Education for Sustainable Development

Re-imagining the future we want through education

28 September 2023

Shepherd Urenje:
SWEDESD; Centre for research and education on learning for sustainable development and global health; Uppsala University

The Aim

- Together we will try and answer the question **“what does teaching and learning for an unknown future entail”?**

- We will consider strategies for **rethinking appropriate practices** that may transform learning interactions to **empower students** by effectively responding to ever changing challenges.

The main takeaways/ outcomes

By the end of the workshop we should be able to interrogate and suggest answers to the following questions;

1. What are the essential sustainability skills and strategies required for teaching and learning that create long-term learning centred environments which develop competences for sustainable life choices?

2. How can we as professionals initiate personal and institutional planning and action for change to support the implementation shift required for sustainable life choices?

Agenda

1. How do we understand sustainability?
2. Why do we have a challenge?
3. What needs to change?
3. How can ESD hep us?

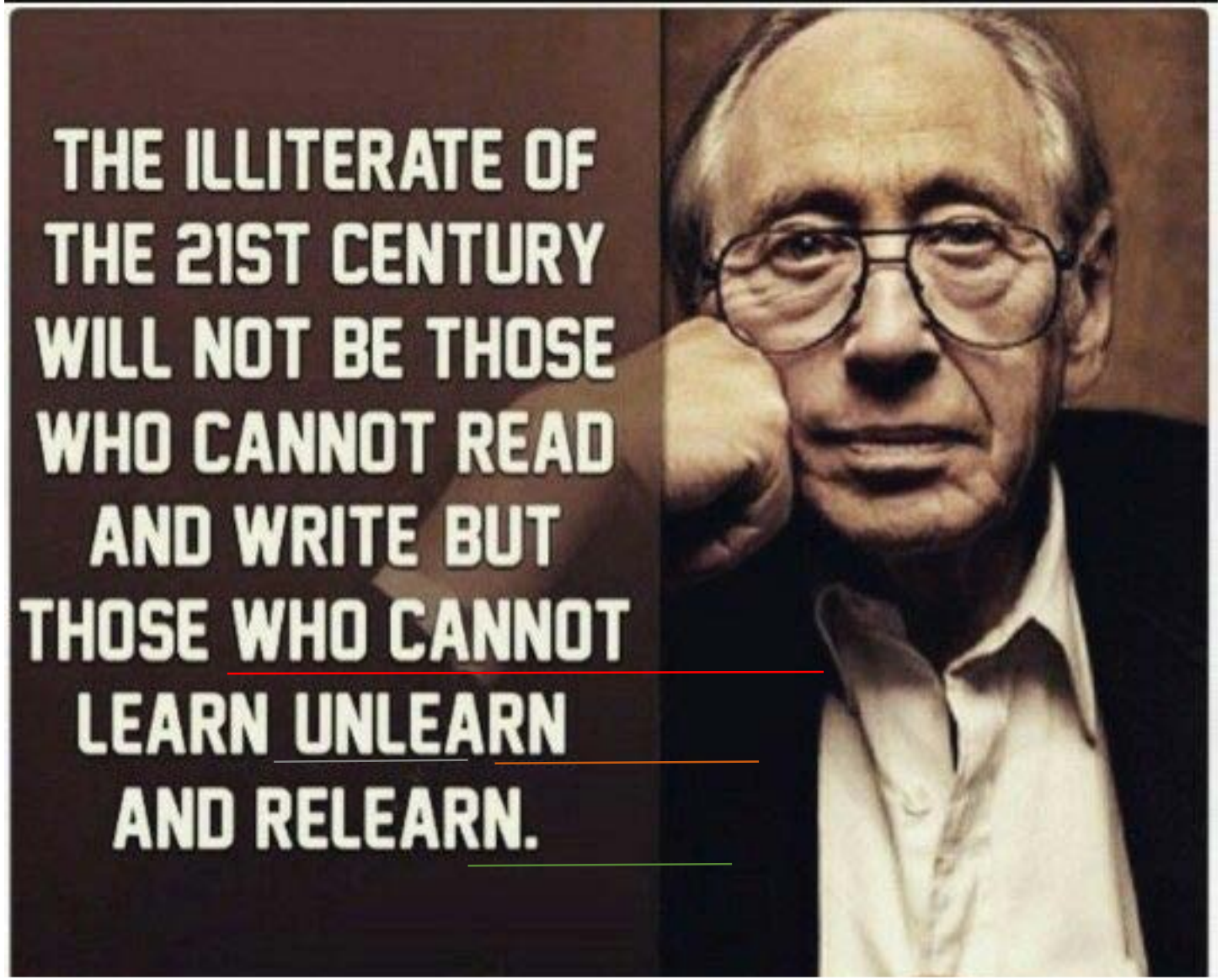
What is our challenge?

ACTIVITY 1

WHAT IS A GOOD LIFE?

Think about


What we eat
Where we live
How we move around
What we buy and use
What we do for fun
What is a good life?



LEARNING

UNLEARNING

RE-LEARNING

FOR A SUSTAINABLE FUTURE

Un-learning our way out of unsustainability

In order to change from Good life 1.0 to Good life 2.0 What must happen?

LEARNING

UNLEARNING

RE-LEARNING

FOR A SUSTAINABLE FUTURE

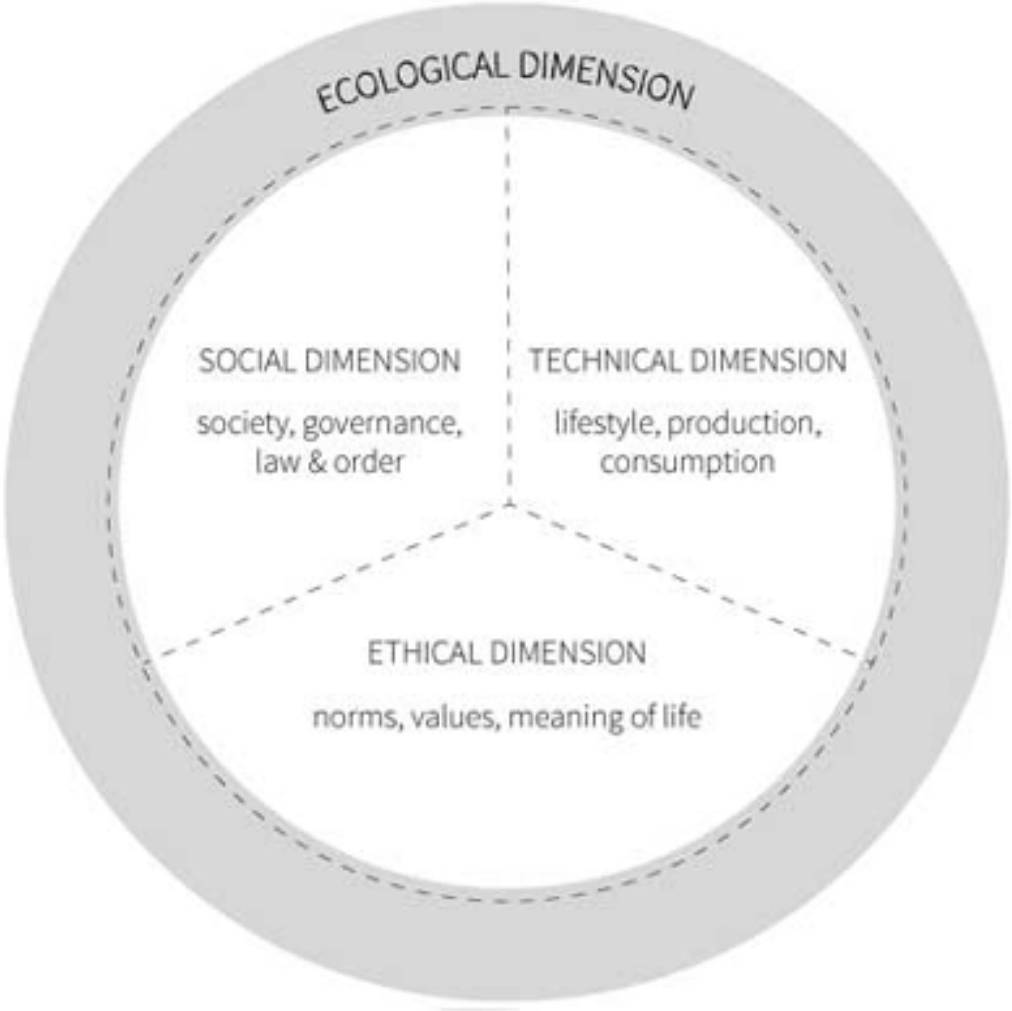
ACTIVITY

CRITERIA FOR SUSTAINABILITY

Criteria for sustainability

1. Discuss and fill the four dimensions with content, at least five points under each heading.

2.Discuss how the four different dimensions are mutually dependent of each other and how they, in conjunction, create sustainability.



What do we need to change?

What is our real challenge?

Responding to a crisis of global dysfunction

BUT WHY ESD

?

Current global trends suggest that our behaviours threaten our ability "to meet the needs of the present generation **without compromising the ability of future generations** to meet their own needs"

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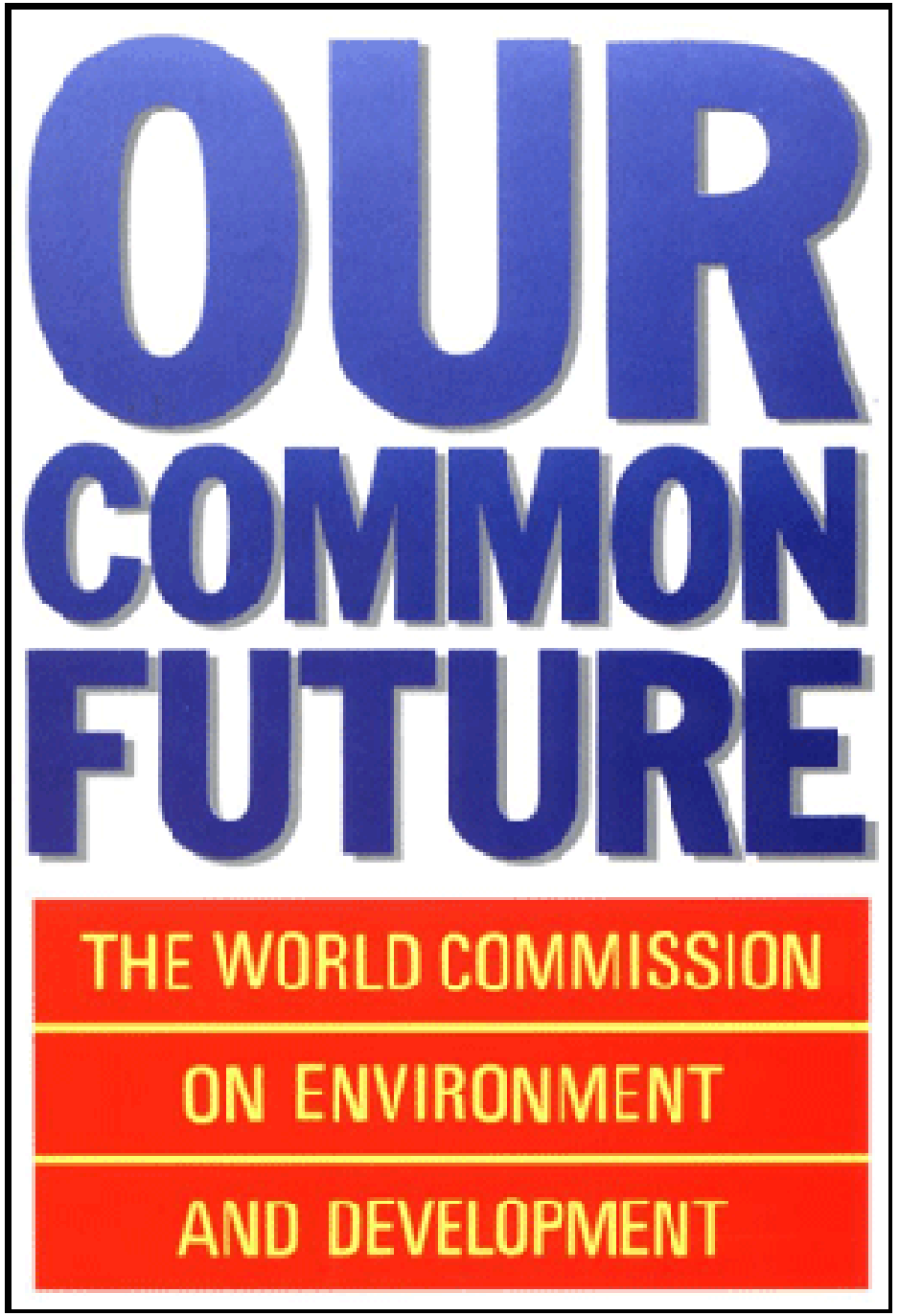
WHAT HAS NOT HAPPENED?

