

This presentation is protected by the Copyright Act of Canada (R.S.C., 1985, c,C-42). Reproduction and distribution of the presentation without written permission of the creator is prohibited.

Copyright© 2024 Manuel Riemer. All rights reserved



Fostering Cultures of Sustainability in K-12 Schools: A community psychology perspective

Manuel Riemer

August 13, 2024

Viessmann Centre for
Engagement and
Research in
Sustainability (VERiS),
Wilfrid Laurier
University



Why focus on GCC & sustainability in K-12 Schools?

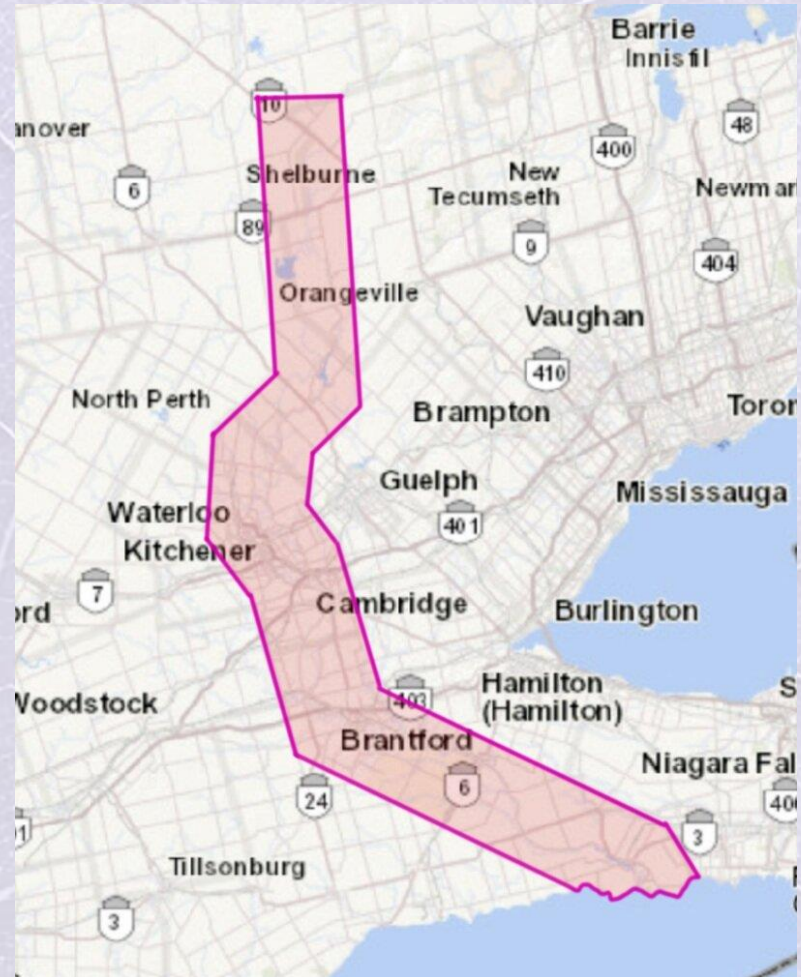
- K-12 Schools play a critical role in engaging young people with sustainability and climate action (Lizana, et al., 2021; Papa & Satai, 2017).
- Actively incorporating key issues for sustainable development into educational programmes expands students' knowledge, skills and attitudes towards sustainability and engages youth in climate action (Cole & Altenburger, 2019; Mr' oz et al., 2020; Riemer et al., 2016).
- A recent survey (LSF, 2022) demonstrated wide agreement (64%) that the education system should be doing “a lot more” to educate young people about climate change.
- In the same survey, only 34% of educators feel they have the knowledge and skills needed to effectively teach climate change and they are seeking support, including professional development (64%), climate change teaching resources (56%), and a school-wide culture that promotes climate change education (36%)

Agenda

1. Welcome & Introductions
2. Psychology of climate change
3. Break
4. Systems thinking
5. Lunch break
6. Responding to the causes of GCC
7. Cultures of sustainability
8. Impacts of climate change
9. Questions and discussion

Land Acknowledgement

We acknowledge that we are on the traditional territory of the Anishnawbe, Haudenosaunee and Neutral peoples



Introductions

1. Name
2. Affiliation
3. The land you grew up on
4. A fond childhood memory in nature
5. A cool sustainability initiative or intervention you have come across

The Psychology of Climate Change

Global Climate Change (GCC)

In bio and geophysical terms, climate change is defined as changes over time in the averages and variability of surface temperature, precipitation, and wind as well as associated changes in Earth's atmosphere, oceans and natural water supplies, snow and ice, landsurface, ecosystems, and living organisms.

Intergovernmental Panel on Climate Change [IPCC], 2007

Temperature Anomaly (°C)
Common Baseline 1951-1980

1880 1900 1920 1940 1960 1980 2000 2020

Global climate change is fundamentally a biophysical phenomenon. However, the recent and accelerating warming of the earth's climate is largely attributable to human activity [i.e., **anthropogenic**], and its impacts are mediated by psychological and social processes and can be limited primarily by human activity. (APA, 2009)

Climate Change is a People Problem

“Climate change is more than statistics, it’s more than data points. It’s more than net-zero targets.

It’s about the people, it’s about the people who are being impacted right now.”

Vanessa Nakate,
Climate Activist, Uganda



Human Dimensions

Causes



Impact



GCC

Response



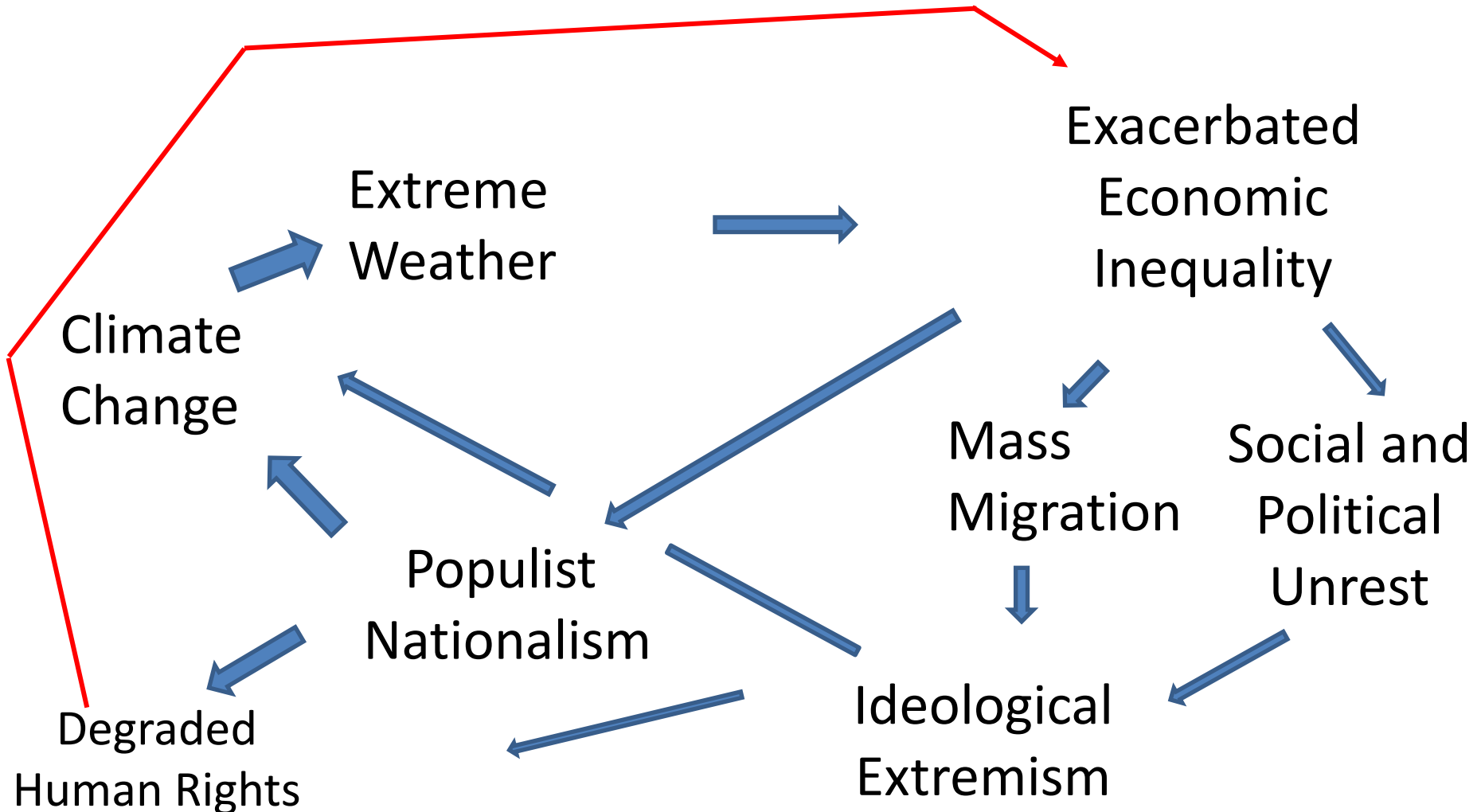
A Polycrisis

“A single, macro-crisis of interconnected, runaway failures of Earth’s vital natural and social systems that irreversibly degrades humanity’s prospects”

Homer-Dixon et al. (2022)



