

Transdisciplinary Education

at the TD School, Sydney

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Maastricht University



UTS

UNIVERSITY
OF TECHNOLOGY
SYDNEY

Transdisciplinarity?

- **Multi-disciplinarity**
 - solution to a problem makes it necessary to “obtain information from two or more sciences or sectors of knowledge without the disciplines drawn on thereby being changed or enriched”
 - *(e.g., engineer, designer, marketer, and UX expert develop product)*
- **Cross-disciplinarity**
 - goals and concepts of one discipline are imposed on another discipline
 - *(e.g., design thinking, storyboarding, prototyping in business)*
- **Inter-disciplinarity**
 - “cooperation among various disciplines or heterogeneous sectors in the same science lead to actual interactions, to a certain reciprocity of exchanges resulting in mutual enrichment”
 - *(e.g., psychology, chemistry, biology, and medicine; or interaction design)*
- **Transdisciplinarity**
 - takes this integration and mutual enrichment of disciplines a step further
 - it is a holistic approach, about placing interactions between specialized fields in a total system with a social purpose
 - resulting in a continuously evolving and adapting practice

Transdisciplinarity

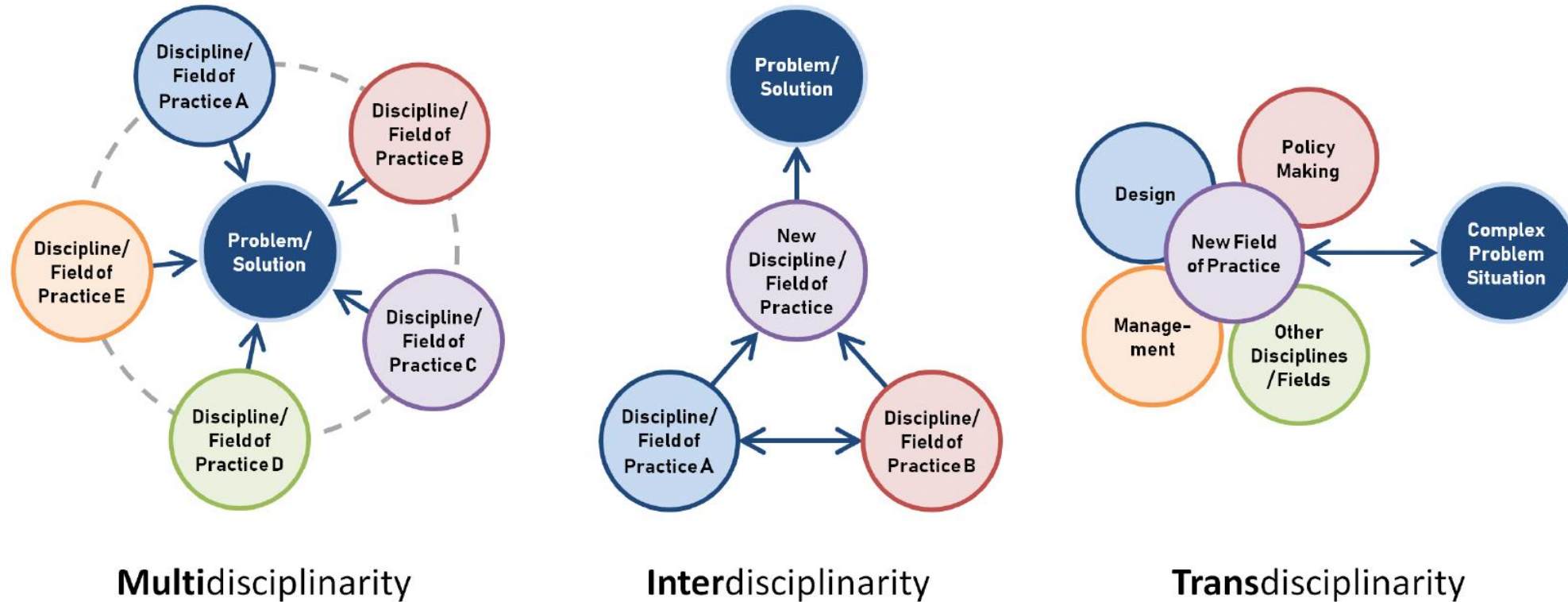


Figure 1. A comparison of multidisciplinary, interdisciplinary, and transdisciplinary approaches to innovation

Transdisciplinarity is ...