Since the Brundtland Report (1987)

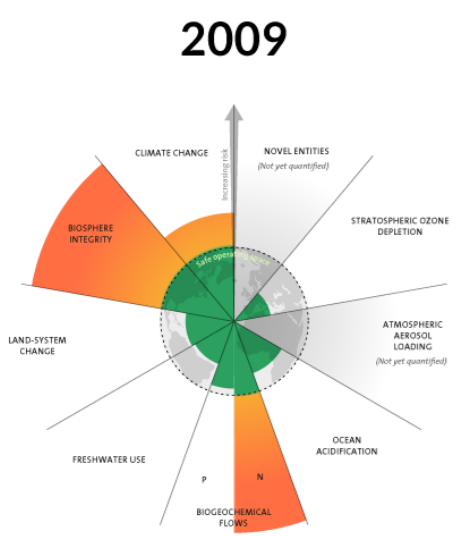
When is the future?
36 years ago the present was the future

- *Why are we finding it almost impossible to walk the talk?*

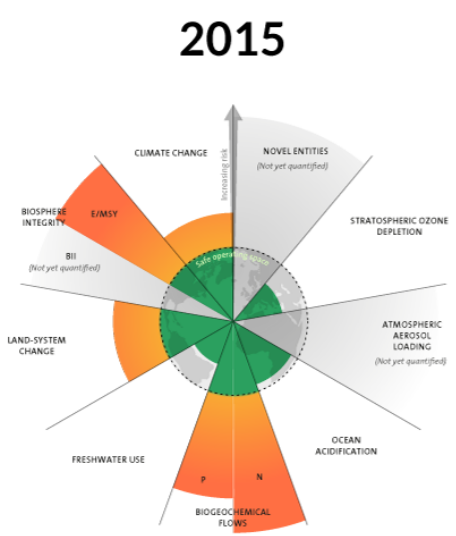
The global mess that humanity has created is linked to the way the current generation has been educated.



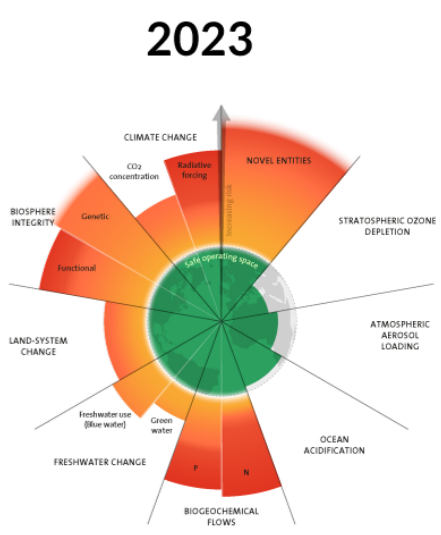
PLANETARY BOUNDARIES



3 boundaries crossed



4 boundaries crossed



6 boundaries crossed

A GLOBAL DYSFUNCTION?

Earth beyond six of nine planetary boundaries

KATHERINE RICHARDSON, WILL STEFFEN, WOLFGANG LUCHT, JØRGEN BENDTSEN, SARAH E. CORNELL, JONATHAN F. DONGES, MARKUS DRÜKE, INGO FETZER, GOVINDASAMY BALA, [...], AND JOHAN ROCKSTRÖM +19 authors Authors Info & Affiliations

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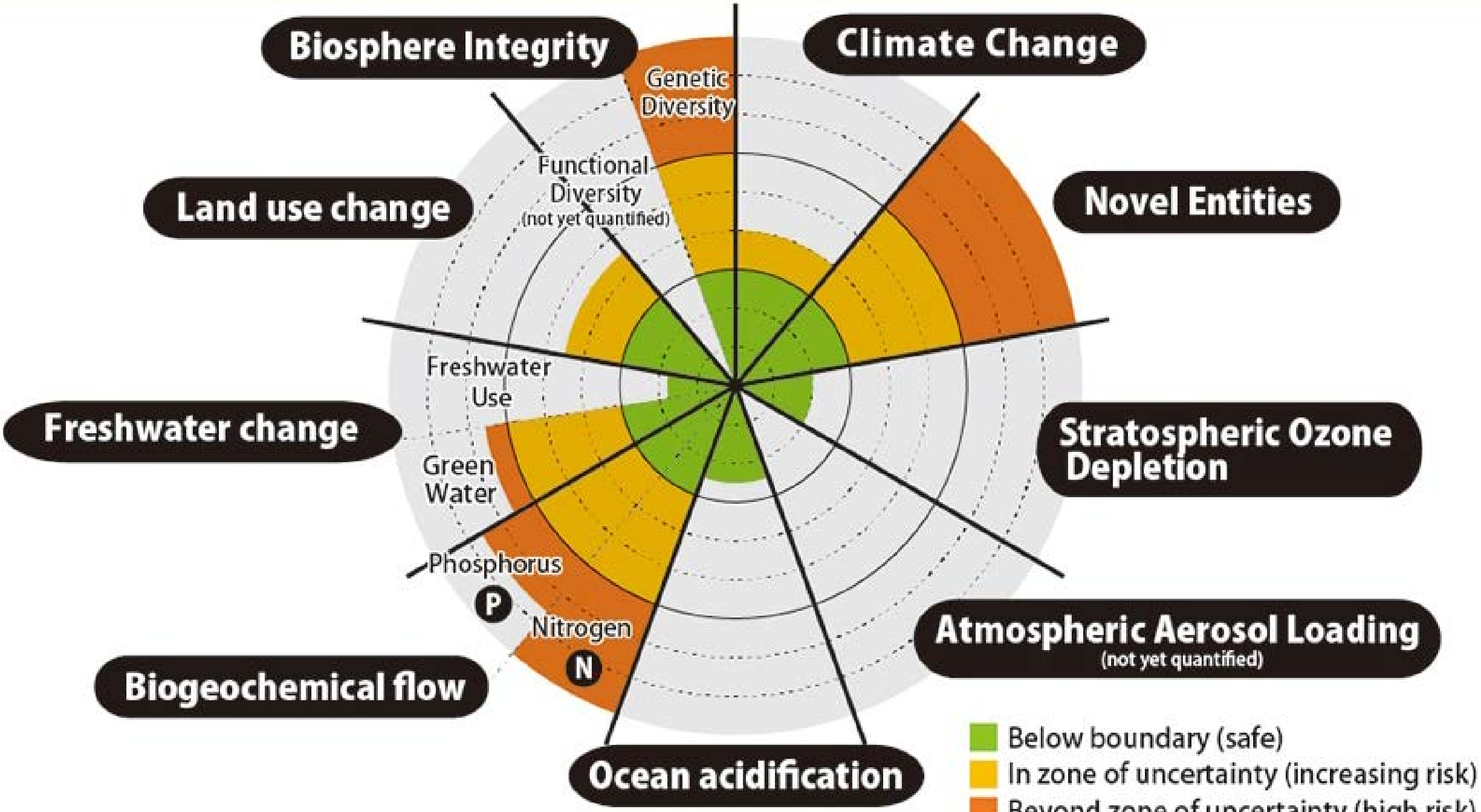
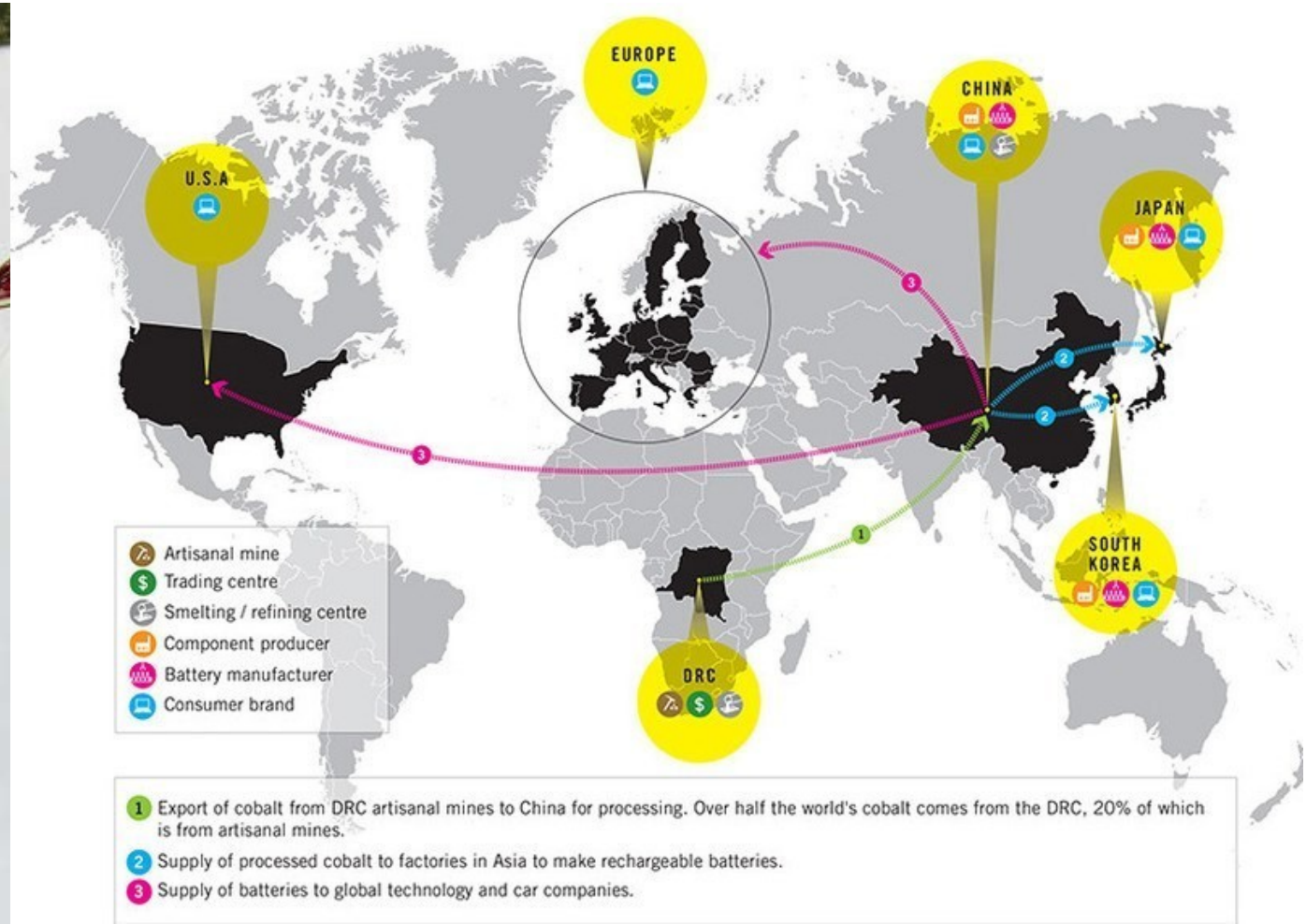
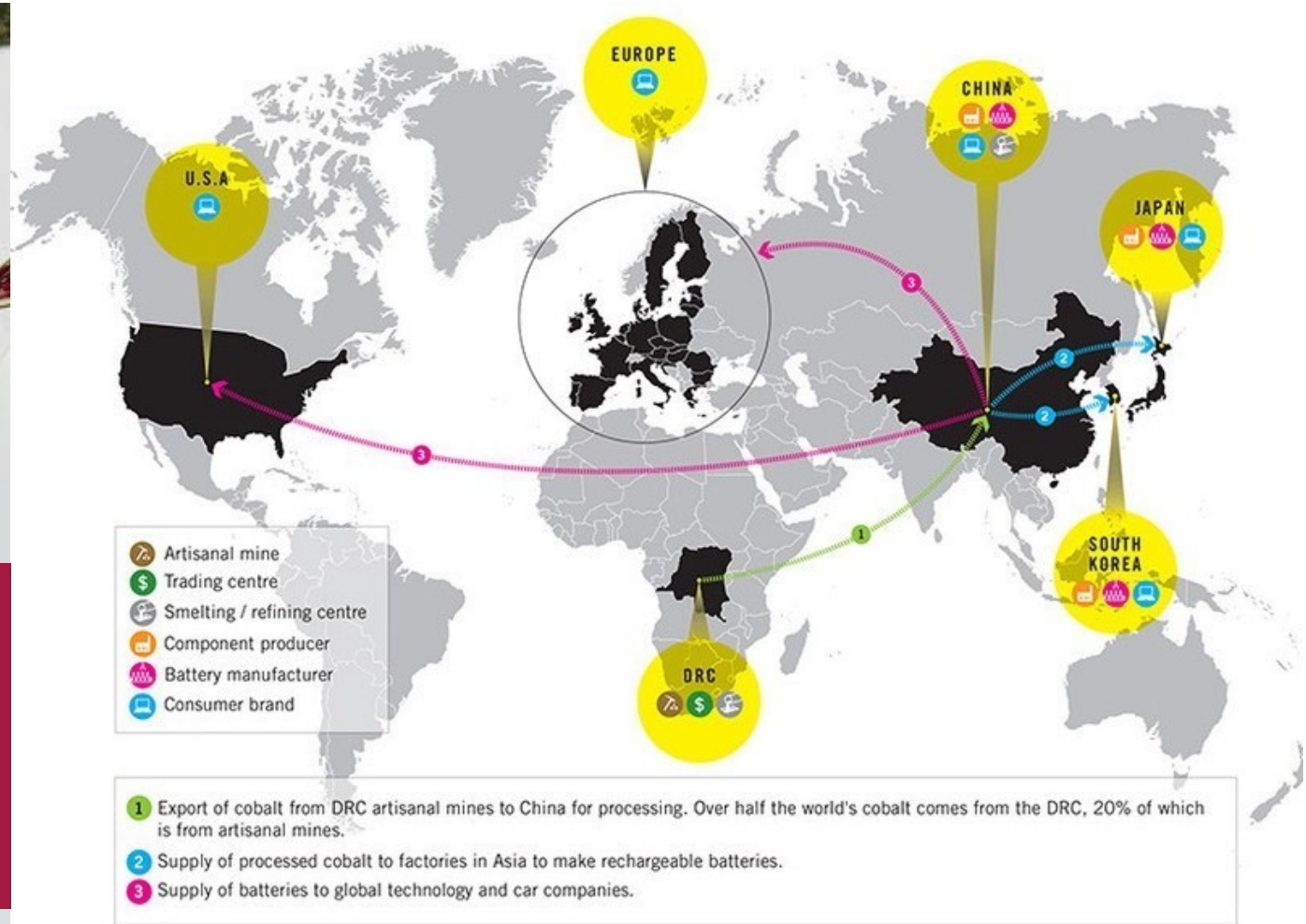

