and the pedagogies of Experiential Learning that we may prompt, prime and activate critical thinking when reasoning on the activity itself, and activate meta-learning reflections. Sternberg (1990), Ennis (1989), and Lipman (1988) state that critical thinking skills are not a fixed entity but a form of reasoning that everybody can be trained to enact.

Such enactments may occur within and between different domains of Design and related design inquiring framings, concepts, methods and analysis (Celi, Morrison; 2017). These span human–computer interaction as well as service design, systems-oriented design, and product (not only industrial design) as it realigns its practices and interpretation to increasingly account for digital fabrication. Here too Design is motivated to take up, explore, select, reappoint and reconfigure design artifacts and processes of making and use from a suite of methods of making and thinking critically about them as schema and as processes of enactment. This extends to Design’s relations to interaction and the growth of socially mediated communication and Design’s role on social innovation and

pressing societal and sustainability issues. Futures Studies is in needs of further attention to how it conducts its prospective acts of making both from and as Design, but also how qualitative research methods make be further understood through attention to processes of mergence and becoming in human-nonhuman contexts and dynamics, relating to potentials in new materialist and post-qualitative views.

How is criticality on design and pedagogy linked and enacted?

Design futures literacies may be usefully approached as intersections and mixes of ways of making, analysing, teaching and learning. Through use aach of these activities travels with sets of predominant and emergent practices and configurations that have come into being and circulation. The shaping of Design through the implementation design tools and techniques together with the application of research methodologies and methods needs special attention as it increasingly taken on matters of working with futures. This implies attention to how we think critically about modes and means of designing in an anticipatory sense and for alternate present and short- and long-term futures. It also points to parsing approaches to knowing from the field of Education. Here we need to access and re-position aspects of both learning theory and methods and design pedagogies that have not always explicitly been oriented towards futures fields, challenges, conditions, processes and potentials.

With the future as the ‘object’ of our making (designing, researching, communicating) and our design positioned pedagogies (materialities, experiential, participative etc.) and critical thinking and performativity in

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education (critical pedagogy, experiential learning, learning lives), we need to recalibrate and reorient the hows of making, learning, analysing and communicating it all.

This matters whether individually, together and in distributed, locative and emergent systems in which technologies themselves increasingly impact on a world in which human and non human actors (biological and computational) are in co-existence, if not always equally, Attention is still needed to cognitive and metacognitive aspects of critical thinking, dispositions and practices: (1) interpretation, (2) analysis, (3) evaluation, (4) inference, (5) explanation and (6) self-regulation (Facione, 1990). Sternberg (1990) provides general guidelines for developing or selecting a program/curriculum that will foster critical thinking. He recommends that instructors focus on strengthening students’ intellectual functioning in meta-components, performance components, and knowledge-acquisition strategies. This ties in with recent educational thinking into contexts of learners’ motivated knowing out of school (Erstad et al., 2016), through and as popular/cultural expression and as connect to meaning making about pace, interest, culture and contact (e.g. McLaren 2016 on re-considerations of critical pedagogy).

Our design specific futures means (methods and pedagogies) this may be even more a matter of making via design materials, in the interplay of processes and artifacts, participants and systems, interactionally and performatively. Here we can connect to design tools and techniques, such as provotypes, criticality in action and activism, DIY hacker aesthetics, or speculative fabulations, to mention a few. In our acts of making critically we may also need to return to ‘designerly’ futures ways of reflecting in an on action (Schön, 1987) that are extended more deliberatively and experimentially into temporal and spatial future dimensions, such as re-imagining, reversing or twisting, switching or juxtaposing, that are acts of de/re-coding.

We can no longer perform modernist trajectories toward the next new; our methods and pedagogies are undergoing a time of flux and experimentation. They are already connected to de-growth, re-use of finite resources and their fairer sharing and circulation – these too need to be more fully enacted pedagogically as critical designerly futures methods in themselves. What are the mediational production logics reproduced in Instagram? How are MIRO Boards being co-created to reflect, stretch or even upend our previous pedagogic practices? In what ways do and might Slack teams work differently in the pandemic as our classrooms adapt and alter? How are our creative methods being challenged by the changing nature of AI inflected work and its design elements, production mechanisms, management and distribution? Our critical methodologies and methods need design critique and design pedagogies that are also future critical yet imaginative and generative of alternatives, possibilities and the outlandish.