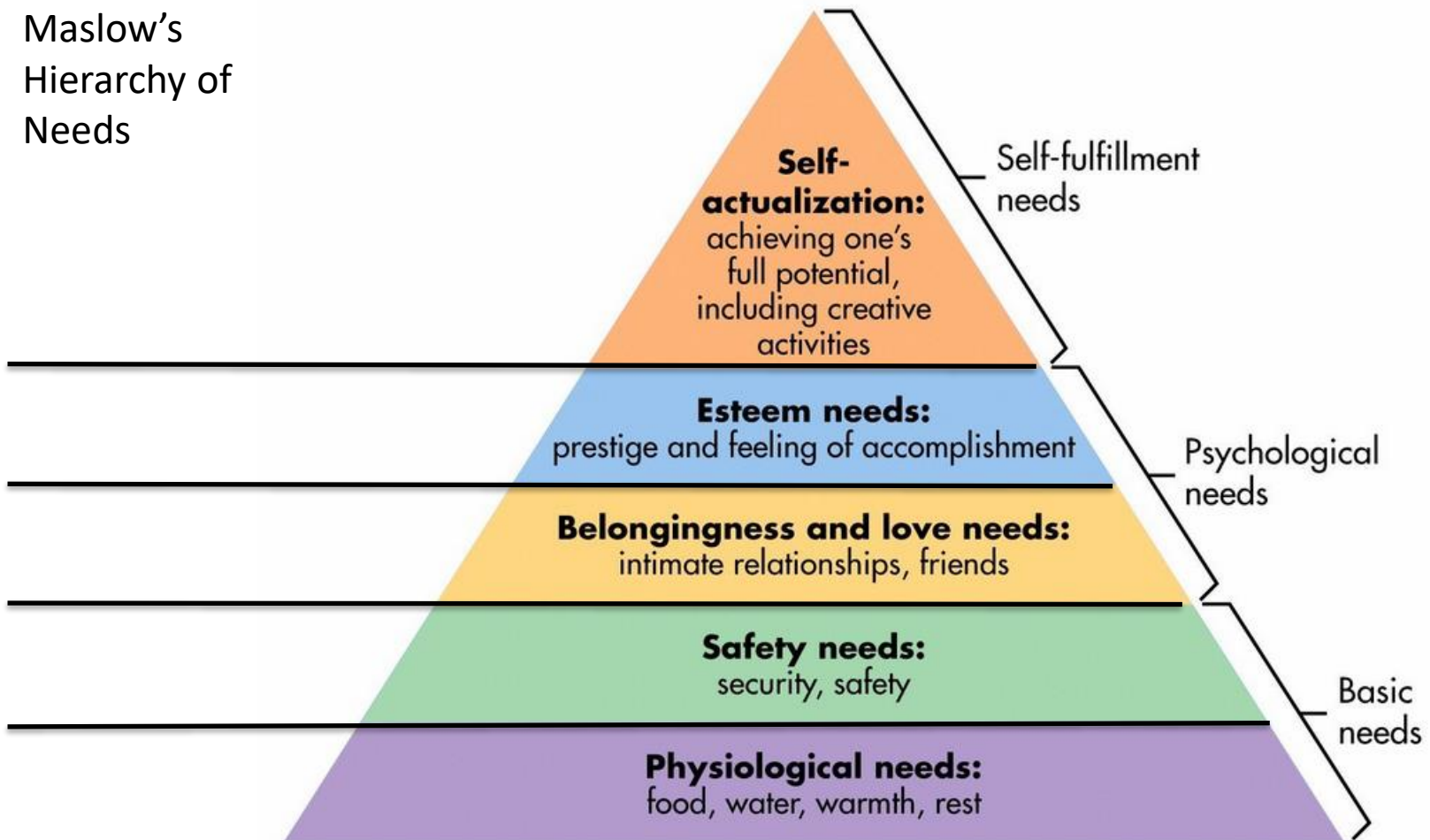
Non-linear cascading effects



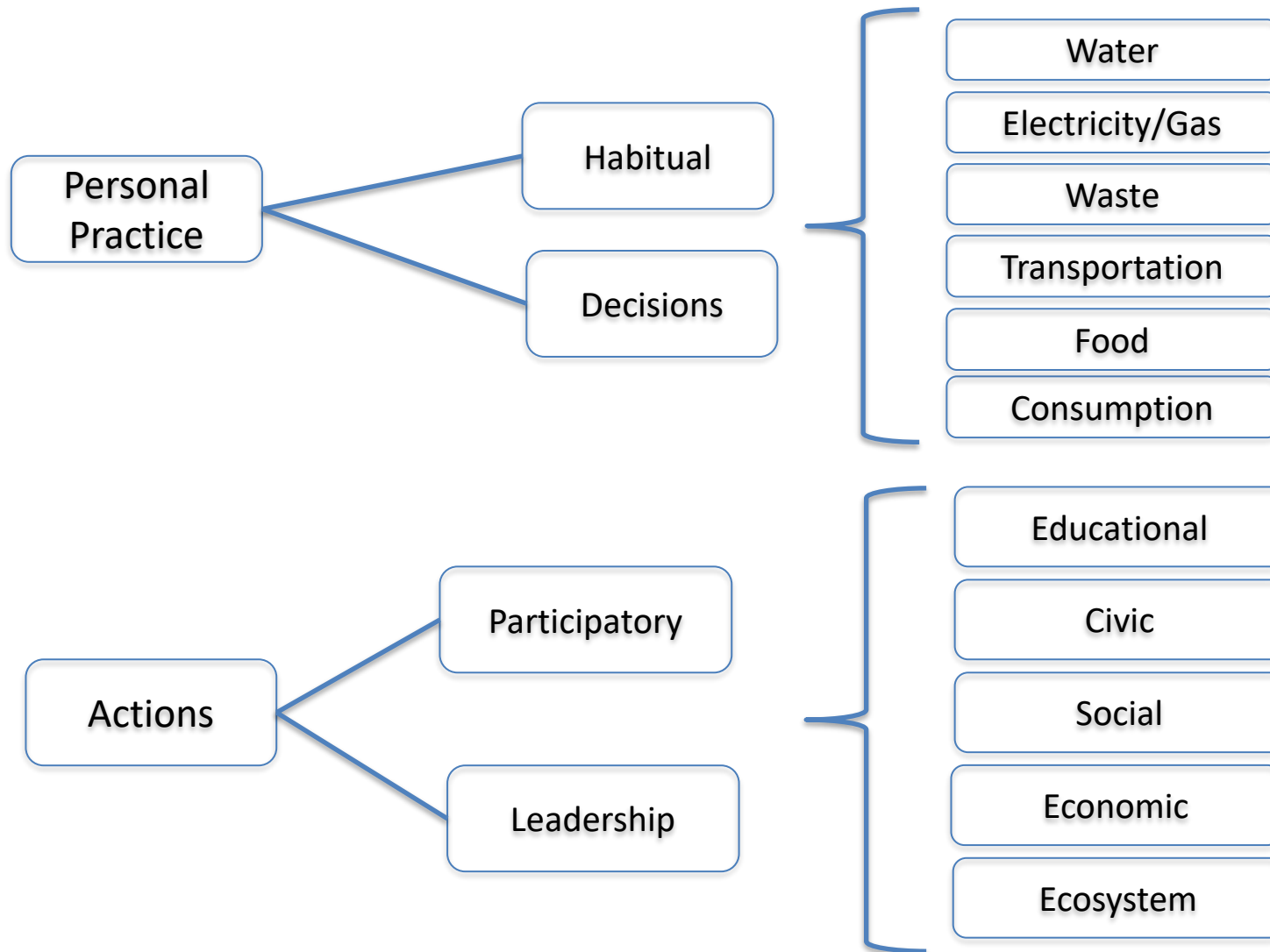
What are some of
our human needs?

Human Needs

Maslow's
Hierarchy of
Needs



Human Behaviour (Alisat & Riemer, 2015)



Carbon Footprint

Review:

<https://treesdolisten.com/an-extensive-review-of-9-online-carbon-footprint-calculators/>

For children and youth:

<https://calc.zerofootprint.net/>



“British Petroleum, the second largest non-state owned oil company in the world, with 18,700 gas and service stations worldwide, hired the public relations professionals Ogilvy & Mather to promote the slant that climate change is not the fault of an oil giant, but that of individuals. It’s here that British Petroleum, or BP, first promoted and soon successfully popularized the term “carbon footprint” in the early aughts. The company unveiled its “carbon footprint calculator” in 2004 so one could assess how their normal daily life – going to work, buying food, and (gasp) traveling – is largely responsible for heating the globe.”

- Mark Kaufman

in: <https://mashable.com/feature/carbon-footprint-pr-campaign-sham>

Break



10
minutes

Systems Thinking

Exercise: The Problem Tree

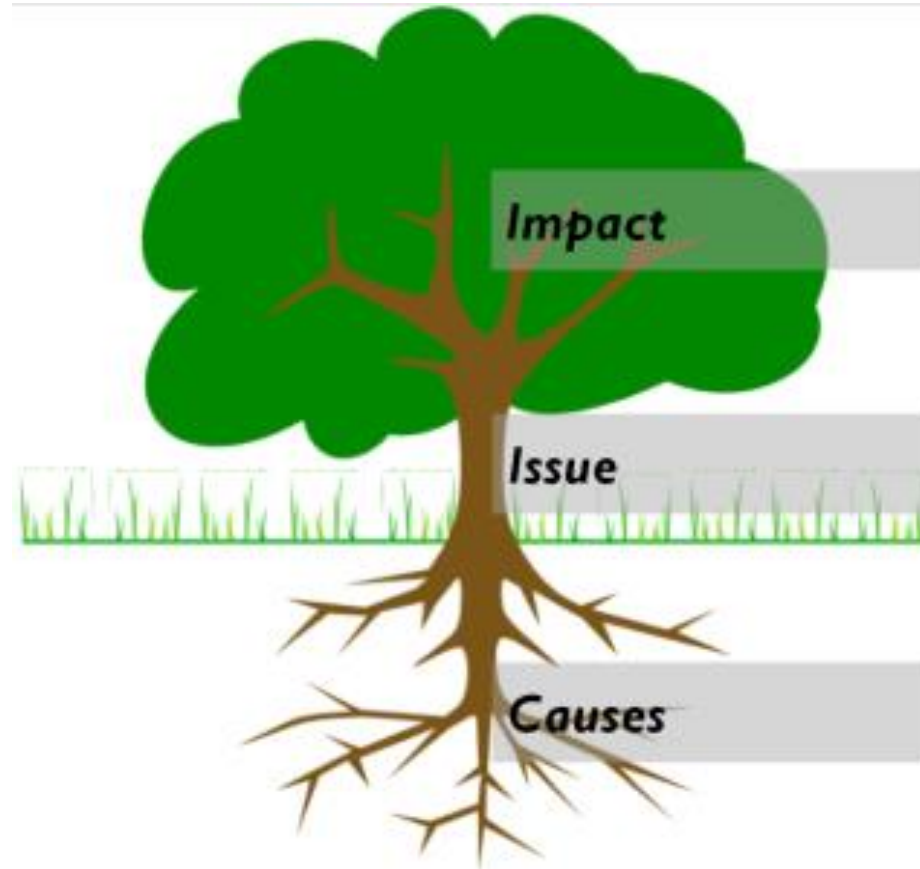
Instructions for Problem Tree Exercise (from Chevalier & Buckles, 2011)

1) Define the core problem and place a card in the middle of the workspace or the trunk of the tree. For example, rates of respiratory disorders have increased among preschool children in Sarnia, Ontario.

2) Ask, “Why has this problem occurred?” Identify 4 or 5 causes that are directly responsible for the core problem. These the **first-level causes** of the problem and can generally be observed directly. Describe each first-level cause on its own card and place these on the thickest roots of the tree. e.g. the rate of toxic emissions from neighbouring industry has increased.

For each first level cause, ask “Why has this occurred? Who or what is responsible for this to happen” The factors responsible for each first-level cause are **second-level causes**. Write each second-level cause on its own card and place them below the first-level causes. e.g. the government has reduced the admissible rate of emission for industries.

Optional: Use the same method (Step 2) to determine the **Third-level** causes of the factors responsible for the second level causes. Connect the causes so as to represent the relationship between the different levels.



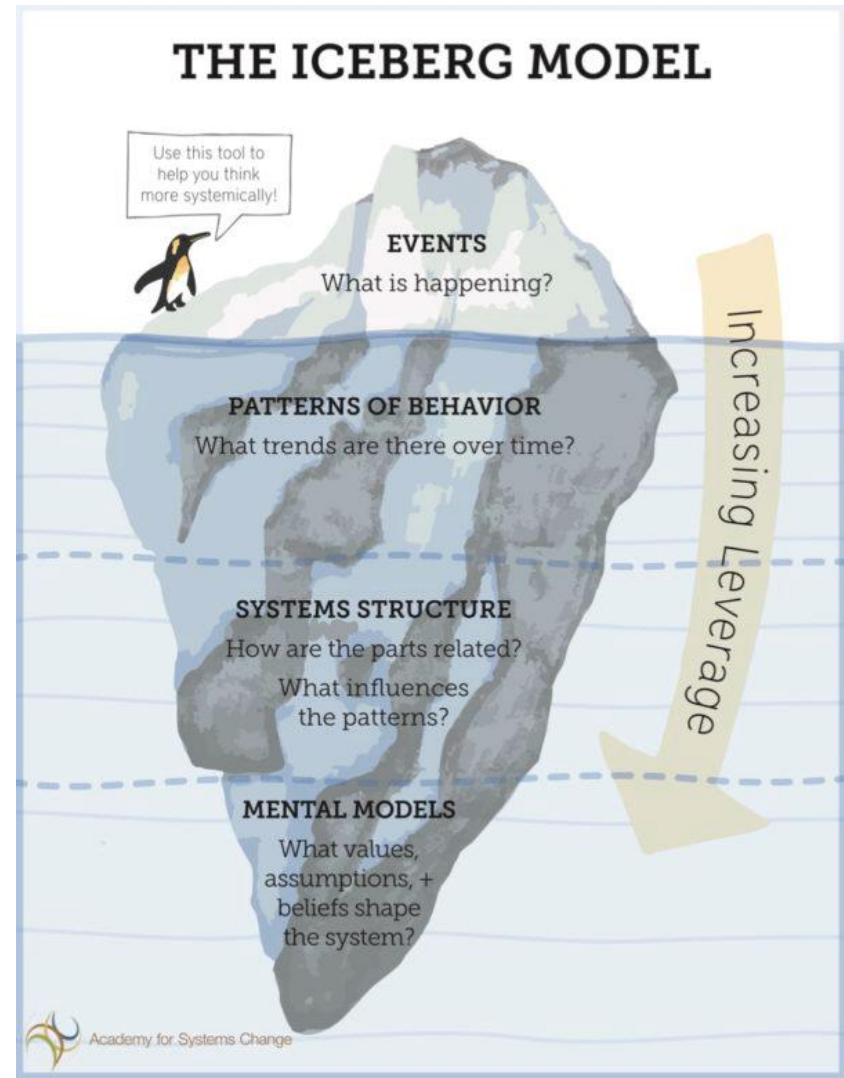
Going down the Iceberg ...