Biosphere Integrity
Genetic Diversity
Functional Diversity
(not yet quantified)
Climate Change
Land use change
Novel Entities
Freshwater Use
Freshwater change
Green Water
Stratospheric Ozone Depletion
Phosphorus
P
Nitrogen
N
Atmospheric Aerosol Loading
(not yet quantified)
Biogeochemical flow
Ocean acidification
Below boundary (safe)
In zone of uncertainty (increasing risk)
Beyond zone of uncertainty (high risk)

Europe’s “clean” electric cars are built on pollution in DR Congo



Europe's "clean" electric cars are built on pollution [illegible] DR Congo



Who made your clothes?

Who made your clothes?

WICKED PROBLEMS (*Gibson and Fox, 2013*)

Simple	Complex	Wicked
EASY TO SOLVE	RESISTS SOLVING	RESISTS DEFINING
Summary: A clear problem with a clear solution	Summary: The problem and the solution are not clear but can be understood with time	Summary: Problem and solution not understood and keep shifting when we try to define them
Properties: Predictable Straightforward Obvious	Properties: Many familiar elements Hidden root courses Nonlinear Interoperating parts affect each other	Properties: Ambiguous, chaotic Many stakeholders with conflicting perspectives Many elements are hidden and unknown No right or wrong solution Not quantifiable No precedents

Challenges are too severe to bear

WICKED PROBLEMS (*Gibson and Fox, 2013*)

Simple	Complex	Wicked
EASY TO SOLVE	RESISTS SOLVING	RESISTS DEFINING
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SUPPER WICKED PROBLEMS
HIV-AIDS
Covid 19
Climate Change

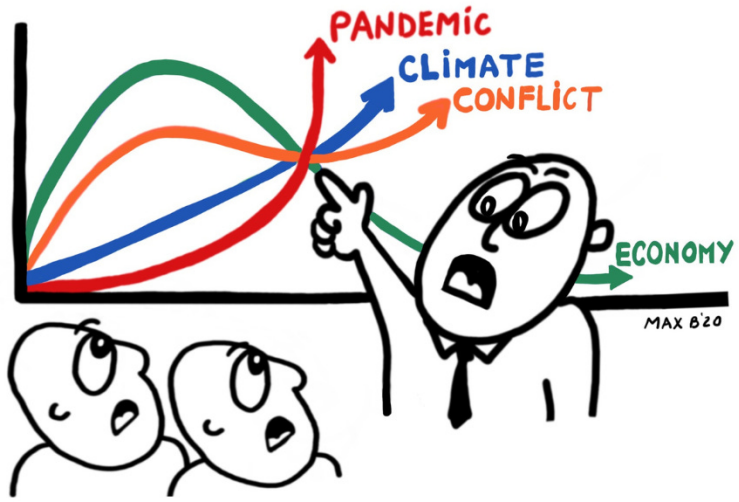
Challenges are too severe to bear

- Complex
- Contextual
- Contested
- Wicked Problems

What is a good life?

Disasters are collaborating better than we are

Paul Maximilian Bisca



-The disasters are collaborating better than we are!

The Regeneration Weekly | soil.works

- We have all this amazing technology
- yet all too often there is a complete lack of clear communication
- communication has regularly been trumped by political and economic agendas
- “this is how we have always done it” approach

The real challenge?

- The real challenge with many big picture initiatives that seek to create change, including the SDGs has to do with
  - why human beings are organized (e.g., at the level of emotion, identity, and self) and
  - why / how / for whom / to what degree learning, growth, and change actually occurs.

- The presentation of information to people to create change (e.g., with attitudes, behaviours, policies) often succeeds or fails not so much because of the soundness of the information that is provided (e.g., the facts that are presented, the clarity of arguments or presentations, the urgency of the issues at hand, the support of governments, etc.),

Why does change fail?

- Change fails due to due to highly complex human interactions between seemingly extraneous / peripheral factors

- We have known about climate change for decades
  - despite thousands of ad campaigns, papers / presentations / books / videos / meetings / conferences / grants / policies,
  - we still encounter considerable denial and is only now beginning to result in substantive action that has any chance of being ameliorative, and which is still nowhere near what is required to deal with this existential threat to us all.

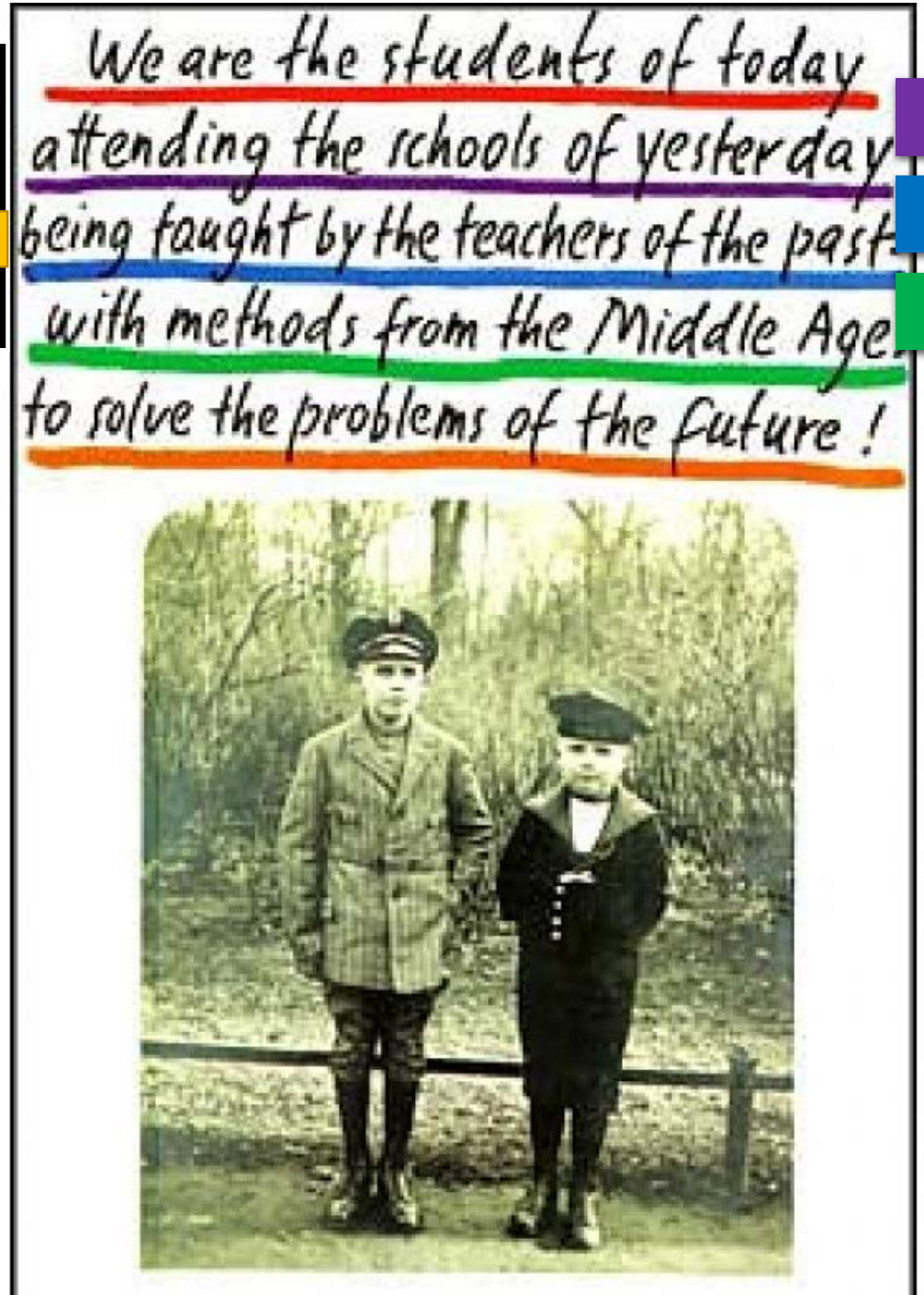
- What kind of education will take us out of this paralysis?

