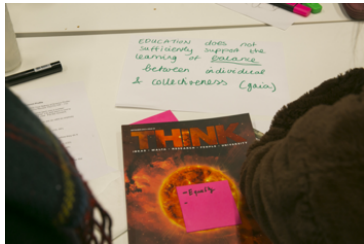






CourseKit Toolkit (IO2 IO3) GLOSSARY





The CourseKit Glossary goes into detail about all the different types of cards that you can use to design your course, workshop, or module. Do read these to understand what each card is about. The cards draw from examples from the SciCulture Course that brought together artists, scientists, educators and entrepreneurs to address a societal challenge. There is a challenge card and nine suits. Suits include the conceptual cards to help you think about the bigger picture normally laid out first, called: Creative Pedagogies, Design Thinking Loops, Reflective Perspectives and Probe the Challenge. The other set of suits are the session-by-session cards laid out later to make your course concrete, called: Type of Teaching Block, Type of Virtual Teaching Tools, Facilitator Type, Grouping Type and Wild Cards.


[Every card, apart from the Challenge card, should have a convergent and divergent version with appropriate triangle design]


Suit or category	Separate Cards	Brief definition and SciCulture Course example	Thumbnails of useful images to bring glossary to life
Challenge	Challenge Card	<p>The “Challenge” is the common thread that runs through the course which enables participants to work within teams to examine, re-imagine and respond to a subject/issue of contemporary society. It allows facilitators and participants to connect all the course’s different elements/disciplines to a specific theme relevant to our world.</p> <p><i>E.g. in SciCulture courses 1 and 2 the challenge theme was based on re-imagining education in the age of the Anthropocene. This subject set the stage for teams to ask curiosity-driven questions on the topic, develop critical thinking and to identify new opportunities and creative responses towards a specific challenge they identified within the theme.</i></p>	

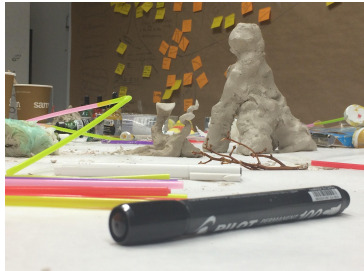
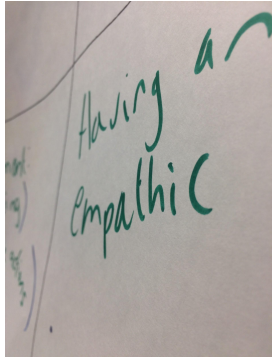

	Probe the Challenge	How is the Challenge being explored at this stage? Create something tangible, which supports and questions thinking, reasoning and actions.	
CONCEPTUAL SUITS			
Creative pedagogies	Embodied Dialogue	<p>Facilitators and participants ask curiosity-driven questions which lead to new ideas and then lead to more questions; it involves conflict, difference, challenge and inhabiting others' perspective, whilst engaging with the space in between perspectives; it can happen through words, movement, visuals etc.</p> <p><i>E.g. All SciCulture courses take a 'no right answer approach' and begin with open space for students' questions on the chosen theme, with student groups facilitated to continue answering and questioning across the 5 days to hone their ultimate question and response to it. The image shows students dialoguing together between resources and their own questions about balance.</i></p>	
	Individual, Collaborative and Communal activities for change	<p>Science, entrepreneurship and the arts involve individual passions but are inherently collaborative. SciCulture encourages this within communal/small group engagement in problem-setting and responding with an emphasis on action and, where appropriate, activism to make change happen.</p> <p><i>E.g. SciCulture Course 2 groups worked with animation incorporated in performance pieces to collaboratively respond in small groups to a communally shared problem of how education should/might be in response to the anthropocene. These performances became activist workshops with University of Bergen students after the course.</i></p>	