Event: *What is happening?*

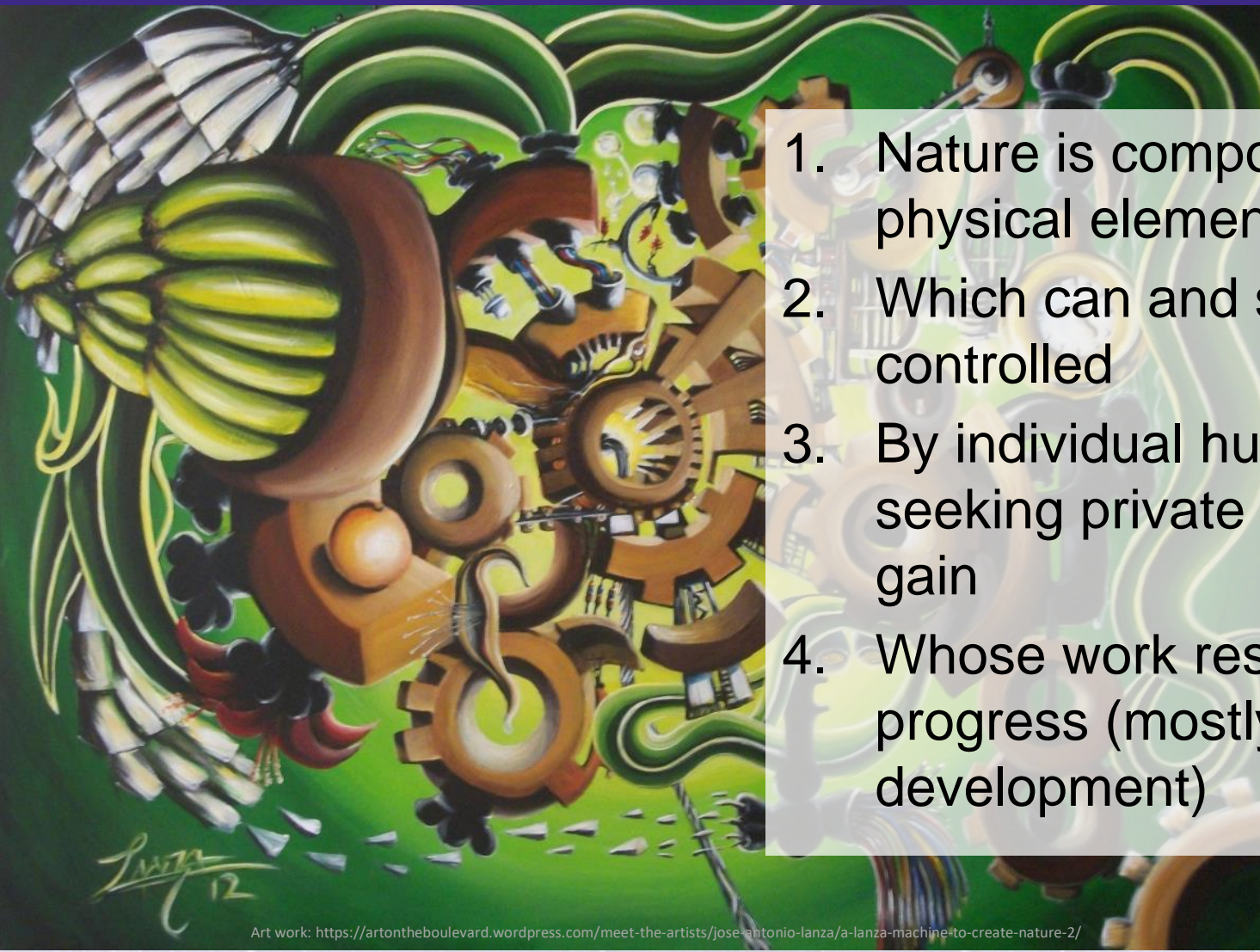
Patterns/trends: *What trends are there over time?*

Systems Structures: *What influences the patterns?*

Mental Models: *What values, assumptions, beliefs shape the system? What is the worldview?*



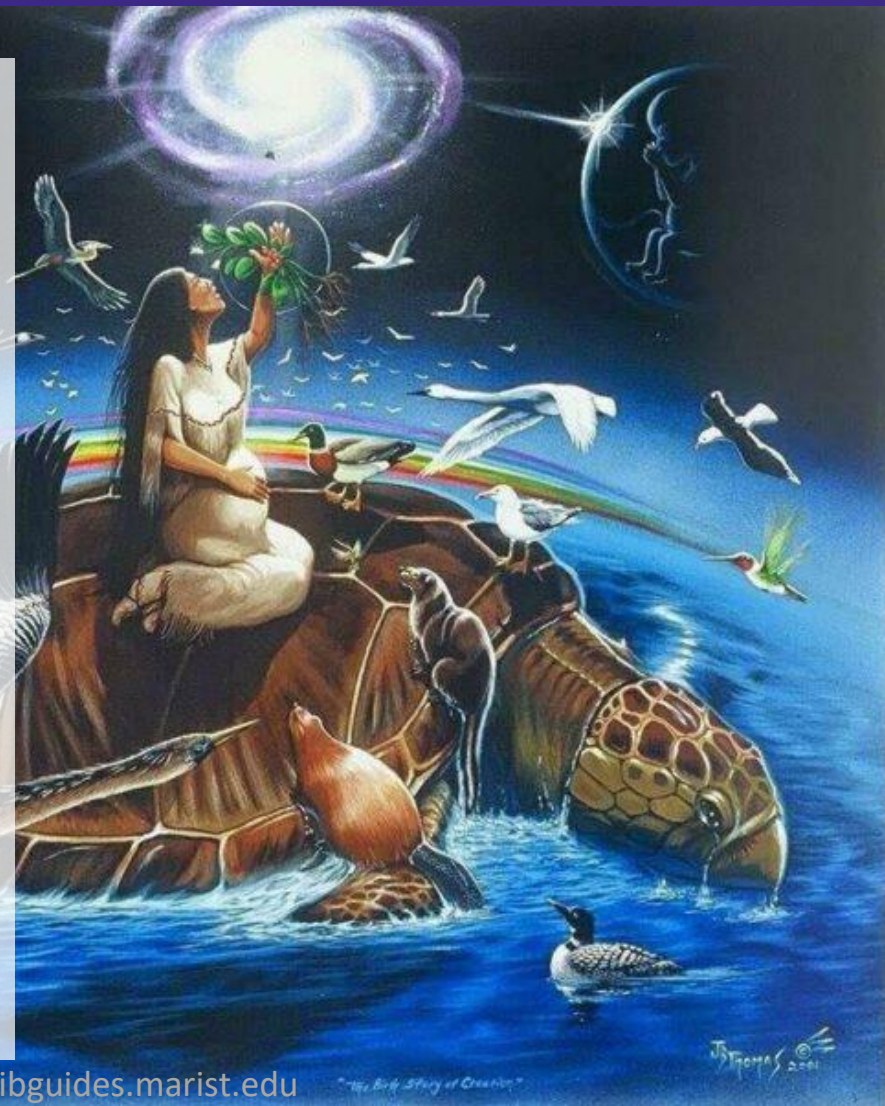
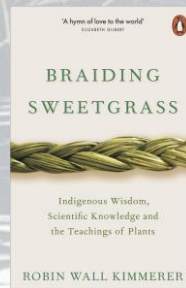
Western Worldview (Koger & Du Nann Winter, 2010)




1. Nature is composed of inert, physical elements
2. Which can and should be controlled
3. By individual human beings seeking private economic gain
4. Whose work results in progress (mostly economic development)

Indigenous Relational Worldview

- Holistic thinking
/interconnectedness
- People and other parts of our ecosystem are physical and spiritual beings
- Balance and harmony
- 4 R's
 - Respect
 - Reciprocity
 - Responsibility
 - Relationships





How does this apply
to the K-12 school
context?

Break

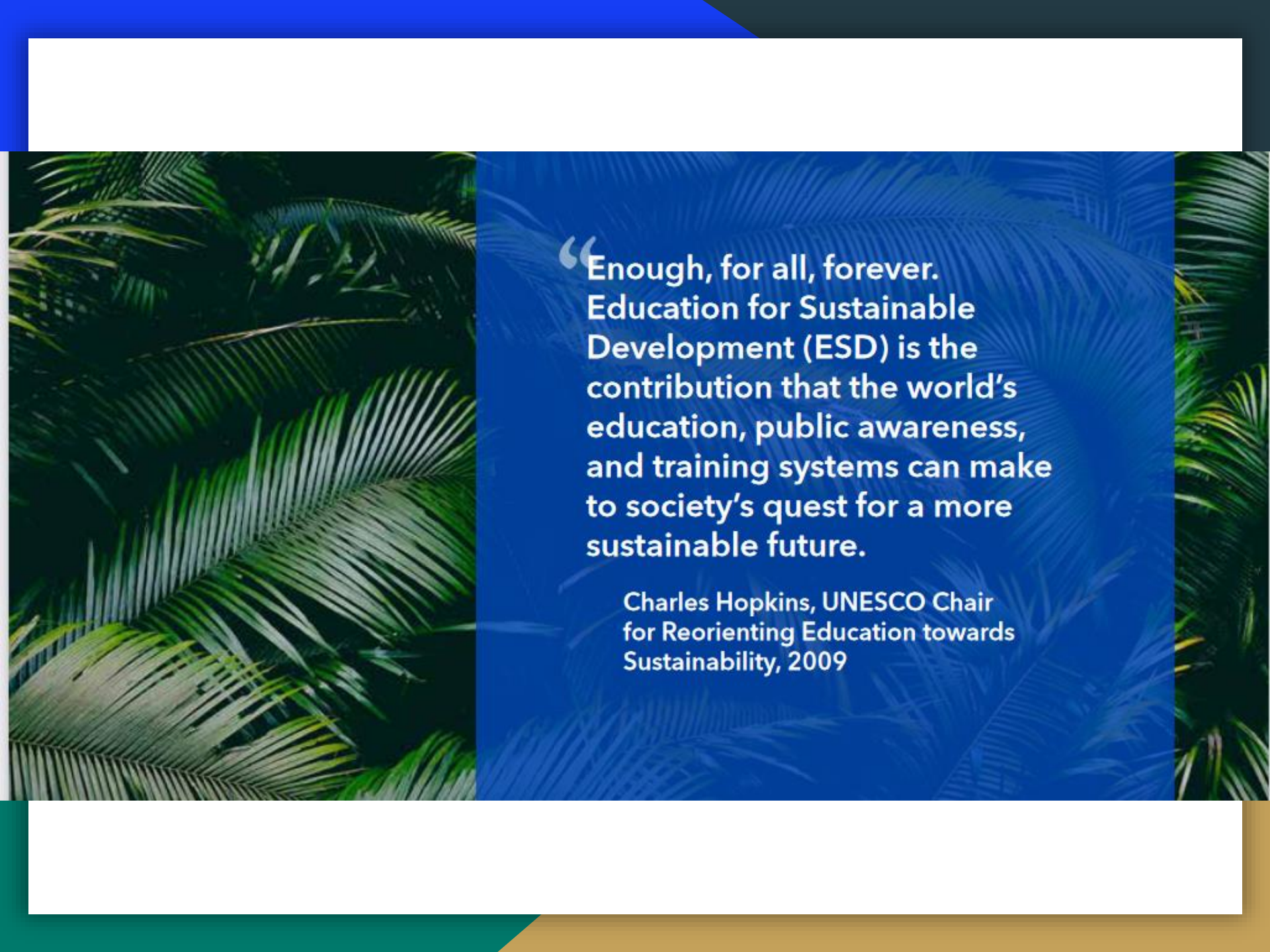
45
minutes



Sustainability Education: Creating a positive shift

“It’s not only about doing things better,
it is about doing better things.”