- **action-oriented**
 - focusing on addressing real world complex issues
- **participatory**
 - considering not only scientific or academic knowledge, but also forms of practical, local and personal knowledge
- **continuously evolving**
 - in the confluence of disciplinary knowledge and creation of the new in “pursuit of a common system purpose”
- **holistic**
 - building an understanding of whole systems and their complexity
- **purposive**
 - building a deeper understanding of a common human and social purpose to direct our efforts, by bringing values and norms into play
- **transforming**
 - it transforms and transcends individual, disciplines, and practices

Transdisciplinarity

- term was originally coined and developed within academia as a response to the fragmented organization of universities (into faculties, schools, and degrees)
- increasingly relevant to innovators and entrepreneurs
 - from “customer-centered” to a “society-centered” perspective
 - requires active collaboration with public and private sector, organizations, governments, and communities
- **Unpredictability of transdisciplinary innovation requires giving it ‘space’ and not over-constraining or controlling it**
 - allocating time, physical space, or nurturing interactions to not **pre-maturely** force transdisciplinary innovation to progress along a prescribed path

Transdisciplinary work

- **Major external challenges:**
 - Our society likes to put things into boxes – siloed organizations
 - most academic funders don't like it (yet) – mono-disciplinary assessments of research proposals
 - competition incentivizes academics to publish in mono-disciplinary top journals
 - current key performance indicators do not promote transdisciplinarity
 - we don't know how
 - transdisciplinary collaboration is really **hard** (design thinking example)
- **Personal challenges:**
 - people don't like complexity and uncertainty – dealing with constant change can be exhausting
 - requires humbleness and an open mindset – admitting that others might know better

Transdisciplinarity

- Transdisciplinarity is transformative, uncomfortable and at times embarrassing
- We need to put effort into understanding each other's approaches and value systems
- We need to step towards each other and be courageous enough to leave the 'safety net' of our own disciplines

What is Education's role in preparing the next generation of the future?

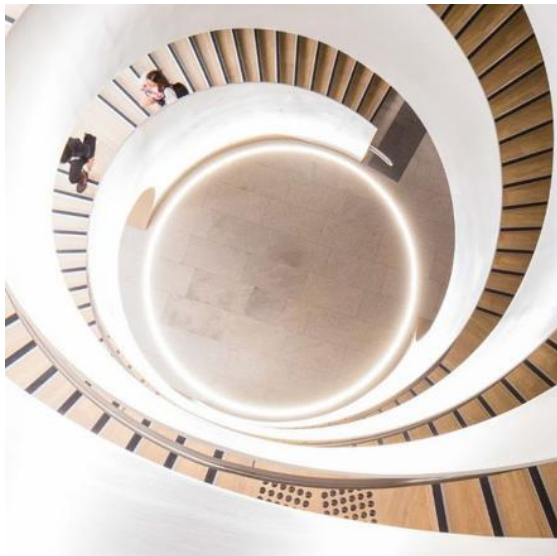
- Problems are more complex, networked and yet we still educate people in siloed way, to think in a particular way
- Transdisciplinary education expands individuals beyond accumulating knowledge and teaches the competencies how to work across disciplines fluidly
- Students are going to be doing 17 different jobs across five completely fields
 - How to prepare students to transition across domains
- In the past transdisciplinary were happy accidents ...
 - **TD school makes it its mission to help students to learn and how to break out of their comfort zones and disciplinary boundaries**



GREAT
MINDS
DON'T
ALWAYS
THINK
ALIKE

Faculty of Transdisciplinary Education (UTS)

- The university is regarded as one of the world's leading young universities, ranked 1st in Australia and 8th in the world by the 2022 Times Higher Education Young University Rankings
- Designed by staff from nine different faculties
- Long-term employability rates (*within 4 months after graduating*)
 - UTS: 76 %
 - TD School: 93 % (40% are directly employed by industry partner)



TD School Innovation ecosystem



- Students from 7 different faculties (25 core degrees)
- Academics and professional staff from across different disciplines
- Industry, government, and community partners (over 2000 industry partners, part of Sydney's *Creative Precinct*)
 - from big organizations and start-ups to community and government projects
 - long term partnerships with industry partners
 - research into the learning of partners