	Ethics and Trusteeship	<p>Facilitators and participants consider the implications and complex impacts of their creative processes and products, engaging with felt knowledge and problem-solving; considering with empathy how they can act as trustees of their community's values, now and in the future.</p> <p><i>E.g. All SciCulture courses start with an ethics of working practices session to manage expectations. SciCulture course 2 featured a strong thread focused on human responsibility to other animals in an era of environmental destruction and species extinction.</i></p>	
	Transdisciplinarity	<p>Using the different processes of science, design thinking, entrepreneurship and the arts as needed to respond to problems and challenges, without one discipline dominating unnecessarily.</p> <p><i>E.g. SciCulture course 2 co-led dance/design thinking workshops which questioned how education, embodiment and the environment can fruitfully intersect to address problems of the Anthropocene; working with a choreographic process, design thinking loops and related knowledge and skills to create collaborative performative responses to the challenge, and simultaneously generate critical thinking and reflection.</i></p>	
	Balance and Navigation	<p>SciCulture promotes a balance between control/freedom, structure and openness, arts/science/entrepreneurship; facilitators balance stepping in with expertise and stepping back to provide space for questions and responses. Navigation is about acknowledging educational tensions and dilemmas such as assessment, educational marketisation, and resource/time pressures.</p> <p><i>E.g. In all SciCulture courses facilitators design for balancing different disciplinary inputs, use session structures that allow for</i></p>	




		<p><i>stepping in and back (e.g. facilitated group time), and e.g. pragmatically debate neo-liberalism as a challenge to aspirational, open-ended educational endeavours.</i></p>	
	Risk, Immersion and Play	<p>Facilitators create a safe environment allowing playful immersion in risk-taking. Aids include socialising, empathising, reducing feelings of hierarchy where possible, modelling playful behaviour, grounding the course in participants' real-life experiences, and often using the arts as an emotive starting point.</p> <p><i>E.g. In SciCulture course 2 a scientific debate was made playful by asking participants to position themselves in space dependent on their perspective on a particular argument - this was potentially risky and exposing but students became immersed in debating options. This happened later in the course when students felt comfortable with each other.</i></p>	 
	Possibilities	<p>SciCulture aims to create space for possibilities (broad or narrow as appropriate), opening multiple avenues in terms of thinking and spaces. This involves shifting from asking 'what is this' to 'what can I do with this?' to 'what if?' questions.</p> <p><i>E.g. SciCulture course 2 used moveable walls to capture groups' ongoing responses as they emerged; these were increasingly covered in post-its, crafts, artworks, and objects (e.g. a skeleton). The wall was referred to and refreshed as their response to the challenge question progressed.</i></p>	
	Empowerment and Agency	<p>This involves empowering the participants, encouraging them to own both their questioning and mistakes, whilst helping them develop their skills and knowledge to act and respond. Facilitators encourage them to reflect upon and come to understand their creative processes, both shared and individual, perhaps over prioritising polished products.</p>	



		<p><i>E.g. In SciCulture course 1 and 2, after being empowered to raise their own questions, groups produced extremely varied outputs such as designs for Special Educational Needs accessibility equipment, theatre installations promoting new environmental educational futures, virtual learning platform designs for global idea and resource sharing, and provocative toolkits to promote others in designing their own educational futures.</i></p>	
Design thinking	Science, Technology & Society	<p>Exploring the relationship between societal issues and needs on one hand, and how science and technology develop on the other, participants are encouraged to explore topics from a variety of different perspectives in an empathic way and to see dialogue between science/technology and society.</p> <p><i>E.g. In SciCulture course 1 and 2, students combine the results from climate research and societal reactions. Society and scientific research both influence each other.</i></p>	