Arjen Wals



“Enough, for all, forever.
Education for Sustainable
Development (ESD) is the
contribution that the world’s
education, public awareness,
and training systems can make
to society’s quest for a more
sustainable future.

Charles Hopkins, UNESCO Chair
for Reorienting Education towards
Sustainability, 2009

What do we mean by sustainability?

- **“Meeting the needs of the present without compromising the ability of future generations to meet their needs.”** *1987 Bruntland Commission Report*
- **“Not only think about what kind of a world will we leave our children, but also what kind of children will we leave for our world.”** *Arjen Wals*

Can humankind learn to live differently on this planet so that current and future [seven] generations can have a [good] life?

<https://en.unesco.org/themes/education-sustainable-development>



Accord on Education for a Sustainable Future

The Accord reaffirms the important role of [formal] education and thus, Faculties of Education, for ensuring an environmentally healthy, safe and equitable future.

“We recognize the power of education to transform practice. Faculties, Colleges, Schools and Departments of Education have a major role in the education, research, policy formation, practices and information exchange necessary to make these goals possible. **This is a social and ethical responsibility. We must act.**” (p. 4)

Highlights from Canadians' Perspectives on Climate Change Education: 2022

Canadians are concerned about climate change

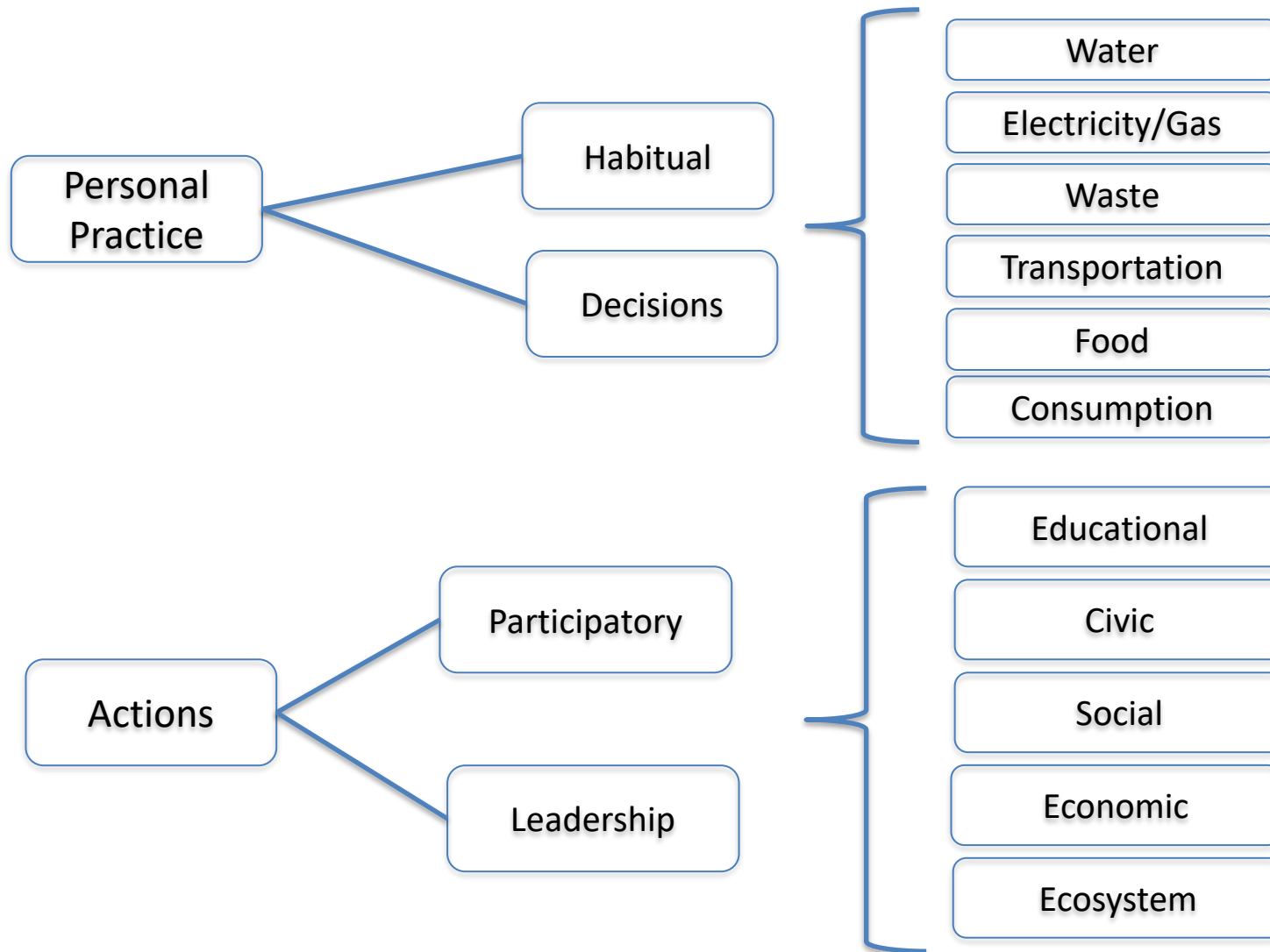
<https://lsf-1st.ca/infographics/>

For more information on LSF's whole school approach to sustainability education check out their [Sustainable Future Schools](#) initiative.

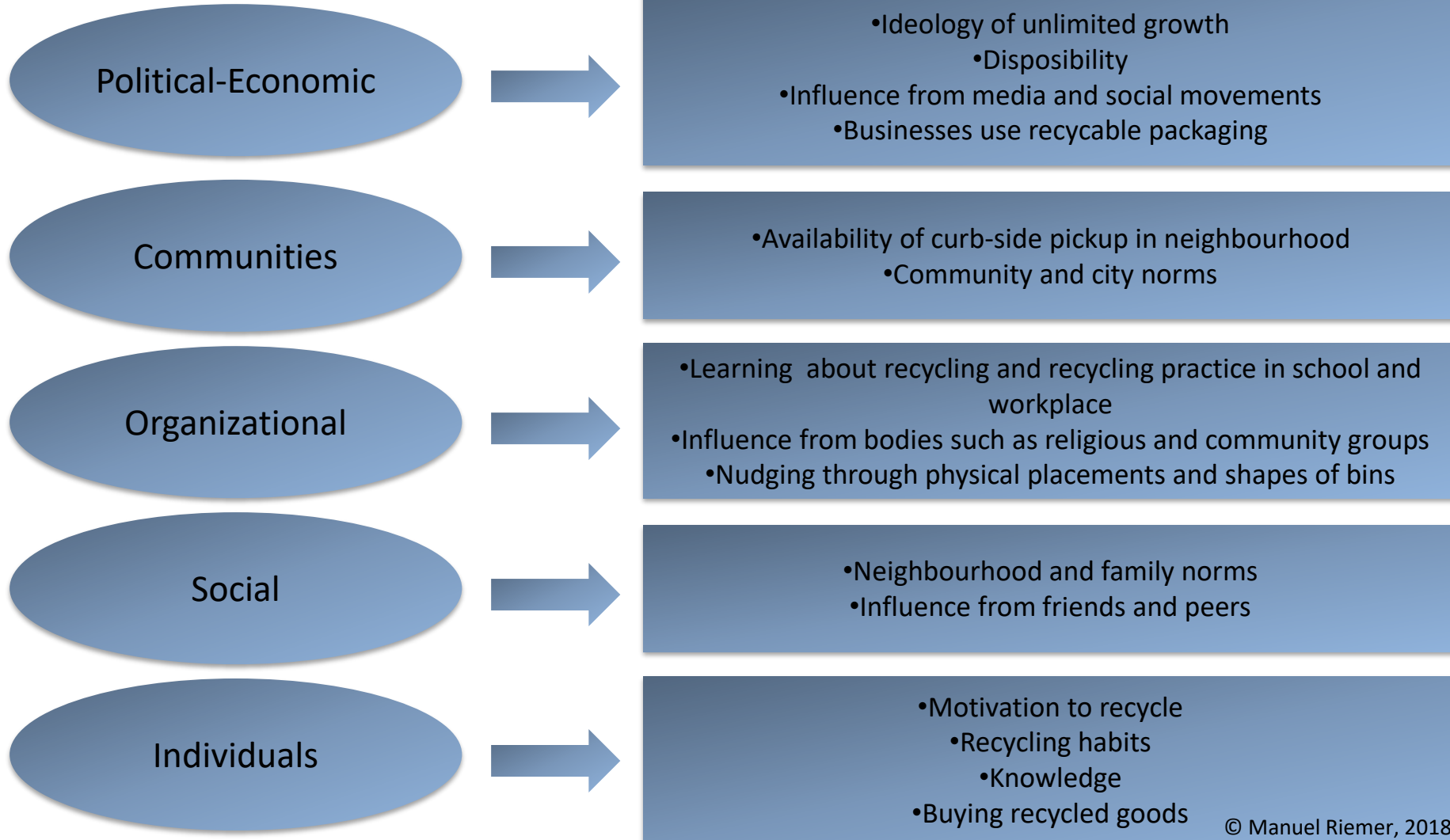


Responding to the causes of GCC

Human Behaviour (Alisat & Riemer, 2015)



Consider the context



Behaviour Change

CONTEXT

Feedback about actual status

Attention

Acceptance

Causal attribution

Actual status - desired goal status discrepancy

Perceived status - desired goal status discrepancy

Dissonance

Action plan

Action

Goal commitment

Example

Elliot Aronson's Hypocrisy theory -> people see their actions as conflicting with their normally positive view of themselves

Shower Study (Dickerson et al., 1992)

- Campus recreational centre
- 2X2 factorial design
- Factor 1: Survey of their own water usage
- Factor 2: Signing poster urging other people to take shorter showers
- Results: Only the dissonance condition was significant (d=3.5 minutes)

Goal Commitment

CONTEXT

Feedback
about actual
status

Attention

Acceptance

Causal
attribution

Actual status -
desired goal status
discrepancy

Perceived status -
desired goal status
discrepancy

Dissonance

Action plan

Action

Goal
commitment

Goal Commitment (GC)

- GC is "the determination to try for a goal and the persistence in pursuing it over time" (Hollenbeck, Williams, & Klein, 1989, p.18)
- GC should be high to increase the chance of experiencing significant dissonance
- There are two important factors that influence GC: Goal attractiveness and goal expectancy

GC: Goal Attractiveness

What makes a goal attractive?