TD School education approach

- It's not about teaching facts, but **ways of looking at problems**
 - Students learn about different perspectives, data, information, tools, concepts, techniques and theories from multiple disciplines
 - students and researchers discover new ways to tackle problems together
- Allows students to play with ideas, making it more fluid
 - TD School recognizes that great minds don't always think alike – and that no student is the same
- Students are set up with real world issues, then research and start to solve them (year 1-3; year 4: *own* projects)
- Students collaborate with students from other disciplines
- It's a transdisciplinary degree because it educates in the methods and ways of thinking of other disciplines – opens up possibilities for solutions
- TD works under the assumption that its students
 - want to be extended and challenged
 - want to go outside the traditional classroom structure
 - are ambitious and want to contribute to the real world

“Creative intelligence doesn't feel like uni, more like real projects, with friends, and support from the staff, no hierarchy, equal grounding – **it's about what the students come up with!**”

TD School education approach

BSc, MSc, or electives (students from 25 core degrees)

- ❖ Creative intelligence and strategic innovation
- ❖ Transdisciplinary Learning for Change
- ❖ Reframing, remixing, reimagining society
- ❖ Envisioning futures worth wanting
- ❖ Sustainability in an interconnected world
- ❖ Change-making for social impact
- ❖ Data science and innovation

- ❖ Creative practices and methods
- ❖ The value of play and how it fosters creativity
- ❖ The art and science of creativity (Creativity is a muscle!)

Bachelor of Creative Intelligence and Innovation

Double degree with core degrees in:

- Bachelor of Advanced Science, business, communication, writing and publishing, animation production, design, engineering, forensic science, health science, information technology, law, management, music, nursing
- students must complete 240 credit points, comprising 144 credit points in the professional degree component and 96 credit points in creative intelligence and innovation
- Or electives
- Or micro degrees and short courses

For students *and* staff!!

“Transdisciplinary is always creative, it has to be.
We can’t predict what will happen.
We can’t do standard constructive alignment.
It surprises and delights us.”