	<p>Theory & Practice</p>	<p>Theory and practice drawn from science, arts and entrepreneurship are brought into dialogue to explore their relationship: theory and practice support and critique each other, allowing empathy to become part of the process. Through research in practice, participants challenge assumptions and empathize with people and their different contexts.</p> <p><i>E.g. In SciCulture course 1 and 2 students used a 'morphological chart' to combine their insights from practice and theory.</i></p>	 <p>The image on the right consists of two parts. The top part is a close-up of a hand-drawn morphological chart on a grid. It contains several phrases: 'ENCOURAGE INNOVATION IN COLLECTIVITIES', 'WILLINGNESS TO LEARN', 'ACTIVE PARTICIPATION IN SOCIETY', 'EXPLORING OUTDOOR', 'VOICE', 'SHAPES', 'EMBODIMENT', 'APPRECIATION', and 'VIRTUAL REALITY'. The bottom part is a photograph of a group of students in a classroom, standing and looking at a large chart on the wall, likely the same morphological chart.</p>
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	Reason & Intuition	<p>In the reason-intuition strand of design thinking, intuitive and rational aspects of thought play off each other, critiquing one another to develop a deeper understanding of the issue. This is key to finding the essence of the problem that the design is addressing, working empathically to develop a response.</p> <p><i>E.g. in In SciCulture course 1 and 2 the students were asked to express themselves through creation of play, dance, & artifacts in an intuitive way in order to develop their ideas about how science and society are connected by human ideas and emotions.</i></p>	 
SESSION BY SESSION SUITS			
Type of teaching block	Short Lecture	<p>These are blocks of approximately 30 minutes, in which information is shared by an expert through direct instruction as a stimulus for workshop and group sessions. The kinds of information shared might be content knowledge within science, arts, or entrepreneurial disciplines or direct instruction in a skill.</p>	



	Facilitated group time	<p>These sessions are facilitated by expert instructors, ideally from different disciplines. Participants have the opportunity to work in their groups on their own project, but with the support of the facilitators 'stepping in and stepping out' to ask questions, offer support or provoke thinking. Facilitators need to actively listen.</p>	
	Independent group time	<p>Participants work in groups not supported by facilitators, in order to develop their own experiences in the various design thinking stages. They deal with this as individuals and/or a team.</p>	

	Co-creation workshop	Here people work together in an open way by asking diverging questions to stimulate others to deepen their thinking. Artifact creation may help team interactions to allow them to simultaneously think and do.	
	Practical workshop	Practical workshops offer a 'hands-on, minds-on' approach to learning about specific content, ideas or processes that may be situated in any SciCulture discipline, or transdisciplinary in nature. In engaging practically with materials, participants are prompted to make connections between the observed/experienced and the main challenge card.	
	Making-based reflection time	A logbook is a means for making-based reflection. The logbook can take many forms: large paper sheets, books, 3D shapes, mood boards, movable walls, images, etc. groups use logbooks to keep track of their thinking, reflections and their progress.	

	Social Activities	Social activities offer opportunities for participants to mix across groups and nationalities. They encourage discussion and informal engagement of the questions, ideas and solutions being explored in the course, as well as a chance to relax and enjoy each other's company.	
	Field trip	These involve hikes up mountains, museum visits, swims and other fun activities outside the main educational building to help contextualise ideas within where the course is being held. The participants can work, play and discuss with others.	
	Individual Reflective time	Opportunity to take time to think and reflect on your own is important in an intensive experience. Using an individual reflective journal one can track one's own thinking and progress.	
	Blank cards for other formats - acknowledging that there are 'multiple teaching block formats'		
Facilitator Type	Core team	The Core team are the expert instructors drawn from different disciplines who plan, support and facilitate the course.	

	Subject expert	Subject experts are outside experts invited to offer disciplinary insights into a specific topic. Experts can be local and attend physically or join virtually.	
	Local professional	Local professionals are invited to join the course to offer a professional perspective with contextual and/or disciplinary insights into the specific topic for the course. Examples include professionals from local social enterprises, businesses, design clusters, maker spaces etc.	
	Participants	‘Participants’ refers to the students on the course, in the SciCulture course we acknowledged that participants also facilitate learning from each other, and the core team/experts are also learners.	
	Stakeholder	Stakeholders refer to people who have an interest or concern relevant to the Challenge card. They are invited to give insights to the course. Examples might include community leaders, teachers, local government officials etc.	
	Peer Facilitator	Peer Facilitators refer to people who have a knowledge of SciCulture Courses who wish to offer subject expertise or course knowledge in order to facilitate the course.	