ACTIVITY 3

WHAT NEEDS TO CHANGE?

WHAT ARE WE TRYING TO CHANGE? From

Ways of thinking and acting



Classroom

You

Pedagogy

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WHAT ARE WE TRYING TO CHANGE?

Introducing New ways of thinking and acting

To

Classroom

You

Pedagogy

Discussion:

- Why is this important for Higher Education?
- How can ESD achieve this ambition?

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TARGET 4.7 OF GOAL 4

4.7 By 2030, **ensure that all learners acquire knowledge and skills needed to promote sustainable development**, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development.

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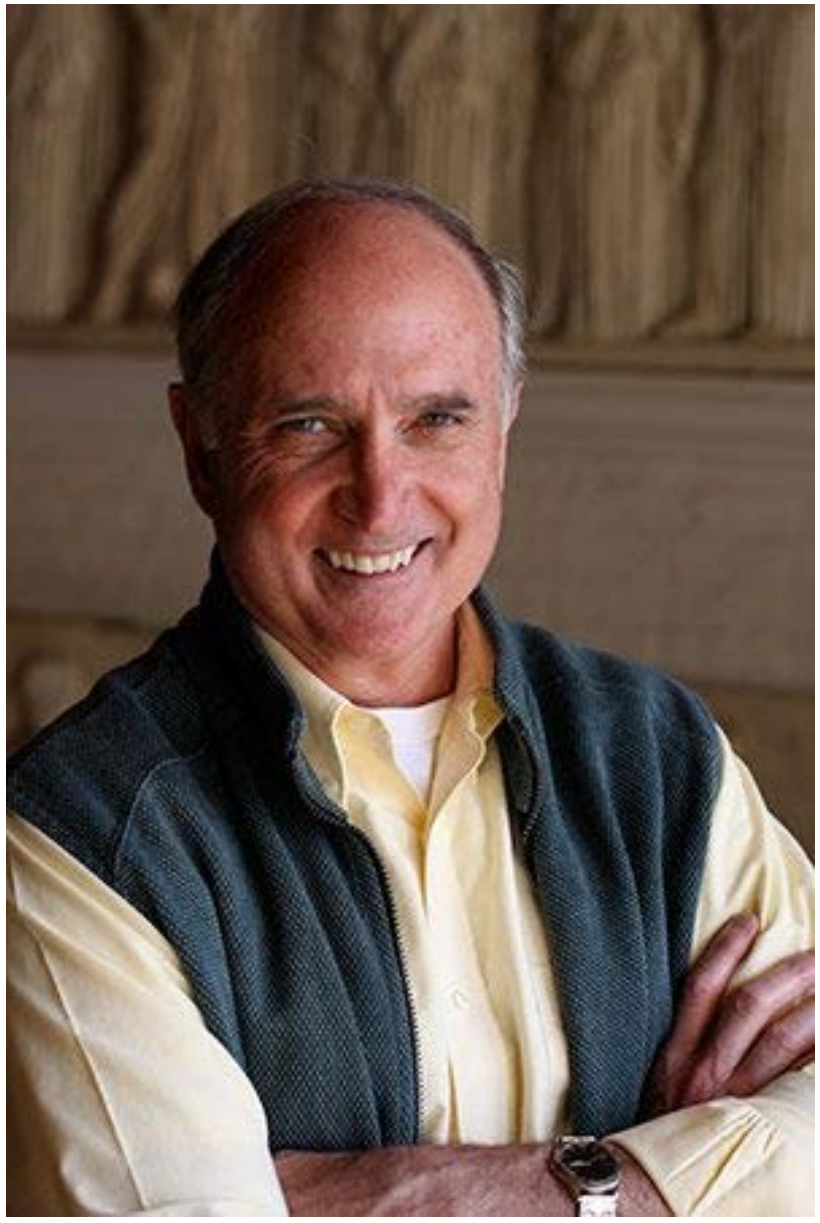
WHAT IS EDUCATION FOR?

The truth is that without significant precautions, education can equip people merely to be more effective vandals of the earth. If one listens carefully, it may even be possible to hear the Creation groan at every graduation ceremony when another batch of smart, degree-holding, but ecologically illiterate, Homo sapiens who are eager to succeed are launched into the biosphere.

David Orr (1994)Earth in Mind



THE CHALLENGE

"the knowledge, skills, aptitudes and values necessary to industrialise the earth are not necessarily the same as those that will be needed to heal the earth or build durable economies and good communities based on principles of equity and sustainability" (David Orr, 2004)

We need teaching and learning that enables social transformation

What does traditional education “teach” learners about the world?

- the curricula of traditional schools are based on Stability, Certainty, Simplicity and Clarity
- The assumption is that “we know what you need to know, and how to test that you know it”
- That assumption is based on
  - the world as it *was,*
  - a little bit on how it *is* but
  - rarely on how it *will be*.

What have our students been telling us?

- they are bored in school
- They take too many tests
- there is little real world connections to their learning.
- And what else?

How can we initiate and sustain change?

DISRUPTIVE INNOVATION

The formula for change - C = (D x V x F) > R

The strengths affecting the likely success of organisational change

1. **D**issatisfaction: there is **dissatisfaction** - a situation that people want to change;
2. **V**ision: people share a reasonably clear **vision** of a future situation that is both better and achievable;
3. **F**irst steps: the action plan to achieve the vision is acceptable and sets out the **first steps** to be taken;
4. **R**esistance: people do not see the need for change – opposition / conflict

Change happens when the combined strength of the first three factors above is greater than the existing **resistance** to change.

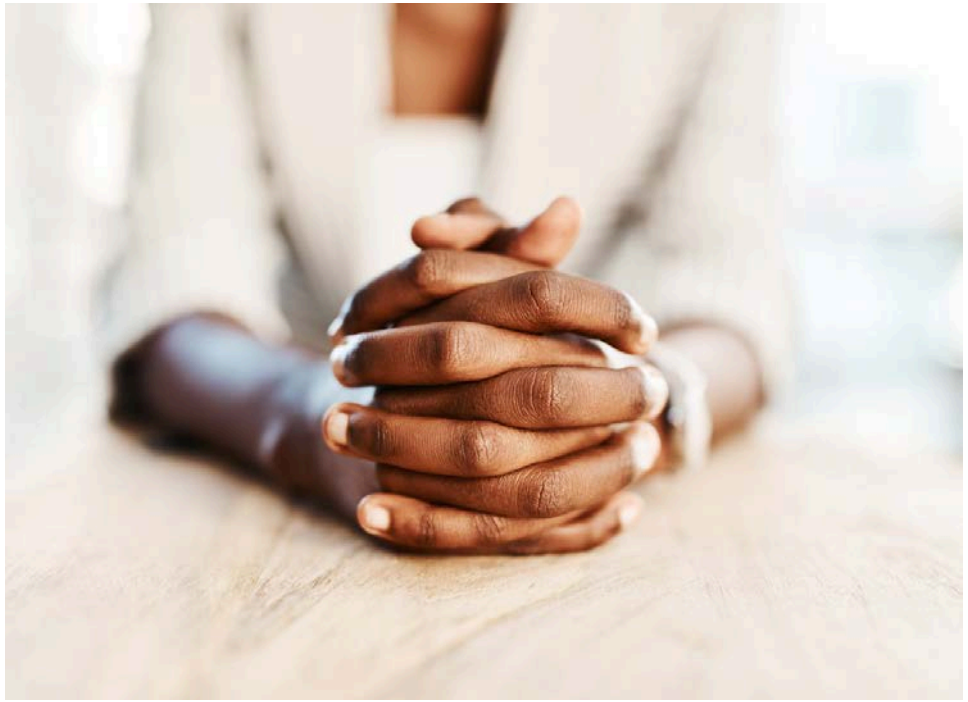
David Gleicher, 1960 & Kathleen Dannemiller, 1992

Re-imagining Education

YOUR CHANGE PROJECT

preparing learners for a future we do not know

Behaviour Change Exercise – Clasping Hands



THANK YOU

THANK YOU

Teaching and Learning Change projects
A transdisciplinary approach to professional development

BACKCASTING

What is the current situation?

What needs to be done?

CURRENT
Unsustainable

DISRUPTIVE INNOVATION

VISION
Sustainable state

What is working well?
What is not working?

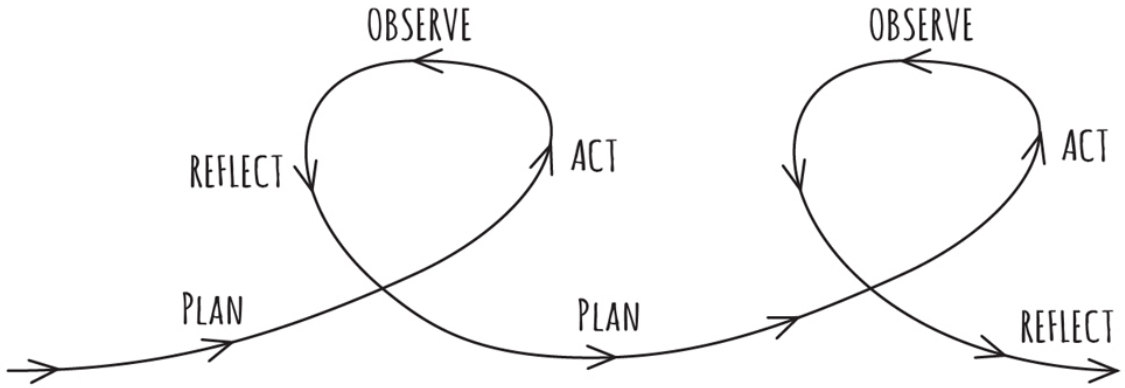
Where do we want to go?

BACKCASTING

What is the current situation?

CURRENT
Unsustainable

2



VISION
Sustainable state

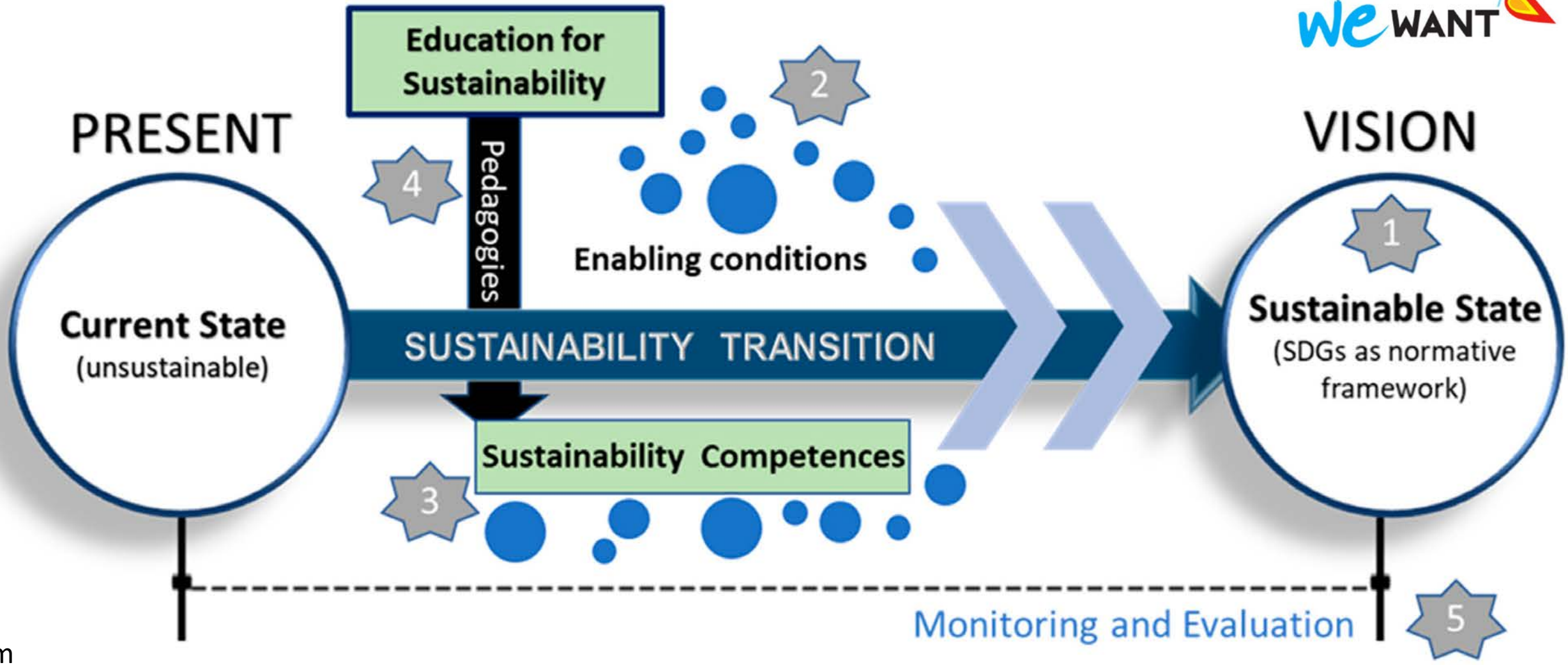
1

What is working well?
What is not working?