—> Perceived instrumentality

- Goals are hierarchically structured
- The focus goal (e.g., using the green bin) should be instrumental for accomplishing the higher level goal (e.g., being perceived as a good neighbour)
- Examples of higher level goals are:
 - Gaining personal advantages (e.g., saving money)
 - Preventing punishment (e.g., paying a fee)
 - Helping others (e.g., preserving the environment for future generations)
 - Personal values (e.g., religious and humanistic believes)
 - Meeting social norms
 - Fitting in with peers / being liked by others

Recommendations

(Manning, 2009)

- Make sustainable behaviour the social default
 - Communicate normative information
 - Encourage positive social cues for sustainability
 - Provide opportunities to demonstrate sustainability
 - Create and nurture social networks
 - Broaden the sustainability norm beyond the eco-elite
 - Break down bystander confusion

Recommendations

(Manning, 2009)

- Emphasize personal relevance
 - It's not (just) about the environment
 - Beware of labels
 - Understand audience's worldview
 - Find a new frame
 - Focus on local issues, local effects

GC: Goal Expectancy

What makes me believe I can accomplish the goal?

Three main factors:

- **Self-efficacy** (I believe I have the skills, knowledge, and ability to do it)
- **Supportive situational factors**
 - Positive support (e.g., support from peers)
 - No significant barriers (e.g., lack of resources)
- **Competing goals** (There is not too much else with higher priority going on)

Recommendations

(Manning, 2009)

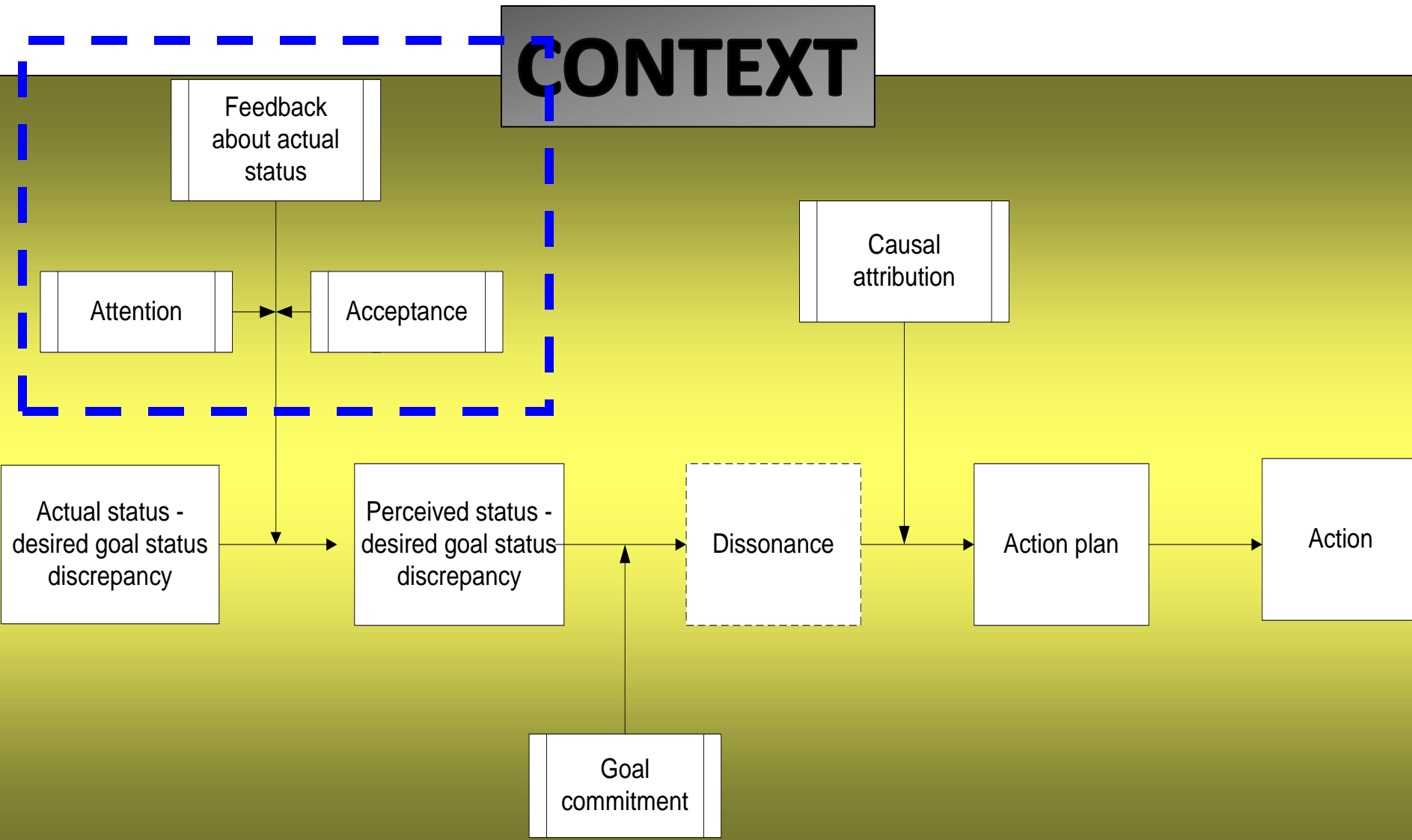
- Create opportunities for competence, skills, and knowledge
 - Give task-specific information
 - Provide hands-on opportunities to try new behaviour
 - Communicate effective actions

Recommendations

(Manning, 2009)

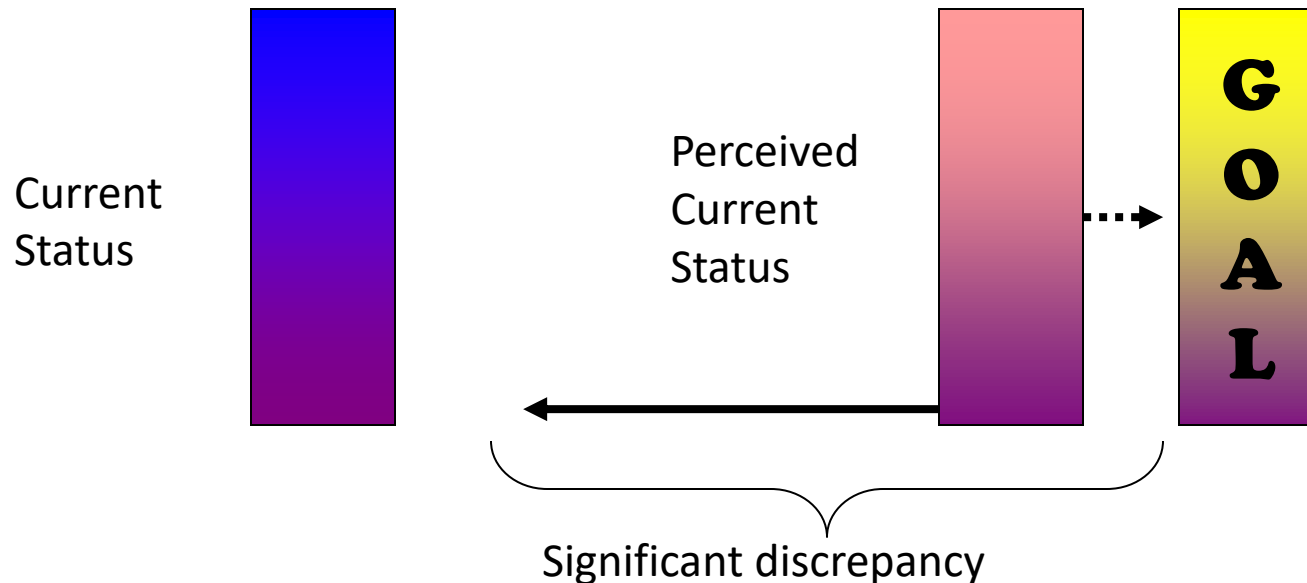
- Balance urgency with realistic hope
 - Have a positive vision that emphasize solutions
 - Show people they are not alone
 - Redefine the scale
 - Set challenging but attainable goals

Feedback



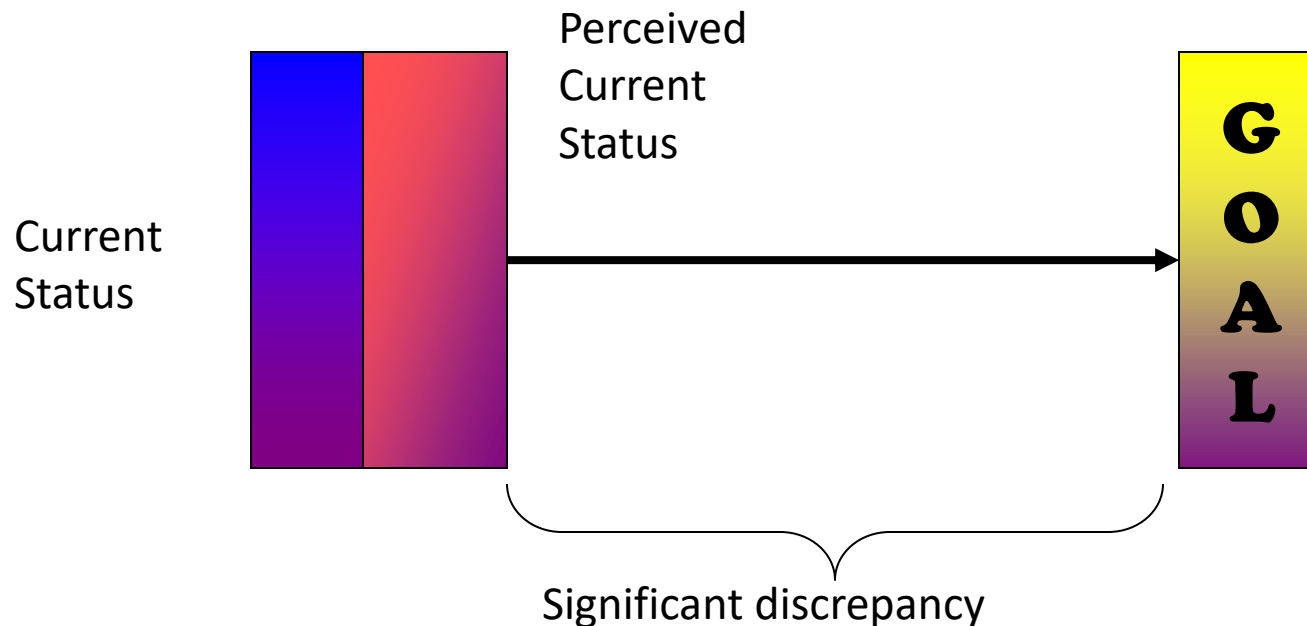
Feedback

- Function: Close gap between perceived status and actual current status to create significant discrepancy



Feedback

- Function: Close gap between perceived status and actual current status to create significant discrepancy



Feedback

- Vivid and attractive (<http://www.chrisjordan.com/gallery/rtn/#silent-spring>)
- Clear and specific
- Positive is better than negative
- Personal
- Immediate
- Formative
- Provided by a trusted authority
- Related to an important personal goal
- Comparative

Causal Attribution

CONTEXT

Feedback
about actual
status

Attention

Acceptance

Causal
attribution

Actual status -
desired goal status
discrepancy

Perceived status -
desired goal status
discrepancy

Dissonance

Action plan

Action

Goal
commitment

3 Ways to reduce dissonance

1. Devalue the goal
2. Devalue the feedback
3. Change

Which one will it be?