Grouping Type	Home group	All participants are grouped into various 'home groups'. Once in a home group participants work together throughout the course. A home group should be composed of participants from different disciplines. This group focuses on addressing the Challenge.	
	Mixed across groups	In this grouping mode, participants are mixed so that they are working with others who are not from their home group.	
	Whole group	Whole group refers to teaching all of the course participants as a single group.	
	Blank cards for other - acknowledging that there are multiple ways of groups participants and facilitators		

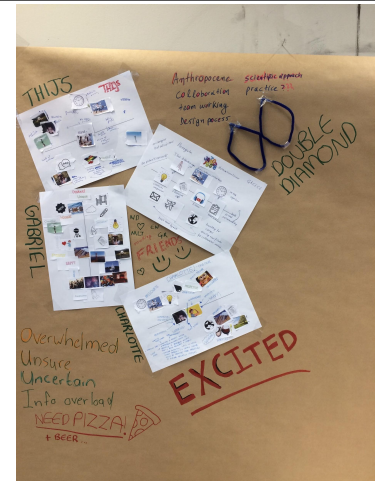
Reflective Perspectives Combinations of creative approaches within, across and between disciplines	Scientific	Scientific perspectives draw on scientific ideas and processes, including practical inquiry, and history and philosophy of science as well as scientific methods and knowledge. They should aid reflection, thinking and exploring of the challenge.	
	Technological	Technological perspectives consider the application of technology to enhance human's ability to influence and alter others and their environment. These perspectives trigger reflections about innovation and the future. They enable critical exploration of the role and potential that technology plays in shaping the future.	
	Artistic	Artistic perspectives enable diverse insights; reflecting on the challenge in ways that are embodied, performative and responsive. Explore the challenge via dance/choreography, participatory theatre, spray-paint animation, installation art, stand-up comedy style socials, poetry or other forms.	
	Entrepreneurial	Entrepreneurial perspectives are practical and realistic. They innovate by finding solutions to problems. An entrepreneur spots opportunities to develop new or better products and services to turn into profitable and socially aware businesses.	
Wild Cards	Quotes	"don't forget science and arts are both creative"	
	Motivations	"what music might you listen to while you're working"	
	Unexpected suggestions	"read an online newspaper headline – how does it influence what you're doing?"	



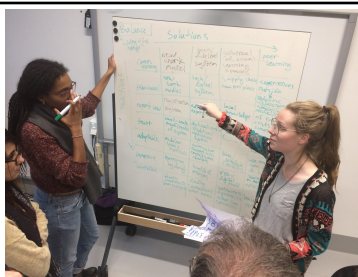

	White space cards	" add your own"	
	Interruptions	"Open the Space of the workflow by readjusting group roles, changing the question or direction of the planning"	
	Look up/go out	"As a team go for a walk outside - look up and find things that you've never noticed before. Come back and see where you might go next with planning".	
	Visuals	"If you can't put 'what next' into words - try doodling it or finding an online image that sums it up"	
	Metaphors	"Think of metaphors/similes that might help you think about the stage of planning that you're at - Ben Okri (poet) talks about needing to be like 'adaptive mariners'; what metaphors might help you plan what's next?"	
	Randomness	"Pick any book from your shelf, open a random page and point your finger to a place on the page - how does that word help you to move on?"	
	Open Spaces: Gesture	"Make hand gestures, while you imagine how your course feels".	
	Open Spaces: Move	"How does your course move: linear, pulse, acceleration, drag, curve, angular"	
	Open Spaces: Draw	"Draw a (abstract) landscape that resembles your course, is it worth a visit?"	
	Sliding	"Generate enough distraction to gain focus"	
	Agility	"Value the gaps between the layed out cards in front of you, this rough meaningful connections trigger your agility."	