3

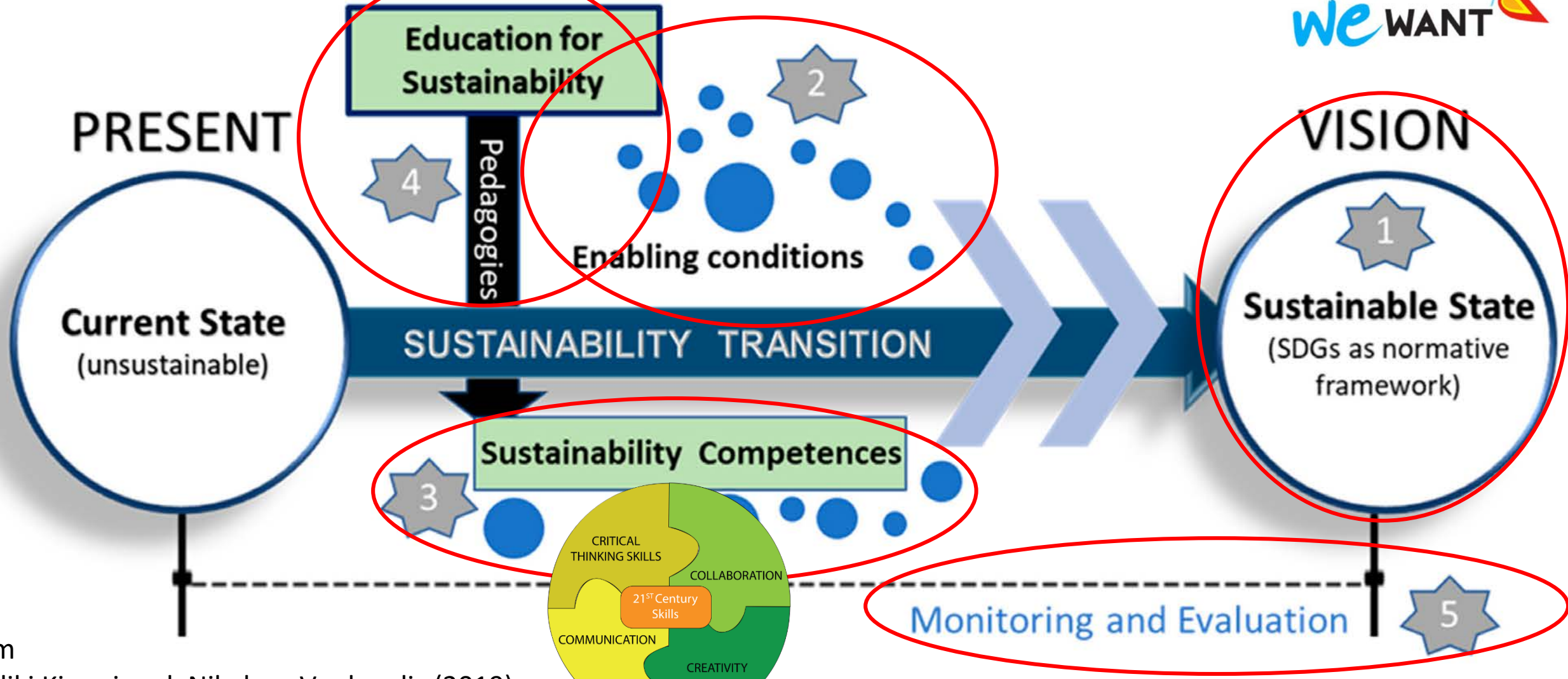
Where do we want to go?

Education for Sustainable Development is about transforming society



From
Vasiliki Kioupi and Nikolaos Voulvoulis (2019)

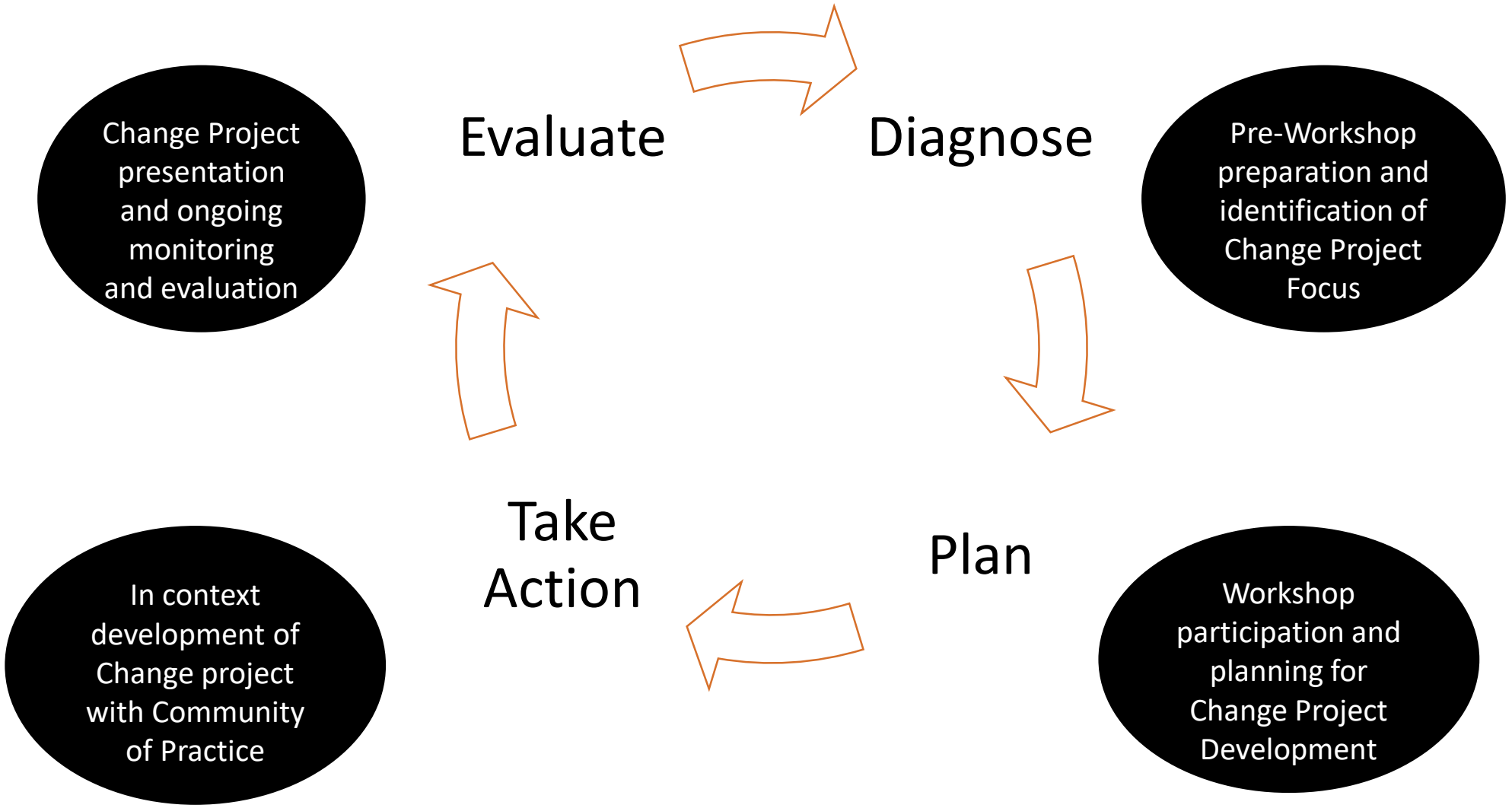
Education for Sustainable Development is about transforming society



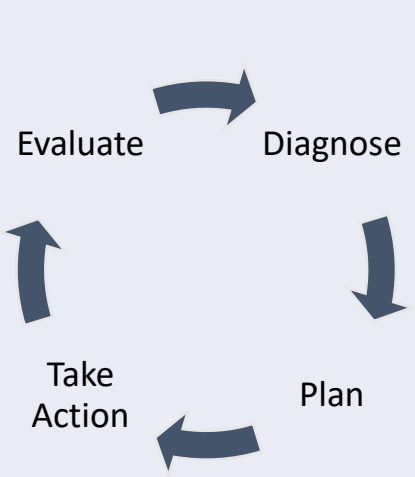
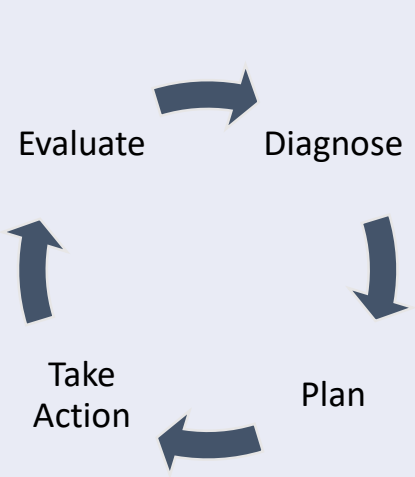
From
Vasiliki Kioupi and Nikolaos Voulvoulis (2019)

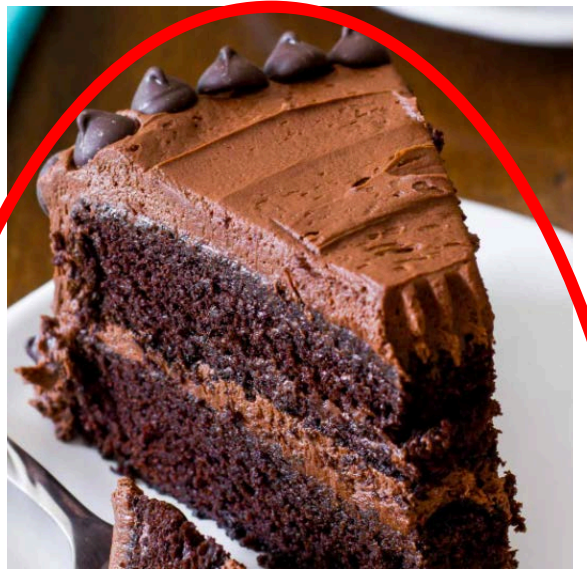
Action Research

"How can teaching and learning respond to 21st century challenges?"