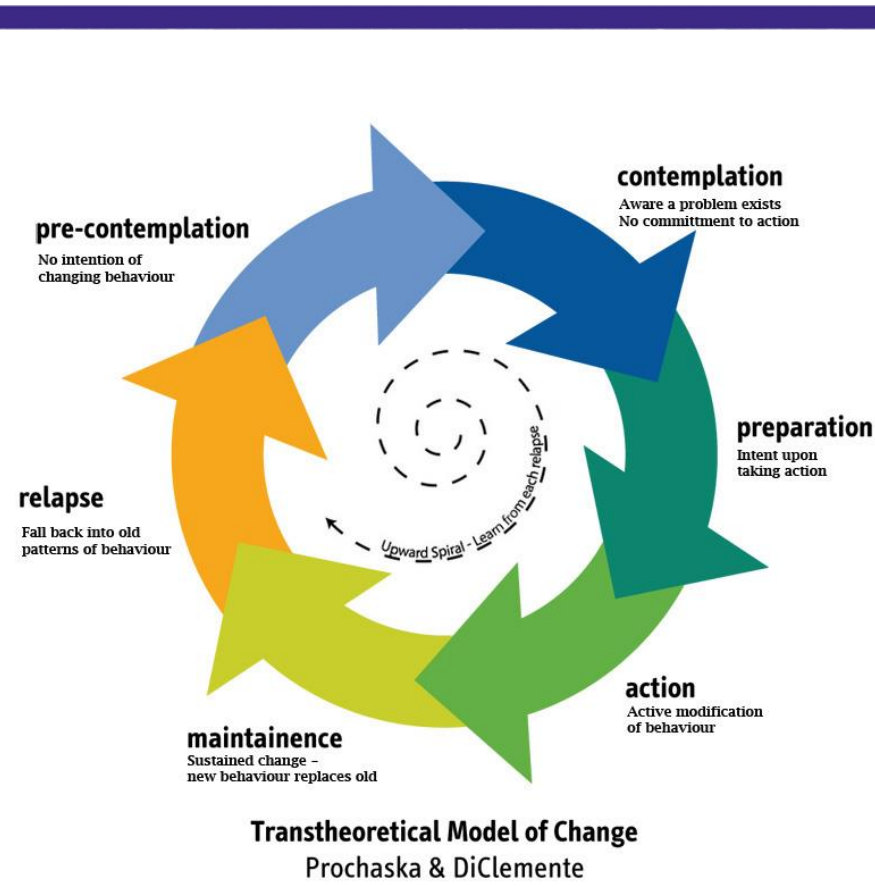
Causal Attribution

- 3 Dimensions
 - Locus of causality: internal vs. external
 - Stability: stable vs. variable
 - Controllability: controllable vs. uncontrollable
- If minor personal changes are needed (e.g. effort, attention):
 - Internal, controllable, and variable
- If major personal changes are needed (e.g. learning new skills):
 - Internal, controllable, and stable
- If changes from others (e.g., government) are needed:
 - External and controllable

Habits

Stage of Change	Description	Characteristics	Techniques
Pre-contemplation	The individual has no intention to take action within the next 6 months and is generally unaware or under-aware of the problem.	Not currently considering change: "Ignorance is bliss"	Validate lack of readiness Clarify: decision is theirs Encourage re-evaluation of current behavior Encourage self-exploration, not action Explain and personalize the risk
Contemplation	The individual intends to take action within the next 6 months. He or she is aware that a problem exists but has not yet made a commitment to take action	Ambivalent about change: "Sitting on the fence" Not considering change within the next month	Validate lack of readiness Clarify: decision is theirs Encourage evaluation of pros and cons of behavior change Identify and promote new, positive outcome expectations
Preparation / Decision	The individual intends to take action within the next 30 days and has taken some behavioral steps in this direction	Some experience with change and are trying to change: "Testing the waters" Planning to act within 1 month	Identify and assist in problem solving re: obstacles Help patient identify social support Verify that patient has underlying skills for behavior change Encourage small initial steps
Action	The individual changes his or her overt behavior for less than 6 months	Practicing new behavior for 3-6 months	Focus on restructuring cues and social support Bolster self-efficacy for dealing with obstacles Combat feelings of loss and reiterate long-term benefits
Maintenance	The individual changes his or her overt behavior for more than 6 months and works to prevent relapse and consolidate the gains attained	Continued commitment to sustaining new behavior Post-6 months to 5 years	Plan for follow-up support Reinforce internal rewards Discuss coping with relapse
Relapse / Termination	The individual has no temptation to relapse and has 100% confidence in maintaining the change	Resumption of old behaviors: "Fall from grace"	Evaluate trigger for relapse Reassess motivation and Barriers Plan stronger coping strategies

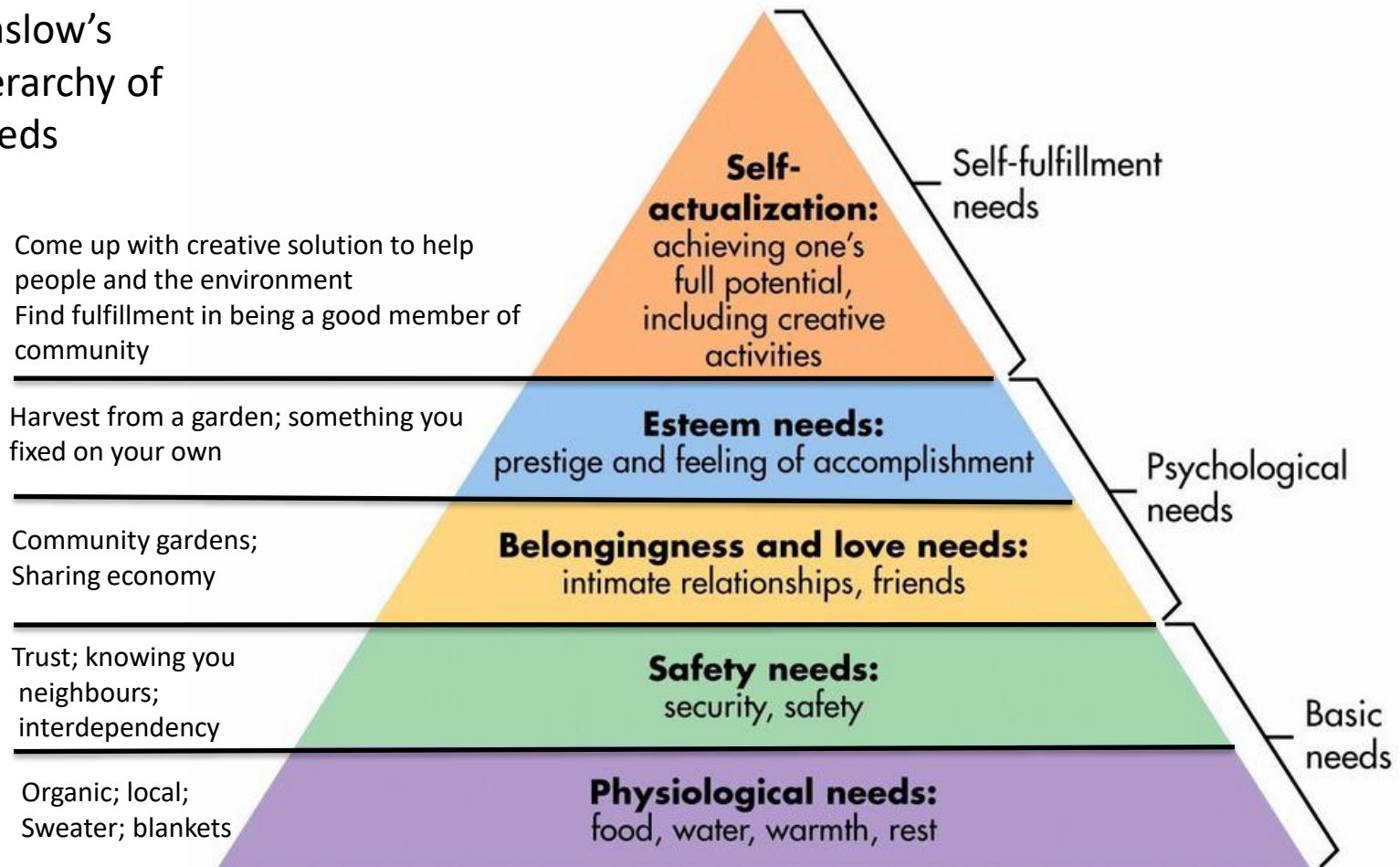
From: Muhammad Saeed Shahbaz
based on Prochaska and Diclemente's
Stages of Change Model



Source: www.therelationshipblog.net

Alternatives for Human Needs

Maslow's Hierarchy of Needs



Engagement in Actions

Action Competence

1. Knowledge/Insight
2. Commitment
3. Visions
4. Action Experiences
5. Collective Orientation



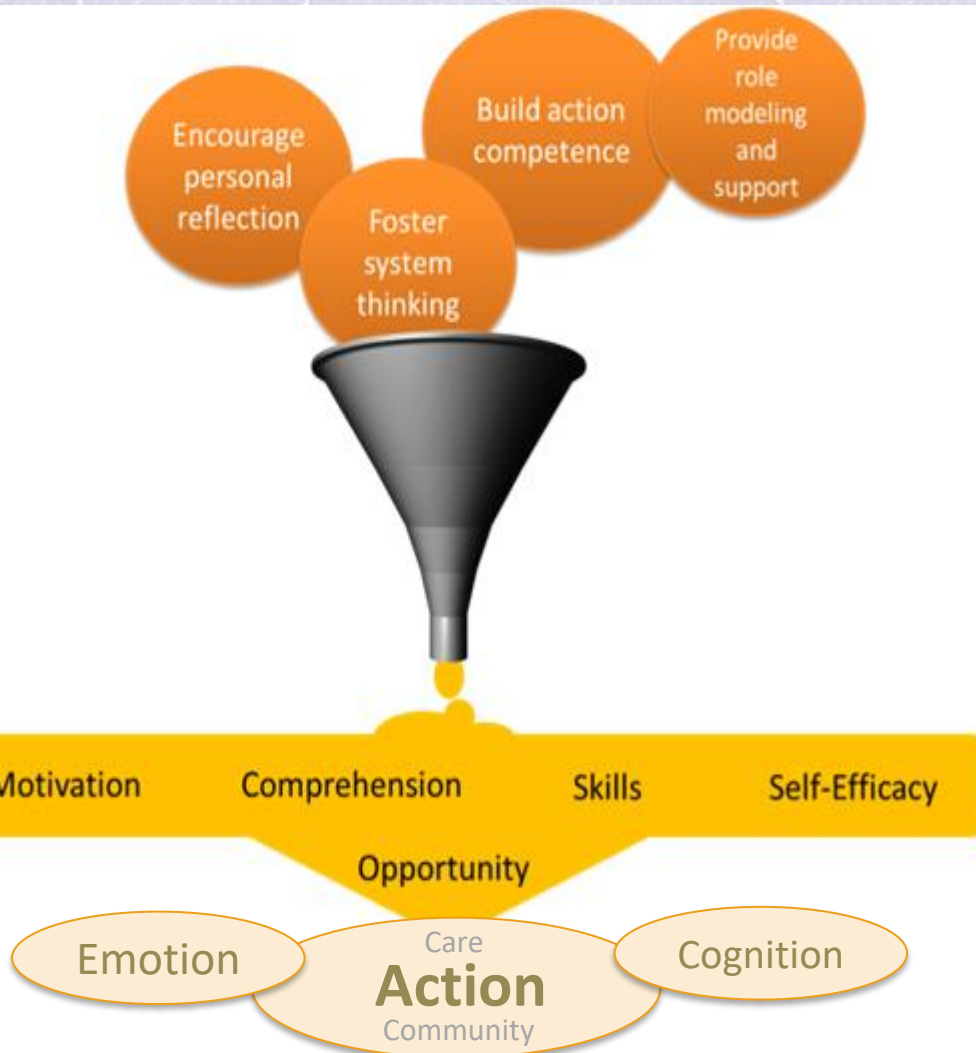
- Individual transformation
- Alter a learner's frame of reference
- Habits of mind & meaning scheme
- Autonomous thinking
- Disorienting dilemma

“Perspective transformation is the emancipatory process of becoming critically aware of how and why the structure of psycho-cultural assumptions has come to constrain the way we see ourselves and our relationships, reconstituting this structure to permit a more inclusive and discriminating integration of experience and acting upon these new understandings.” (Mezirow (1981, p. 64)

Four ways to develop self-efficacy

1. Mastery experiences
2. Social modeling
3. Social persuasion
(encouragement/support)
4. States of physiology

Youth Engagement



- Context-specific content and activities
- Youth-activist instructors
- Youth-led action project
- Workshops on climate change, effective activism, systems-thinking, and environmental justice
- Visioning art projects
- Live exchange with youth from other country
- Local environmental justice speaker
- Journaling

Personal Transformation

Relationship to environmental issues

Short-term change

- Background to foreground/increased sense of importance
- Passion/inspiration
- Hope

Long-term change

- Perspective shift (acts as priming for short-term changes)
 - Cognitive to emotional
 - Toward multi-scalar
 - Toward complexity and interconnectedness
 - Abstract to concrete and rational
- Passive to active

“...really pushed me toward being like an agent of social change... making sure that people are aware of what’s happening around the world, informing them that ... just kind of giving them the knowledge that this is happening, this is actually a real thing... helping to expand their, their perception of what environmental issues are.”