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FUEL4DESIGN

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FUTURES LITERACY METHODS

UNIT 10
ALTERNATIVE PRESENTS

Co-funded by the
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The Oslo School of Architecture and Design
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ELISAVA Escola Universitària de Barcelona Disseny i Enginyeria
ual: university of the arts london

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DESCRIPTION

This unit provides the foundation to carry out research through design, showing the relation between theory and practice as it is related to the experiential in designing futures literacies. Moreover, it focuses on the strategies for community engagement in relation to cooperative modes of futures, allowing for experiencing futures with others.

It aids designers to generate alternative presents through design interventions that embody desired futures and help understand and experience the needs to provoke these transitions.

This unit also will enable you to gather, frame and situate the data, insights and connections generated in multiple design interventions in a design space. This helps designers to grasp the socio-technical system they have immersed in and understand their personal process of drifting in research through design. Drifting refers to the process of finding alternative design opportunities for one's work through feeling, sensing, embodying and making.

AIMS

This unit aims to position the students within communities. Looking at future scouting as carrying out design interventions in context. Design interventions allow for accounting for individual and communal situated experiences; and empower diverse, often marginalised actors in alternative presents.

Alternative presents allow designers to open escape routes to the present continuities. They create a space to radically imagine discontinuities to the most plausible results of our current business-as-usual practices, in favor of more optimistic future scenarios.

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COMPETENCIES

This unit will give designers competences in order to:

-Understand and respond to the complex interplay of needs and values in-situ.

-Situate and give meaning to locally and personally conduced design actions.

-Design within the socio-technical systems by means of situated meaning-making practices.

-Embody future speculations in the present, offering actual proof-of-concepts that already live with us.

-Continually reassess relationships through the lived experience that arise between people, places and purposes.

-Embody future speculations in the present, offering actual proof-of-concepts that already live with us.

-Continually reassess relationships through the lived experience that arise between people, places and purposes.

DEPTH OF DETAIL

LEVEL 02 – MASTERS

Master students will take into action their speculative futures research, transforming the present. Design interventions may give the designer a new hope and agency that can be scaled up and turn a personal view into a global effort.

LEVEL 03 – PhD

PhD students are expected not only to generate alternative presents through design interventions but also understand the material flows, the social relationships, and the infrastructure that would be needed, or that is actually available, to bring these futures to reality.

EXPECTED LEARNING OUTCOMES

A. Knowledge and understanding	Visualize, communicate and reflect on biographies created with their design projects, and the impact they will have for future developments.
B. Cognitive Skills	To become engaged, from the very start, in a situated manner with your own body, your time, your resources, your life.
C. Practical Skills	Develop interventions in the real world proposing alternative presents that embody desired futures.
D. Generic Skills	Capacities to act (intervene, disrupt, refigure) in design centred transformative ways (materials, tools, actions, interpersonally, non/human, platforms, systems etc).
E. Collaborative Skills	Collaborate with other designers to create collaborative interventions. These have to be relevant for every participant who will contribute with their own perspective.

ACTIVITY

This Unit has two main activities.

1.Engaging the experiential via 1PP design interventions

AIM OF THE ACTIVITY: Students will be urged to re-create and re-imagine their presents and embody them through design interventions.

DURATION: We suggest this activity can last from one-day introductory activity, to be carried out multiple times during a full semester (recommended minimum 3 times).

DESCRIPTION: The student positions her/himself within the community to explore alternative presents through a design intervention. They allow the students to experience the proposed alternative present, allowing them to further evaluate the proposed context and physicalise new relations between people and things.

METHOD: After picking an area of interest, a place and an activity to intervene on, the students will immerse themselves into the context and explore multiple roles and actions to take. Some of the actions can be predefined beforehand to kickstart the intervention based on a series of approaches provided by the teachers. Others can emerge during the process as a reaction to what's happening.

2.Reflection through a design space

AIM OF THE ACTIVITY: To reflect on the design process and make explicit the relations between multiple design iterations, theory, references, and any other source of information. The goal is to support creating a personal design rationale and help the decision-making processes. Using diagrammatic techniques helps to capture complex data in a simplified, illustrative but strategically revealing way.

DURATION: A design can be done in 1 or 2 hours, individually or collectively. We recommend this activity to be repeated multiple times during the project.