Change Project Learning cycles

Cycle 1	Cycle 2	Cycle 3
		
Workshop preparation and identifying national and institutional priorities	Reflexive Designing with institutional community of practice colleagues as critical friends	Implementation and Institutionalisation of Change Projects with community of practitioners



Multidisciplinary partnership

different subjects take up a common topic

Interdisciplinary partnership

integration of multiple disciplines to examine a theme

Transdisciplinary partnership

Collaborative learning across subject areas

The Lancet Commission on Health and Climate Change

- "Climate change is the biggest global health threat of the21st century". (The Lancet 2009)
- "Tackling climate change could be the greatest global health opportunity of the 21st century". (The Lancet 2015)
- The Lancet Commission of 2015;
  - 15 Institutions composed of Health professionals, energy experts, economists, political scientists, financiers and development experts

- When climate change is framed as a health issue, rather than purely as an environmental, economic, or technological challenge, it becomes clear that we are facing a predicament that strikes at the heart of humanity. Health puts a human face on what can sometimes seem to be a distant threat.

- Public concerns about the health effects of climate change, such as undernutrition and food insecurity, have the potential to accelerate political action in ways that attention to carbon dioxide emissions alone do not.

The Change Project answers two questions

- “How can current teaching and learning be transformed in order to respond to the 21st-century challenges?”

- “How can we use ESD teaching and learning approaches to transform teacher education in ways that empower student teachers (and practising teachers) for the 21st century and beyond?

Suggested Specific Questions

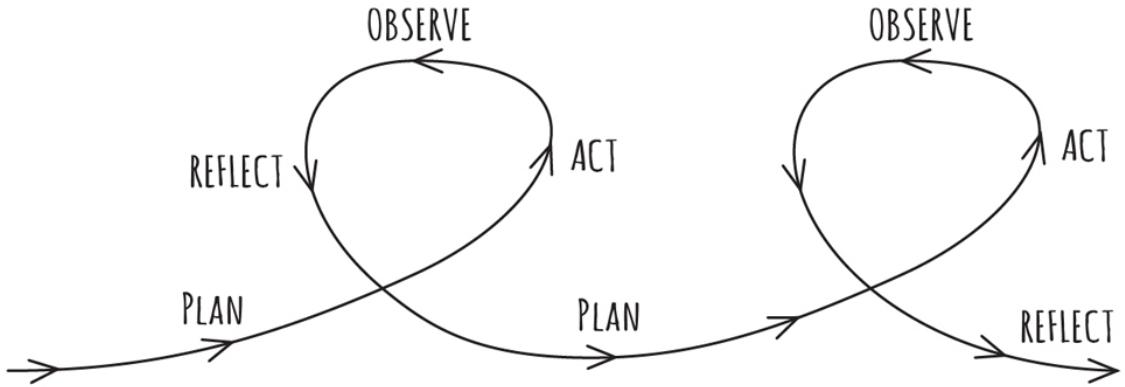
- What is currently working well in our institution?
  - How can we make it even better? (Change Project idea)
- What is not working so well?
  - How can we make it work better? (Change Project idea)

BACKCASTING

What is the current situation?

CURRENT
Academic Solitude

2



DISRUPTIVE INNOVATION

VISION
Interdisciplinary Partnerships

1

What is working well?
What is not working?

3

Where do we want to go?

BACKCASTING

What is the current situation?

BUILDING THE FUTURE we WANT

CURRENT
Academic Solitude

2

Curriculum

Lesson planning

Teaching methods

Learning Centeredness

Community engagement

3

VISION
Interdisciplinary Partnerships

1

What is working well?
What is not working?

Where do we want to go?

ENGAGE THE DEBATE!
COMPETENCES FOR 21ST CENTURY TEACHERS

COMPETENCES FOR SUSTAINABILITY

Systems thinking

Futures thinking

Values thinking

Strategic thinking

Collaboration competence

Critical thinking

Personal competence

Integrated problem-solving competence

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ACTIVITY 2

Your Change Project?

WHAT IS A GOOD LIFE?

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MORE – BIGGER – FASTER - NEWER

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Good Life 2.0

Change Project Development: Poster

YOUR CHANGE PROJECT: _____

NAME & INSTITUTION NAME:

- What SDGs will you focus on?
- Who will be involved?
- How will you support everyone to develop a common understanding of SD and ESD?
- How will the CP address / extend / improve your institutions Vision and Mission?
- What 21st century competences?

THANK YOU

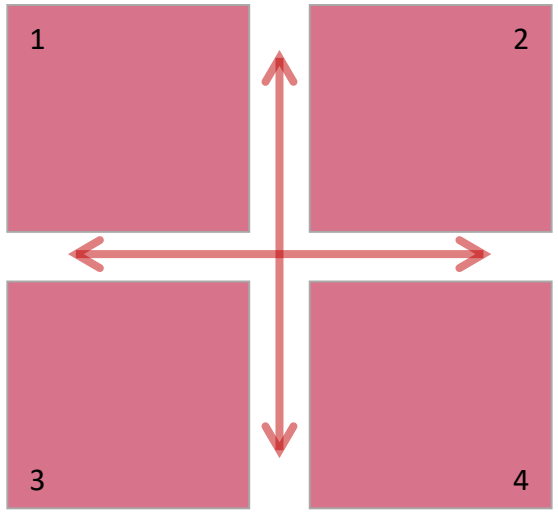
TEACHING FOR A FUTURE WE DO NOT KNOW

Effective methods

TRANSMISSIVE
Predetermined
Prescribed
Closed

Pedagogic quadrants

AUTHORITATIVE
Training
Conditioning



PARTICIPATORY
Active citizenry
Social learning

TRANSFORMATIVE
Co-created
Socially critical
Action-orientated
Open

Jickling & Wals, 2008

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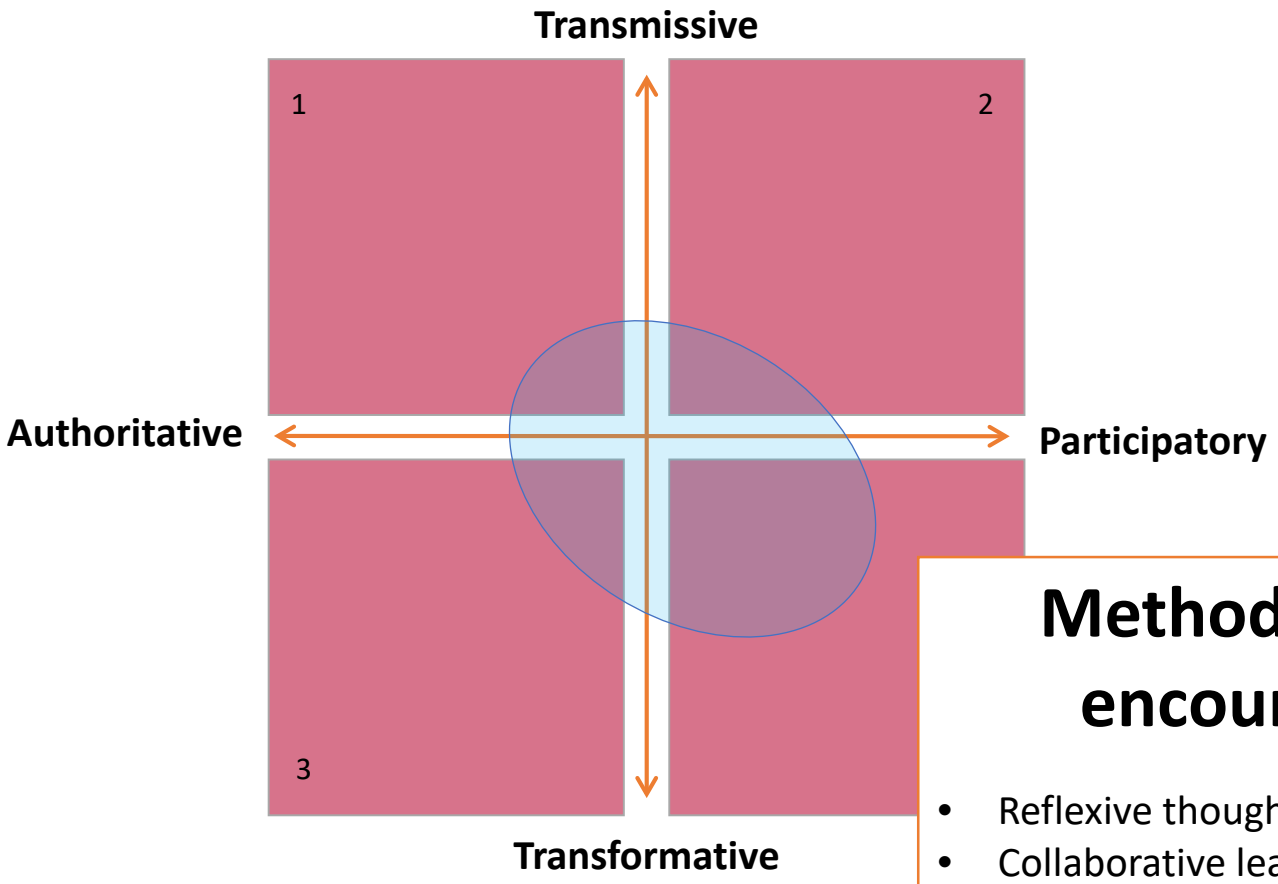
Effective methods



Methods that encourage:

- Reflexive thought and action
- Collaborative learning
- Making connections
- Learning as inquiry
- Enabling empowerment, transformation and emancipation

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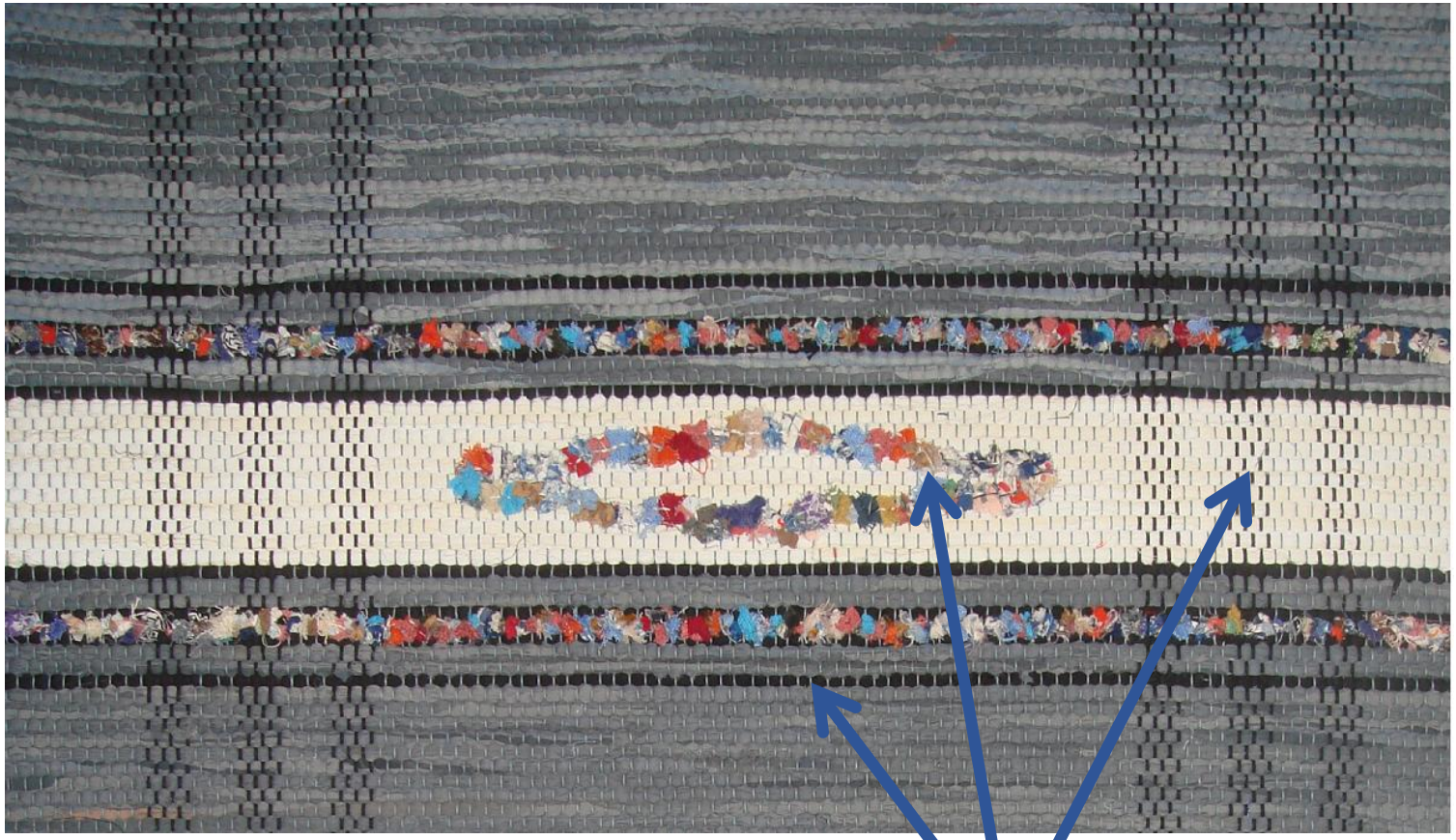
ESD