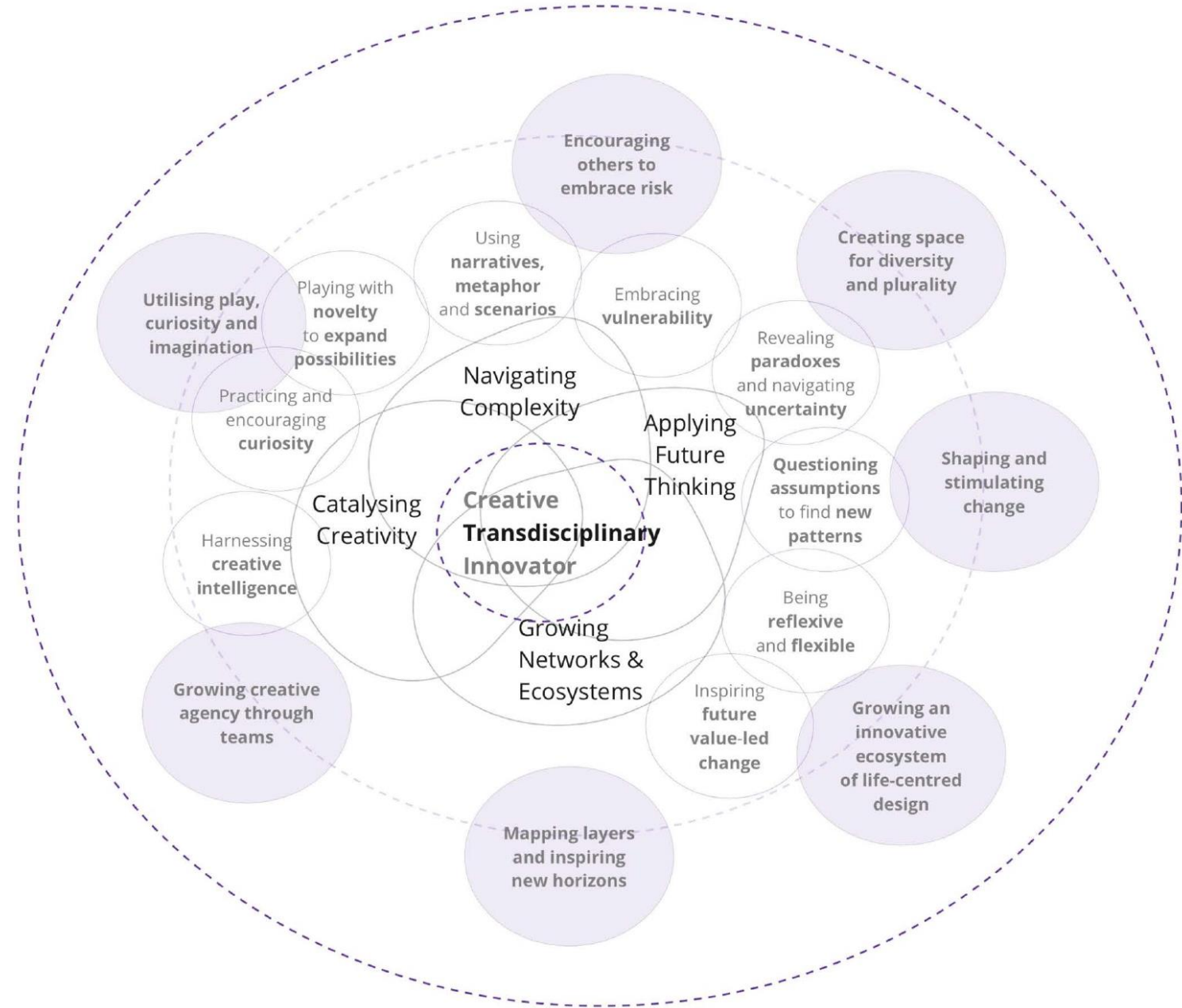
Bem Le Hunte

Director of Teaching and Learning, TD School,
Director BSc Creative Intelligence and Innovation
Novelist

The future of education from knowing to being

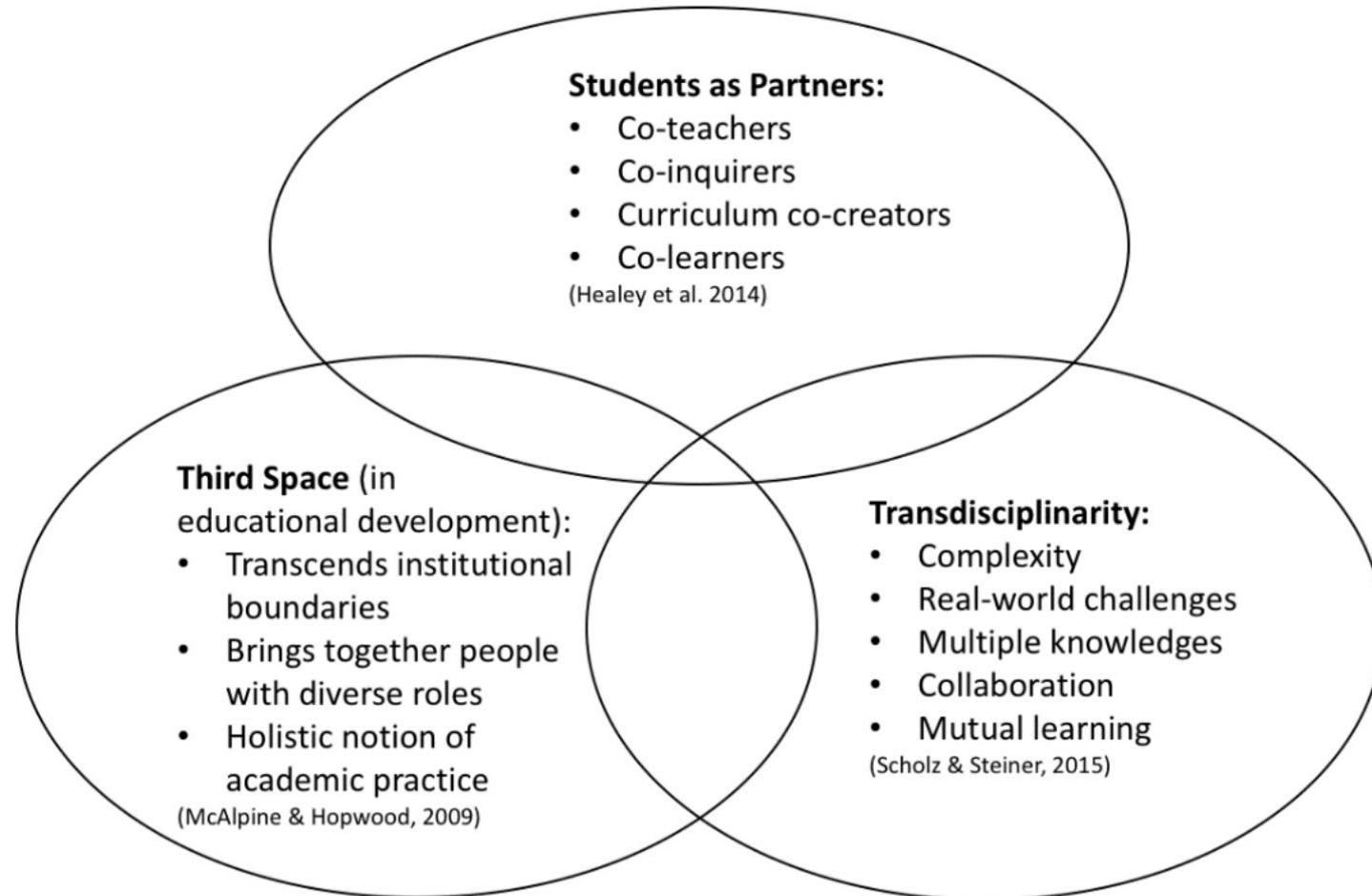
- Students need to learn to navigate liminal spaces (transitional periods)
- Help students to:
 - Manage change
 - Handle uncertainty
 - Think creatively
 - Help students to *BE* the change that we all want to see in the world
- Navigating unknowns – creating a curriculum for **being, not just knowing**
- It's about developing more competent and confident graduates for the world