- Canadian Participant

“If you're doing something with other enthusiastic people and you all share similar values and you have a cause and you're working towards something, chances are that you are going to achieve your goals and have an impact and it's a really rewarding feeling”

- Canadian Participant

Culture of Sustainability

Culture of Sustainability (COS)

Organizational culture is generally conceived as having two faces:

- a deeper underlying domain rooted in collectively held values, assumptions, and beliefs,
- and the observable manifestation of those values in such things as language, symbols, and practices

Culture of Sustainability (COS)

COS = “Shared values, symbols, rituals, and practices grounded in sustainability principles leading to individual and societal choices that promote environmental protection, social justice and well-being, and a supportive economy”

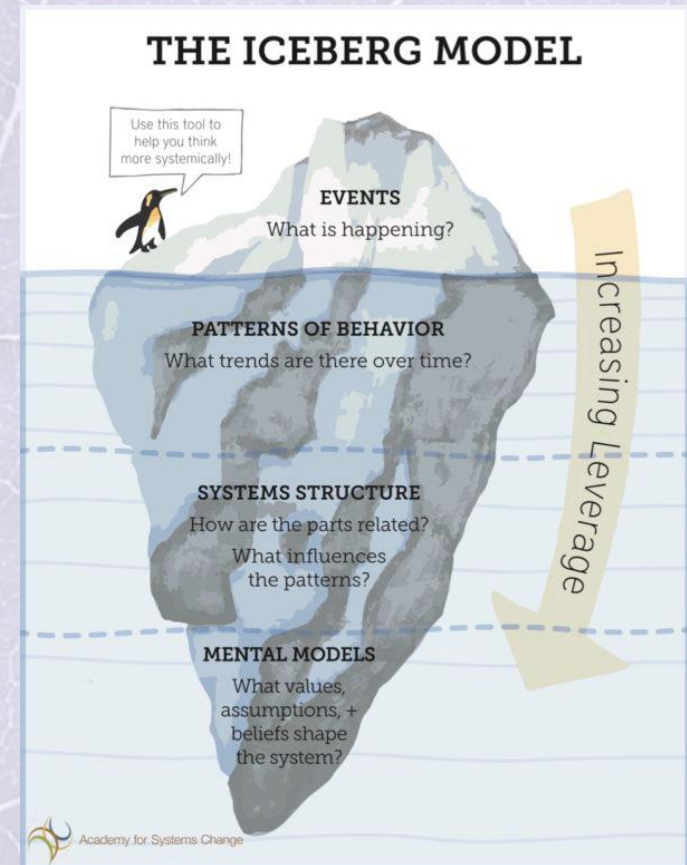
(Dreyer, Riemer, Spadafore, et al., 2021, p. 5)

Culture of Sustainability (COS)

Why focus on COS?

- More comprehensive
- More leverage
- More deeply engrained
- Longer lasting
- More resilient to changes

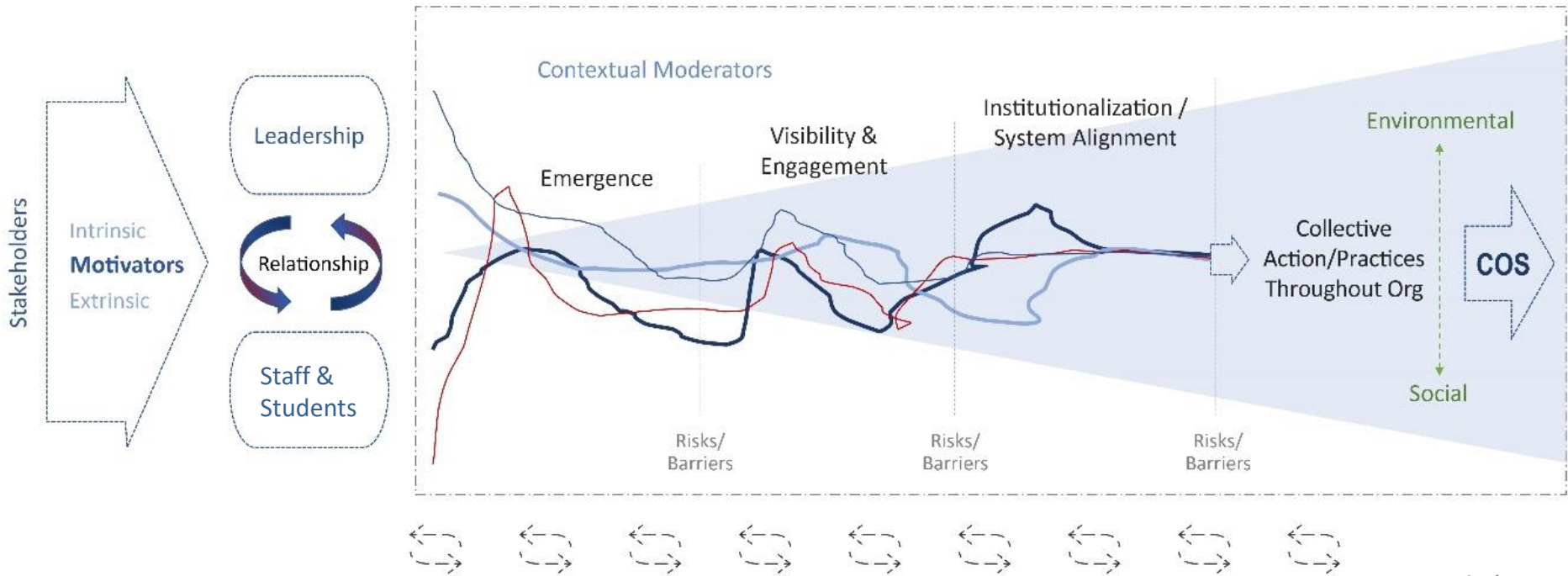
Organizational culture is an integrative force at the core of the Whole School Approach that connects the core principles and areas of action and COS “may be viewed as a critical proxy for the extent to which an organization is practically living sustainability” (Holst, 2023, p.1023).



Four Developmental Phases

1. Emergence
2. Visibility & Engagement
3. Institutionalization & System Alignment
4. Engrained & Habitual Practice

Organic, context-dependent & not-prescriptive



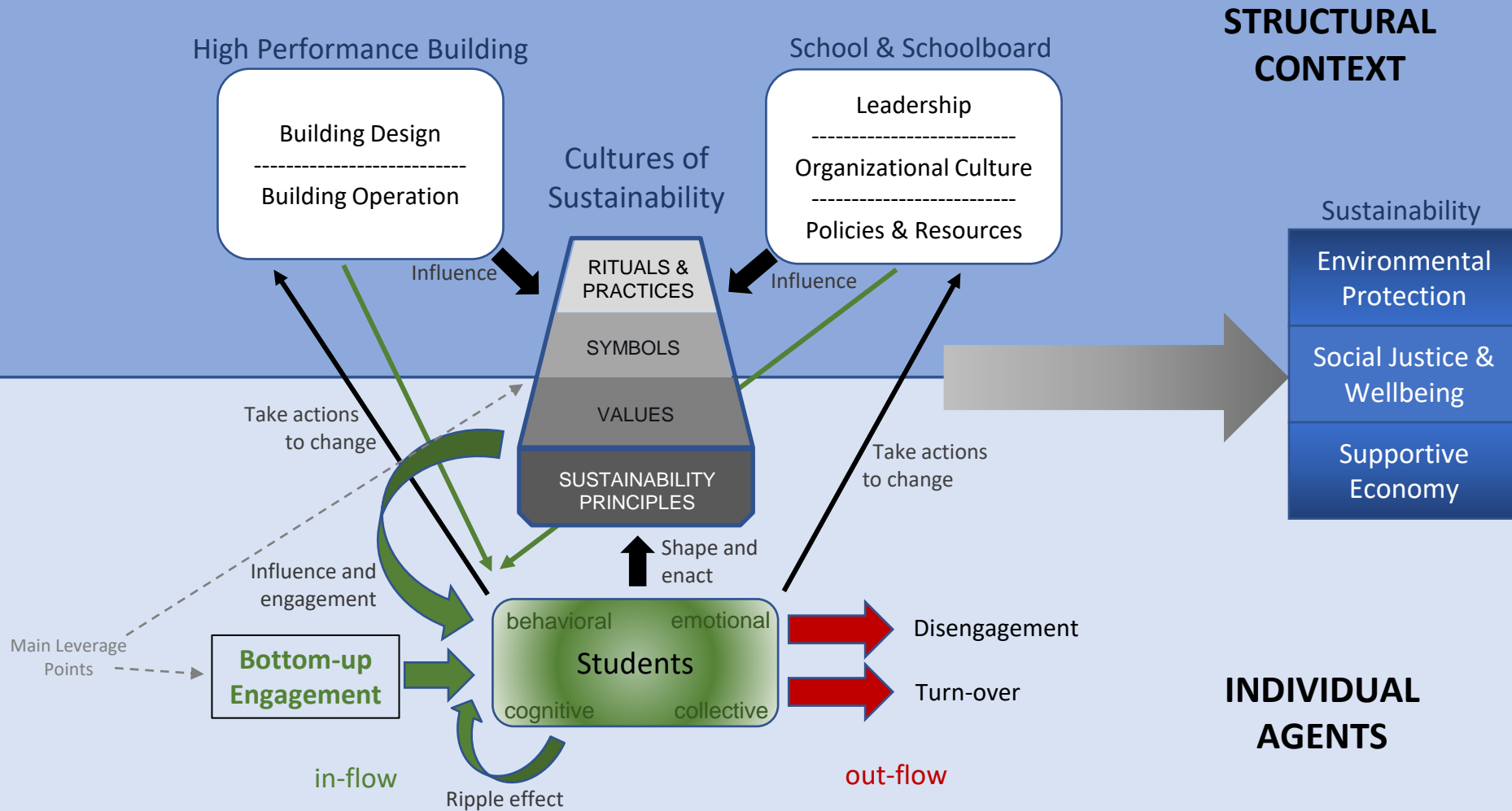
Core Principles

1. Systems Oriented
2. Long-term developmental
3. Strategic yet adaptive
4. Comprehensive
5. Participatory



Systems Thinking

Adapted from: Dreyer, Riemer, Spadafore et al. (2021)



Impacts of Climate Change

Does this sound familiar?

“I am thinking about my future in terms of having kids, and all of that. I don’t know if I really dare to do that, and if that’s kind to have kids in this kind of world. That is something I was thinking about lately, and that’s a really big and scary thought, because I really, really want to have kids, but I don’t feel like it’s safe.” — Marczak et al., (2021) p. 12

“I don’t want to die, but I don’t want to live in a world that doesn’t care about children and animals.”