Weaving a mat …

METHODS

CONTENT



Patterns of integrated knowledge = COMPETENSES

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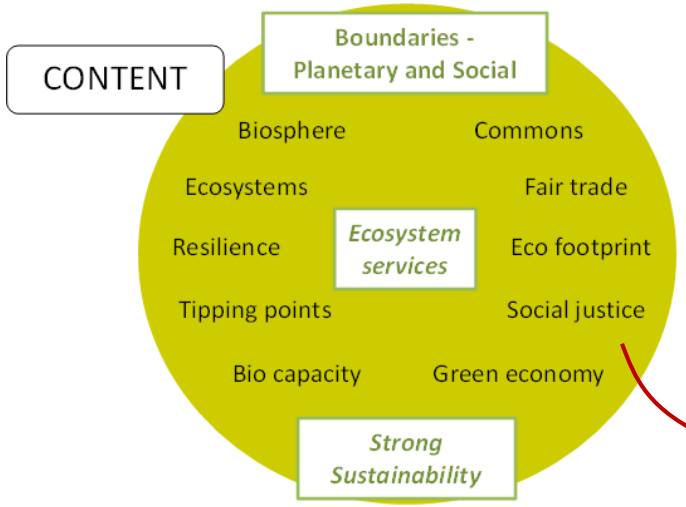
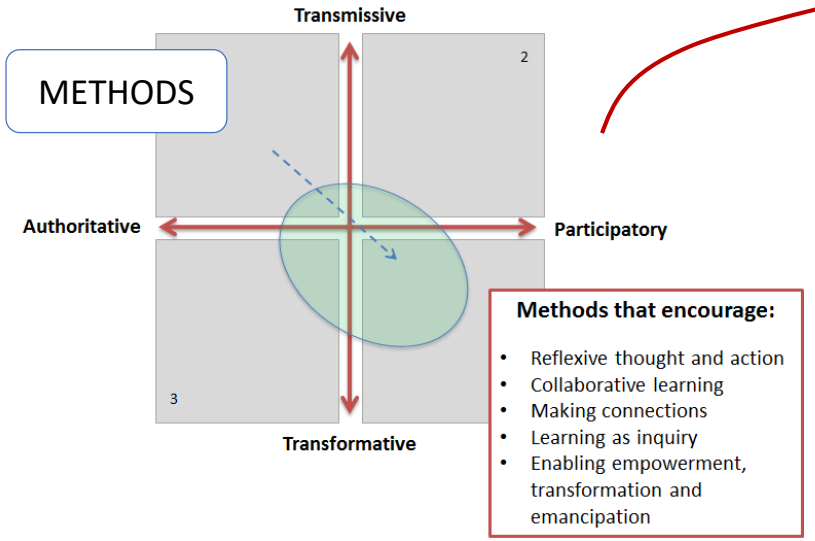
THE NAVIGATION TOOL





COMPETENCES FOR SUSTAINABILITY

Systems thinking

Futures thinking

Values thinking

Strategic thinking

Collaboration competence

Critical thinking

Personal competence

Integrated problem-solving competence

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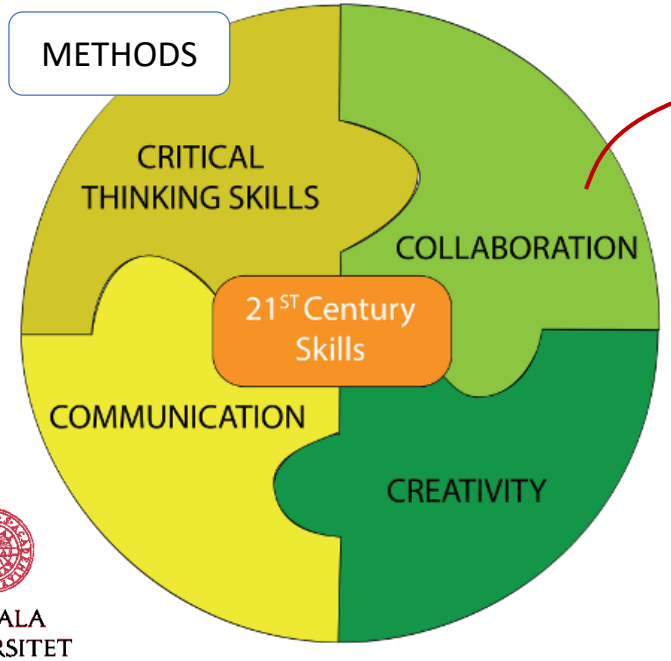
THE NAVIGATION TOOL



COMPETENCES FOR SUSTAINABILITY

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Example 1
Midlands State University: Curriculum Change Project

MIDLANDS STATE UNIVERSITY

Our hands Our minds Our destiny

What did they do?

1. **Revising modules** and module outlines:
   - Aims and objectives to incorporate **21st century competencies**
   - Teaching approaches to emphasize **active learning pedagogies**
   - Assessments to focus on testing acquisition of **life-long competencies and attitudes**
2. **Enacting pedagogies** that foster ESD competencies:
   - Shift from lecturing and tutoring to active learning by students
3. **Changing assessments** to strategies that measure substantive learning outcomes:
   - Assessment tasks that measure life-long competencies and attitudes
   - Assessment tasks that are linked to real-life problems or issues
4. **Research project topics** that support ESD competencies

What did they do?

1. **Revising modules** and module outlines:
   - Aims and objectives to incorporate **21st century competencies**
   - Teaching approaches to emphasize **active learning pedagogies**
   - Assessments to focus on testing acquisition of **life-long**

Rebranding of module outlines

3. **Changing assessments** to strategies that measure substantive learning outcomes:
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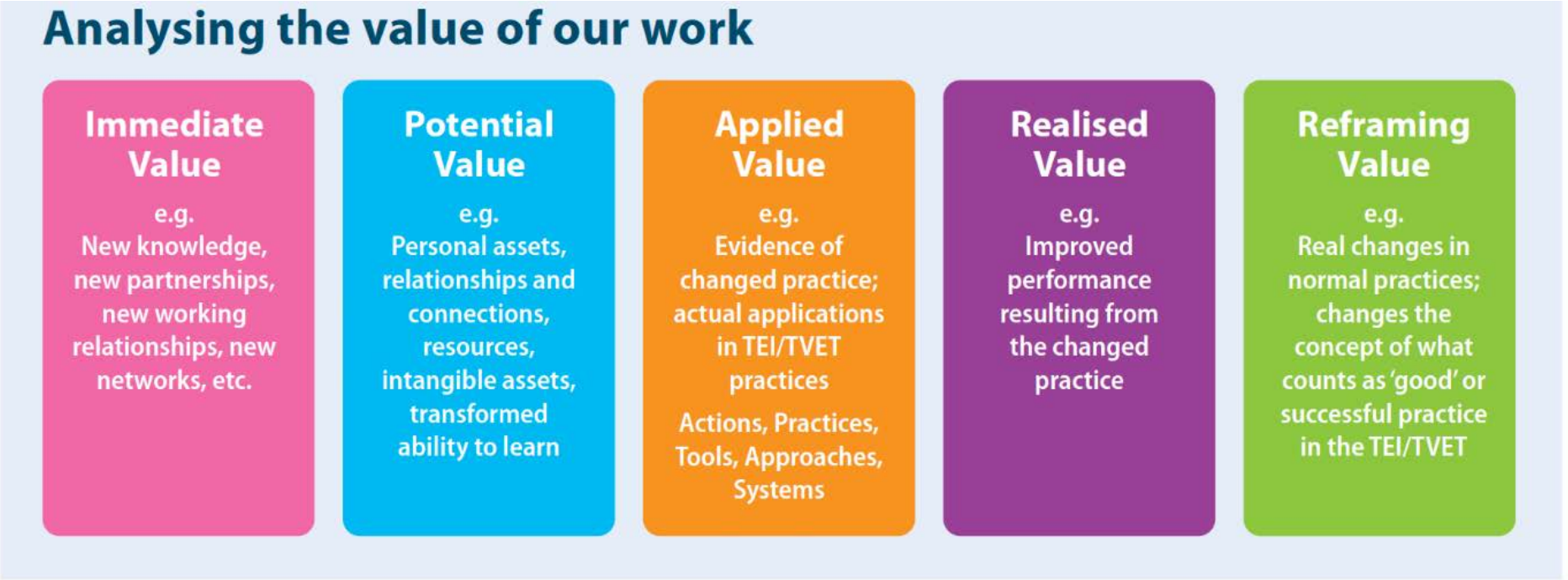
VALUE CREATION NARRATIVE

Value creation framework adapted from Wenger, Traynor and De Laat (2011)



Example 2
Campus Gotland Summere School

I have given a lot of thought to the food waste matter and right now I'm starting a project together with my partner and the help of a mentor from University. We are trying to create a food waste certificate for all businesses that cook food (restaurants, schools, catering…), which would prove that the company cares about food waste and doesn't throw away more than x% (I haven't calculated the exact percentage yet) of the food they buy. What I want to do is encourage businesses to reduce their food waste by **educating** the staff, I learnt that education is key from the course, you were so right!! And also provide a service of planning, creating food waste friendly menus and helping them out in all issues that can pop up when they start making a change! The point of the certificate is also to help the consumer make an active choice of restaurant and make people aware that different restaurants have different routines and put more or less effort to reducing their food waste.