CISI Capabilities Framework



“Stepping in and Stepping out”: Enabling Creative Third Spaces Through Transdisciplinary Partnerships

Figure 1. Features of the concepts of third space, SaP, and transdisciplinarity



3rd Spaces in Education

Radical inclusion and equality of learners

Cameron: I've never really known what to call the staff. I don't see them as "teachers" or "lecturers" or even "mentors" in the traditional sense. When we're in our third space, our roles quickly melt away. We're placed in this environment where we must work together—as partners—to get the most out of the experience and be our best selves.

Dominica: For me a classic example of third space—you're in the middle of a conversation and a tutor comes in and asks the right question. The conversation feels lifted. There is something about the quality of the questioning. There is vulnerability in their curiosity. They are able to step into the space with us. The curiosity and willingness to ask questions is important. Your roles fall away.

Bem Le Hunte, the professor of ignorance:

“we're so vulnerable as teachers, I'm just supporting students' learning and curiosity”

“Curiosity goes both ways”

TD School education approach

Students explore new ways of thinking and learning,
anchored around the key concepts:

1. **creativity,**
 2. **complexity,**
 3. **transdisciplinarity,**
 4. **futures thinking**
- for the TD School, learning has to be creative and transformative to light students' sparks on how to positively impact the world
 - It's about unleashing students' potential. Student peak experiences are crucial – breakthrough moments – agency of students!

TD School research

At TD School, we have chosen to focus on four key themes:

- Futures
 - How will we work, learn, thrive and play in the future? How can we best anticipate and respond to uncertainty, and create change, to ensure regenerative wellbeing for humanity and the planet?
- Sustainable Societies
 - investigates the barriers and enablers to sustainable development in targeted problems spaces
- Technology and Humanity
 - How can we ensure that technological change happens responsibly and that it promotes an equitable and sustainable society?
- Transformative Learning
 - investigates the transformative potential of learning for individuals, organizations, and society

Transdisciplinary (TD) research is primarily a process than it is a product, involving:

- Mixing academic knowledges from multiple disciplines
- Mixing applied knowledges through collaboration with industry
- Co-design *with* stakeholders, including end-users through a human-centered approach

TD School approach



- Not all problems are transdisciplinary BUT **transdisciplinary will always offer you new ways of looking at projects within your disciplinary focus**
- Prepare student in **knowing *and* being** to drive positive change
- Develop **creative competencies** to thrive in the uncertainty of our times
- **Third spaces** for radical inclusivity, co-creation, and impact on real world problems

Q&A

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Discussion rounds

- TOPIC 1: How might we/Maastricht University scale transdisciplinary education (cf. Premium)?
- TOPIC 2: What are the benefits/downsides of a transdisciplinary faculty at Maastricht University?
- TOPIC 3: How might we build the sustainable relations with external actors that are needed to scale society-based education (cf. WUR)?

Additional topics:

- TOPIC 4: What novel competencies do teaching staff need to acquire to implement transdisciplinary education successfully?
- TOPIC 5: How might we assess transdisciplinary education?
- TOPIC 6: Your choice!