	Empathy	“Can you describe this from the viewpoint of the person opposite you?”	
	Include some blank wild cards for people to write their own		
Virtual Teaching Tools	Online collaboration	Using tools such as padlet, mural or onenote, provide opportunities for learners to work together, either synchronously or asynchronously. This may be facilitated by a tutor, or independently.	
	Interactive presentation	Using tools such as mentimeter, or simply chat responses, emojis or raising hands within an online synchronous meeting platform, encourage learners to respond to directly taught content to enable tutor response and to open space for dialogue and reflection.	
	Virtual Learning Games	Using pre-sourced digital games to provide learners with a fun place to learn together. Discussion about the learning can take place following gameplay facilitated by a tutor.	
	Online presentation	Using an online meeting room such as Zoom or Microsoft teams allow students to show their pre-set work and discuss it. This can be a performance piece, artefact, picture, video, audio piece or piece of writing.	
	Varying group sizes	Switching between whole group and breakout group modes can facilitate opportunities for discussion in an online space, mirroring a ‘think, pair, share’ strategy.	
	Connecting virtual and physical	In smaller groups, learners can work creatively to respond to each other in synchronous online meetings using gesture, movement and physical artefacts as well as faces and words.	

	Blogging and online forums	Ask participants individually or collaboratively to write a blog about their challenge and response - ask others to comment on it and debate it with them.	
	Wikis	Ask home groups to build a Wiki together around their challenge and response as a means to see it at a distance and think what it might look like 'from the outside'.	
	New tools	Explore new digital collaboration tools - there are more of these becoming available all the time!	

~~PLEASE NOTE: The TYPES OF LEARNING items below should not be on a card, but an add-on people can attach to cards, like a comment. So the cards will need to have a feature to add this additional layer. Challenge or wild cards do not need this add-on.~~

Types of Learning	Design-based learning	<p>Through the active design of a product or process, participants learn how the various elements/disciplines are intertwined. Through the process of diverging and converging, using empathy to look at a subject from multiple perspectives, and making decisions, learners gain a deeper insight into both the case itself and develop a 'designerly' habit of mind.</p> <p><i>E.g. in In SciCulture course 1 and 2 the creation of a product and process functioned as a probe to understand the complexity of a societal challenge in a deeper and more profound way.</i></p>	
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	Authentic learning	<p>This learning process is based on real-world issues that are relevant to the participant. Relevant real world issues motivate students.</p> <p><i>E.g. in In SciCulture course 1 and 2 the topic of climate change was a shared issue relevant to participants.</i></p>	
	Experiential learning	<p>This is about learning through experience. Participants engage actively in an experience and reflect on it as part of a learning cycle. This approach enhances students' capability for empathy as it allows participants not only to use the cognitive part of their brains but to learn through their emotions. Often this refers to hands-on activities, but any activity can be experiential.</p> <p><i>E.g. in SciCulture course 2 the students had all kind of hands-on assignments through which experiences were created throughout the whole course.</i></p>	
	Abductive inference	<p>Learning through abductive inference occurs when learners are guided to make observations from which they draw logical conclusions, recognising that these are uncertain.</p> <p><i>E.g. in In SciCulture course 1 and 2 the students were challenged to generate ideas at various stages of the process. Tools support them to open up team discussions.</i></p>	
	Concept context learning	<p>Learners participate in contextual experiences with materials and artefacts, from which they are able to derive generic characteristics and engage with more abstract concepts.</p> <p><i>E.g. in SciCulture course 1 and 2 students designed a final science communication output that at different stages (prototypes)</i></p>	

		<i>allowed exploration of concrete and abstract ideas about the issue at hand.</i>	
	Add your own learning type	[empty text box that allows card players to add their own text]	