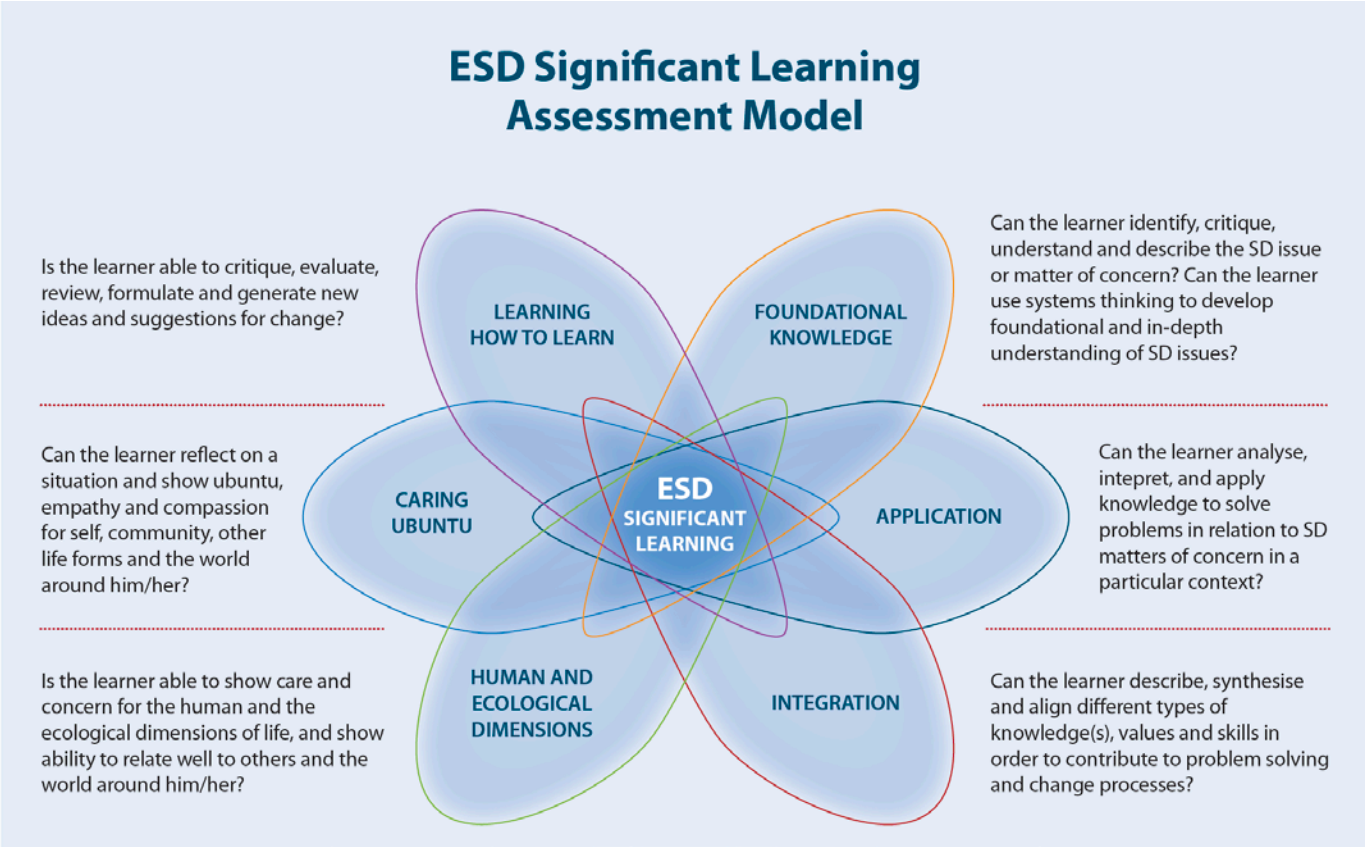
Anna-Savanne Sandberg Vila

Well, for me it has been when trying to fit "sustainability competences" into the university bureauracy in terms of examination and grades: there is an openness of transforming the classroom activities, but when it comes to grades and examination the open door closes. Then we are back to written, individual (examinations), which basically examines the student´s ability to write what the teacher likes, rather than (demonstrating) sustainability competences. Those are perhaps very different to examine and grade with conventional methods, but would require doing things together (cooperation), amongst students (collaboration), with teacher and with society (community).

The bureacracy allows me to build in sustainability competences as goals both for individual courses and for a whole programme, but does not allow me to use adequate(appropriate ESD) grading scales (pass/fail) or exmination methods to measure those goals, and without any rational argument. Grades and examinations are simply emotional loads, that are not open for discussion.

Sustainability Starts with Teachers Addressing assessment issues

Assessment should be establishing the achievement of these outcomes.
(Fink, 2013)



Firstly, there was a huge resistance from the colleagues who had to join the teacher training programs, as they did not want any changes (apathy). Later on, when there was the first positive experience, the resistance declined a little bit, and curiosity took place.

Secondly, we have teachers and students coming from different spheres – mathematicians, lawyers, economics, engineers, translators etc. (multi disciplinarity). It is not an easy task to explain to them why there is a need to add SD issues into the courses. We are still moving forward with the question. Having Ecological Policy adopted at the University is the first step here.

Nadiya Kostyuchenko, (2021), Sumy State University, Ukraine

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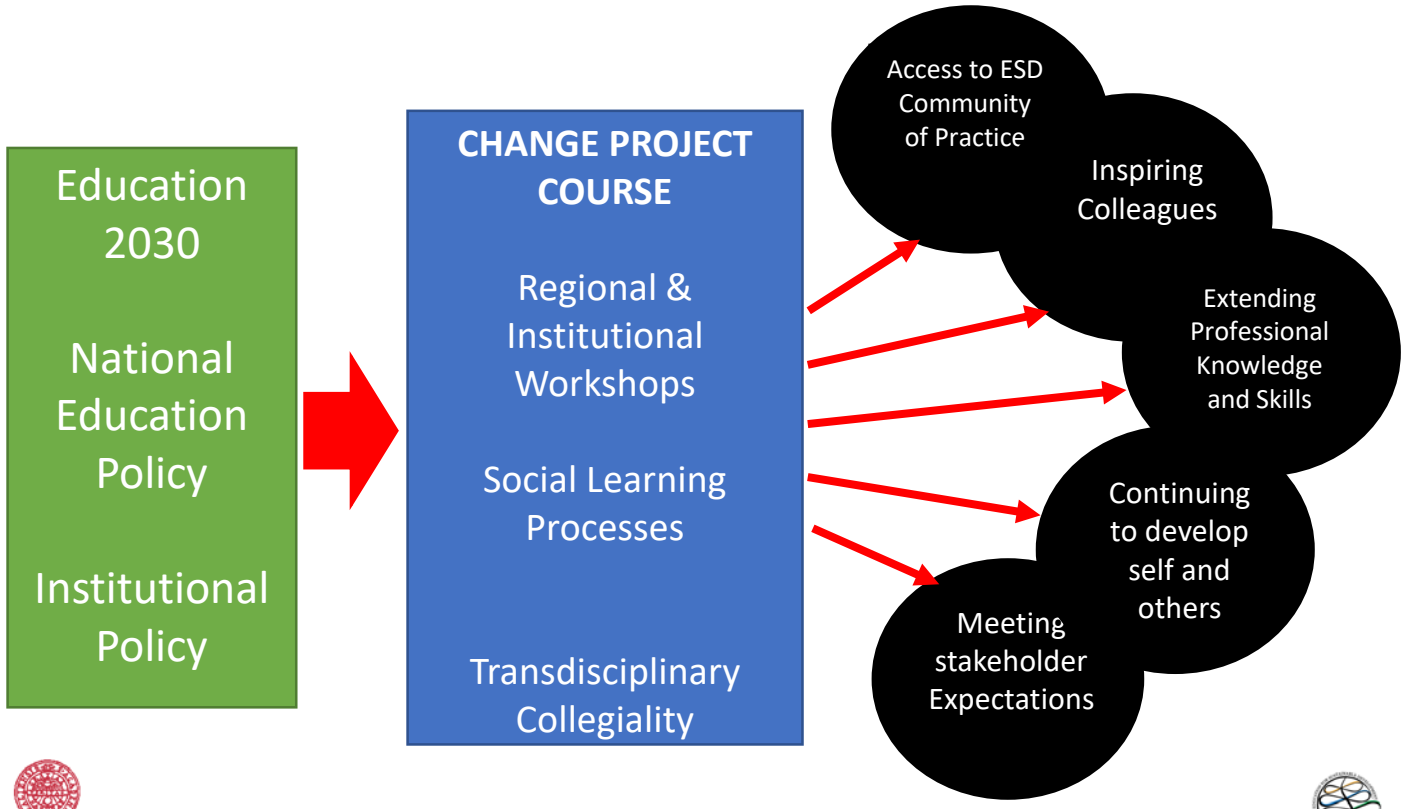
SWEDESD

INSTITUTIONAL COMPETENCE



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SWEDESD

- Despite the tensions arising from a new way of thinking and acting, a higher level of professional practice is developing as a result of the catalytic agency of the Change Project Approach. A combination of **personal, relational and collective agency** has started to unfold, sowing seeds for a superior level of professional practice, **Cumulative Professional Agency** (Urenje, 2012).

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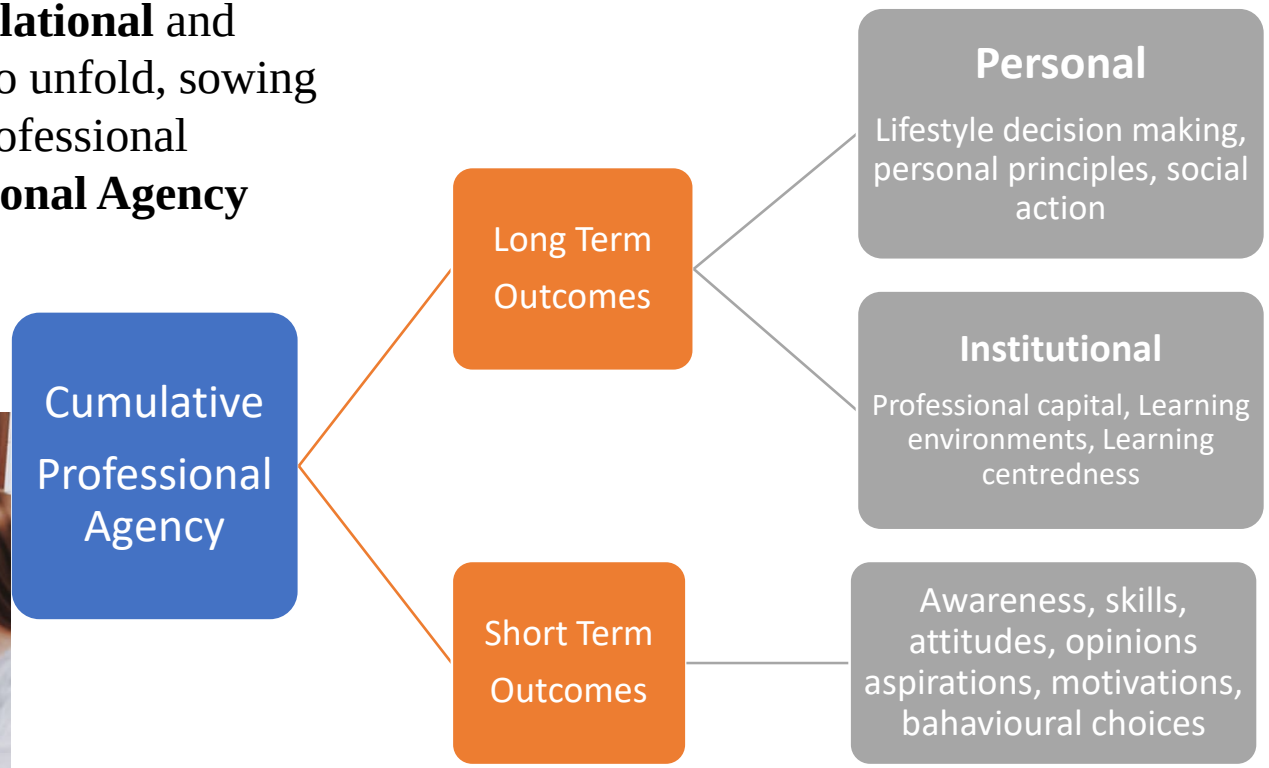
SWEDESD

CUMULATIVE PROFESSIONAL AGENCY

A combination of **personal, relational** and **collective agency** has started to unfold, sowing seeds for a superior level of professional practice, **Cumulative Professional Agency** (Urenje, 2012).



ESD connects teaching with learning

Educating for a new way of thinking and doing