DESCRIPTION: Reflection through a design space is an iterative process that supports the development of the student's design process (design interventions). A design space is a physical or digital collection of experiments, reference objects, projects, products or materials visualised in a 2d-form in a meaningful way. It can integrate prototypes and projects developed previously, as well as other forms of information. Multiple iterations of a design space over time can help to understand the process of drifting, making explicit the emergent, bottom-up and experiential process of design interventions.

METHOD: A design space is created with the available materials and information at a specific moment in time in the process. When it's done at the start of a project, the focus will be on framing multiple opportunities by relating all gathered information. When iterating on it after a design intervention, will support making sense of the intervention results by mapping them to the previous version of the design space. .

UNIT 10 - ALTERNATIVE PRESENTS

TOOLS AND DEVICES

1PP DESIGN INTERVENTIONS

ALTERNATIVE PRESENTS

DESIGN SPACES

CASES AND EXPERIENCES

-Alternative presents as Weak Signals

The following projects are the result of the Masters in Design for Emergent Futures 2019/2020 class. Evolving over the course of nine months, they show the evolution and application of all the methodologies presented here in this toolkit, from the first Design Space based on the Atlas of Weak Signals to the iterative consolidation of projects inserted in actual communities of practice, which present and provoke new alternative presents in the different range of areas of interest the students immersed themselves in.

HERE

Collective design spaces

The activity revolved around building a collective framework to document explorations using the existing digital platforms and building a physical map of resources for the design studio. The goal was to explore and develop forms of aggregative documentation and building collective intelligence resources. In this example Morgane Sha'ban (Master in Design for Emergent Futures, 20/21) compiled in a "cabinet of curiosities" her vision, her fight, her chosen weak signals, her interventions, her tools and methodologies, the referenced projects, materials and places, depicting in this way her Design Space.

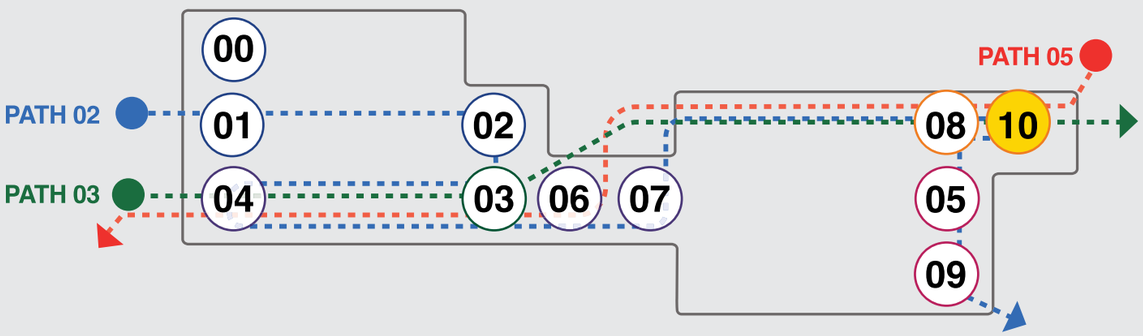
HERE

Collection of design interventions

In this exercise, students from the Masters in Design for Emergent Futures embodied their futures scouting research through design interventions. The students took different approaches to make sense of their topics or issues of interest such as: 'The first day of my new life', 'A personal challenge', 'Change yourself', 'Collaborate (with things)', 'Extreme reflection', 'Augmentation of personal activities', 'Learning something new' or 'Your future you'.

HERE

ROADMAP AND CONNECTIONS



The yellow color indicates the position of the current Unit.

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The futures we envisage, project and enact are shaped by the ideas and methods behind them. They are also designed to engage participants in experiences. The ways we design and how we position, direct, suggest, persuade, and open out for how futures may be experienced asks that we pay close attention to ‘designerly’ methods.

These are methods that include sensations, feeling and affect or our inner, psychological responses and states of being and becoming as the futures materials, events and processes we meet unfold. Such methods have emerged in the past two decades especially in design practice and research around notions such as embodied interaction, experience design, sensory engagement, multimodal interfaces and more recently tangible services. Our design teaching and inquiries may already refer to these in our specific areas of design pedagogy.

When it comes to design futures literacies, the task ahead of us is to work to develop and even extend approaches and methods to shaping futures by selecting, adapting and innovating methods that exist, but going beyond these to combining specifically experiential futures methods. Experiential futures are intended to connect people to the sensed and felt, where scenarios allow us to engage with a mix of media and experiences (Candy, 2010). Ethnographic futures are about researching how people actually perceive, think and feel about the landscape of possibilities (Candy and Dunagan, 2017).

This Unit offers tried and tested examples of this. The examples are underpinned by a number of conceptual and practical themes to which we now turn.

Research through design, between theory and practice.

Typology of design experiments in research-through-design accounts both for relations between major cases and iterations embodied in detailed sketches and prototypes. The purpose of the typology is to provide an overview that respects and account for the less-than-ideal way design research actually happens: process-loops where hypothesis, experiments, and insights concurrently affect one another and result in a drift of research focus and continued adjustment of experiments to stabilize the research endeavour.

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Alternative presents as intermediary knowledge

Alternative presents give designers the key to opening escape routes to the present continuities, offering space to radically imagine discontinuities that would offer different outcomes in favor of more optimistic future scenarios than the ones we are being presented as the most plausible results of our current business-as-usual practices. Alternative presents help us understand the material flows, the social relationships, and the infrastructure that would be needed, or that is actually available to bring these futures to reality.

Design interventions to experience alternative presents

When taking a 1PP approach to future scouting, the act of designing becomes personal. Designers design for themselves, and share their outcomes; or design for their community from within. These ways of designing require continually reassessing relationships that arise between people, places and purpose, to better understand and respond to the complex interplay of needs and values in-situ. As 1PP positions designers within communities, future scouting becomes a design intervention in context, the seed for the exploration of alternative presents. It situates and gives meaning to locally conducted design actions; accounts for individual and communal situated experience; and empowers diverse, often marginalised actors in bottom-up and top-down transformation processes, using materials at hand.
Documenting through design spaces

Documentation through the creation of design spaces is an action research exercise which allows the student to have a birds-eye view of their progress and positioning (interests, experiments, reference objects, projects, products, materials, interventions, etc.) It integrates results from multiple design interventions by means of prototypes and projects developed previously. In the same way as an annotated portfolio multiple sources of information will be combined in layers.

Ways of drifting in research through design

In design, “drifting” is a qualitative measure which tells the trajectory of a designer (Krogh, Markussen & Bang 2015). In the practice of design, drifting is to find alternative opportunities for one’s work in their immediate surroundings, allowing them to arrive at a higher quality of work.

Towards responsible innovation

The responsible innovation framework will help learners to understand the implications of their design projects. Some of considerations highlighted on the framework are as follows: what are their purposes, what orientation is taking their co-production / co-evolution of their project, what are the processes enabled, how do they want to co-evolve, and what are the outcomes of their projects and the expected future impacts (either positive or negative and in which intensity).

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LIST OF TOOLS AND DEVICES

IO1 LISTS FOR WORDS
IO1 FRAMES FOR FUTURES
IO1 FUTURES DESIGN LITERACIES MATRIX
IO1 WORD-O MAP
IO1 NEXUS
IO1 SEMANTIC CATEGORIES
IO1 BALLUSION
IO1 REFLEXICON
IO1 FUTURES DESIGN DISCOURSE MOVES
IO1 CHIMERA
IO1 NEOLOGISER
IO1 UNMAKER

IO2 AFFECTIVE MODES
IO2 PERSPECTIVES
IO2 STANDPOINTS
IO2 PILLS (STEWARDSHIPS)
IO2 PILLS (CAPACITIES)
IO2 PILLS (BELIEFS)
IO2 PILLS (CHARTS)
IO2 PILLS (CRISES)
IO2 PILLS (STORIES)
IO2 PILLS (STRATEGIES)
IO2 PILLS (TRAJECTORIES)
IO2 PILLS (UNKOWNS)
IO2 PILLS (VISIONS)

IO3 ATLAS OF WEAK SIGNALS
IO3 ALTERNATIVE PRESENTS
IO3 SELF-REFLEXIVE ACTIVATIONS
IO3 1PP DESIGN INTERVENTIONS
IO3 DESIGN SPACES

IO4 HORIZON SCANNING CANVAS
IO4 CIPHER
IO4 PESTLE
IO4 VERGE
IO4 FUTURE FORCES
IO4 FPP CANVAS
IO4 BRANCHING
IO4 FUTURES WHEEL
IO4 POLARITY MAPPING
IO4 4 ARCHETYPES
IO4 SCENARIO CANVAS
IO4 A DAY IN A LIFE
IO4 STORYWORLD
IO4 TIME TRAVELER
IO4 PALMISTRY
IO4 PROVOTYPING
IO4 STORYBOARD
IO4 FUTURE TELLING
IO4 FUTURE FILMING

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