— Hickman (2020), p. 420









Your turn

Please complete
eco-anxiety scale
& word cloud



Questionnaire

When you think about climate change and the future, how do you feel?

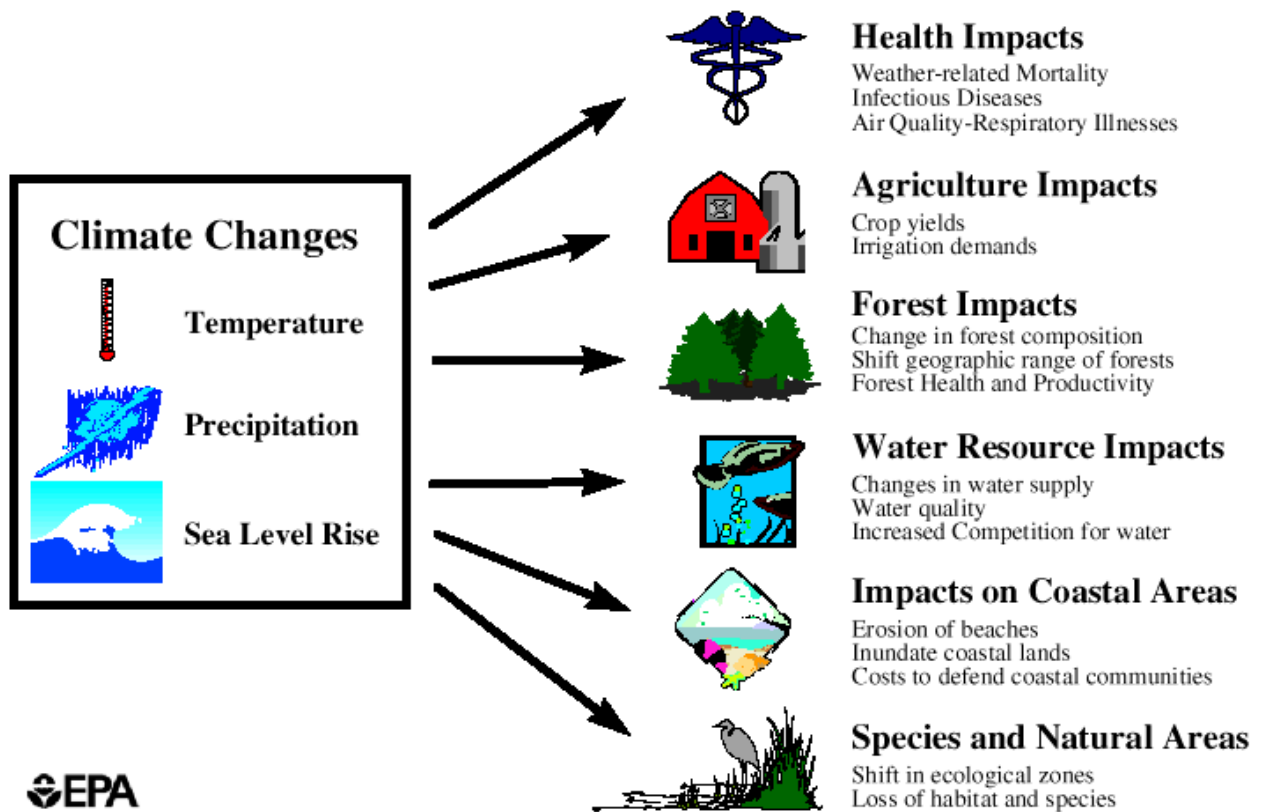
	-2	-1	0	1	2	
 Sad	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Happy 
 Mad	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Calm 
 Worried	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Hopeful 


When you think about climate change
and the future what are you feeling?




Human Impact

Potential Climate Change Impacts



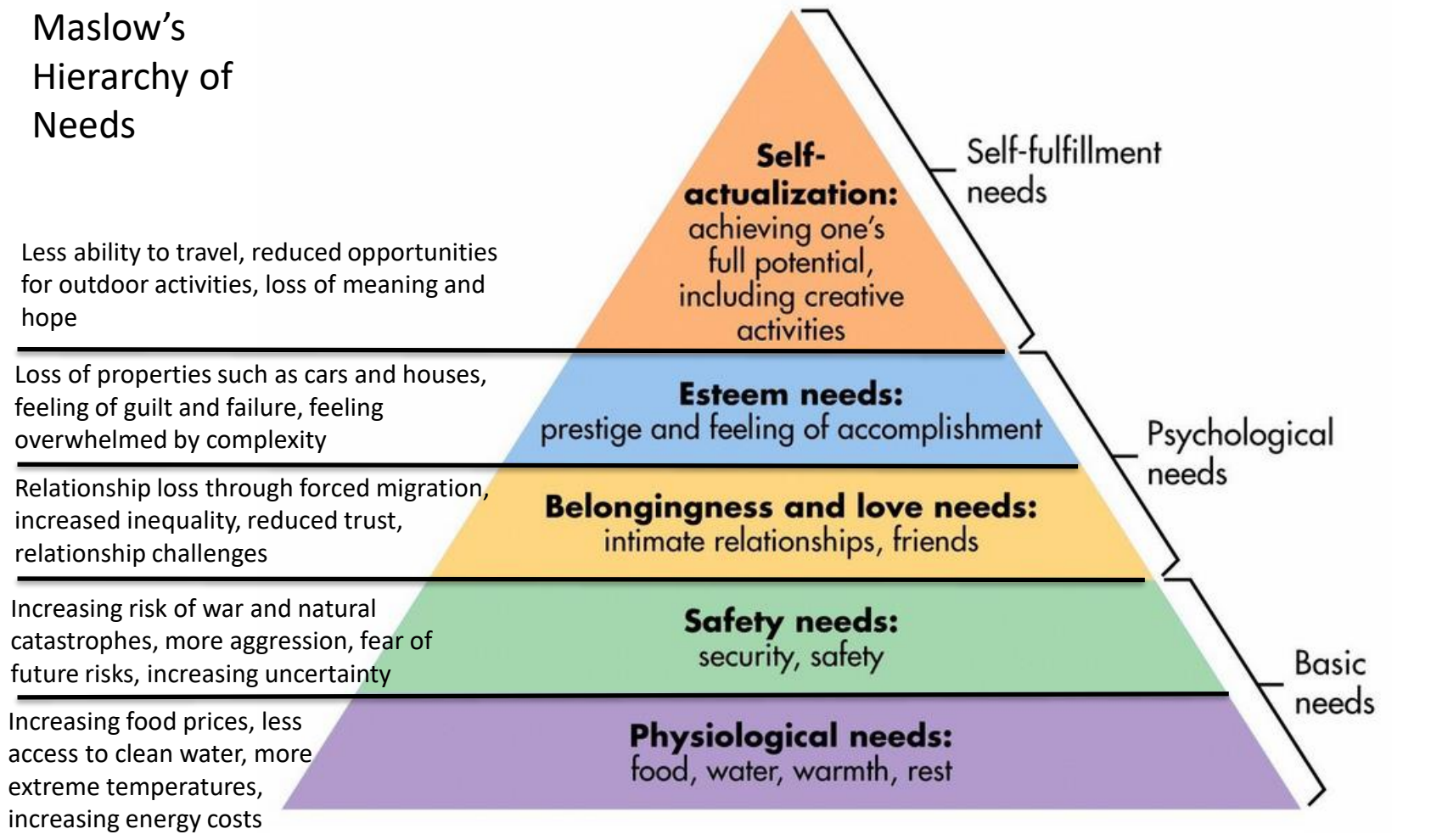
- 
- Poverty
 - Increased inequality
 - War
 - Forced migration
 - Increased immigration
 - Insecurity
 - Increased living costs
 - Poorer health



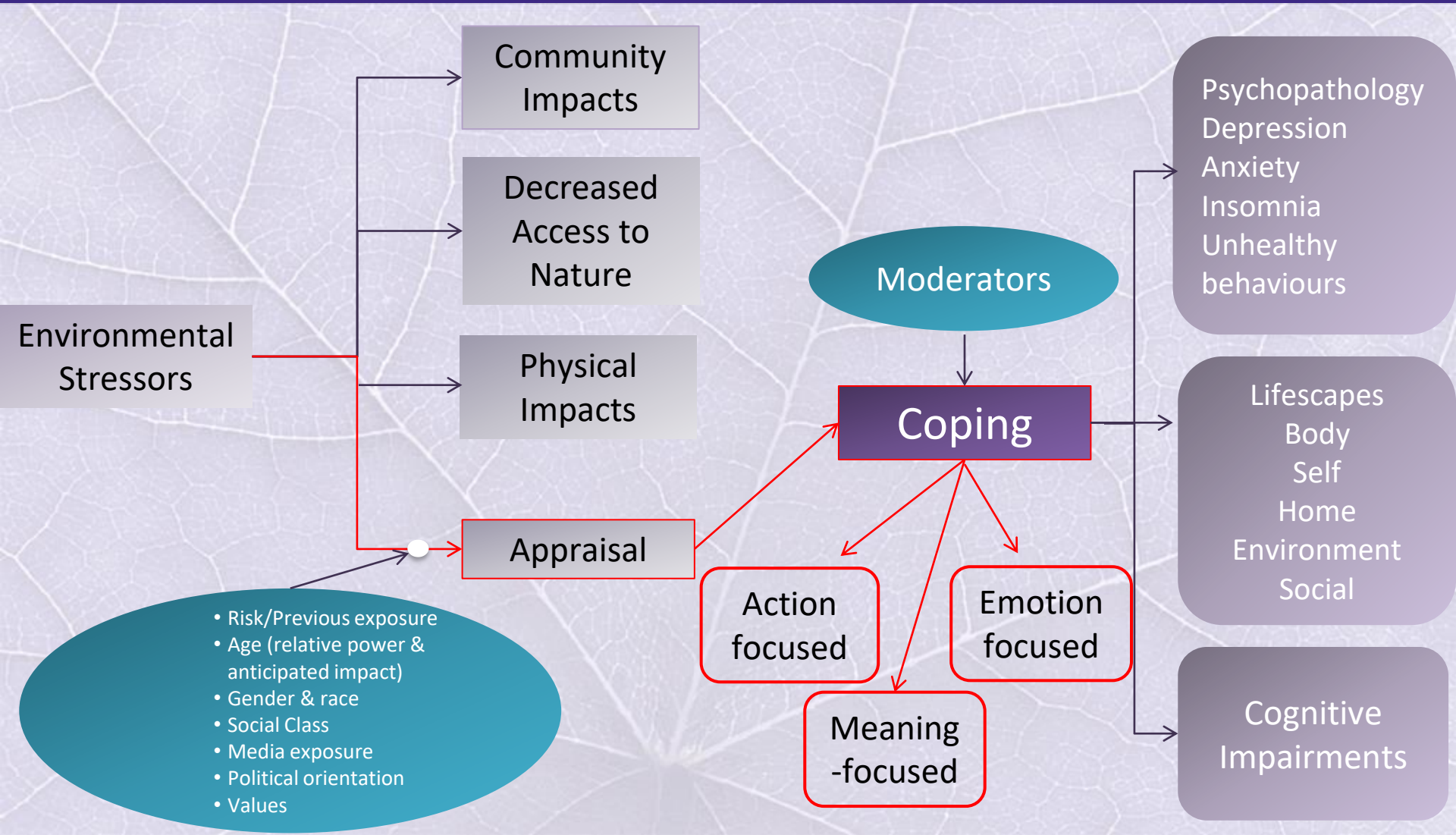
Reduced Quality
of Life / death

Impact on Human Needs

Maslow's Hierarchy of Needs



Human Stress Responses

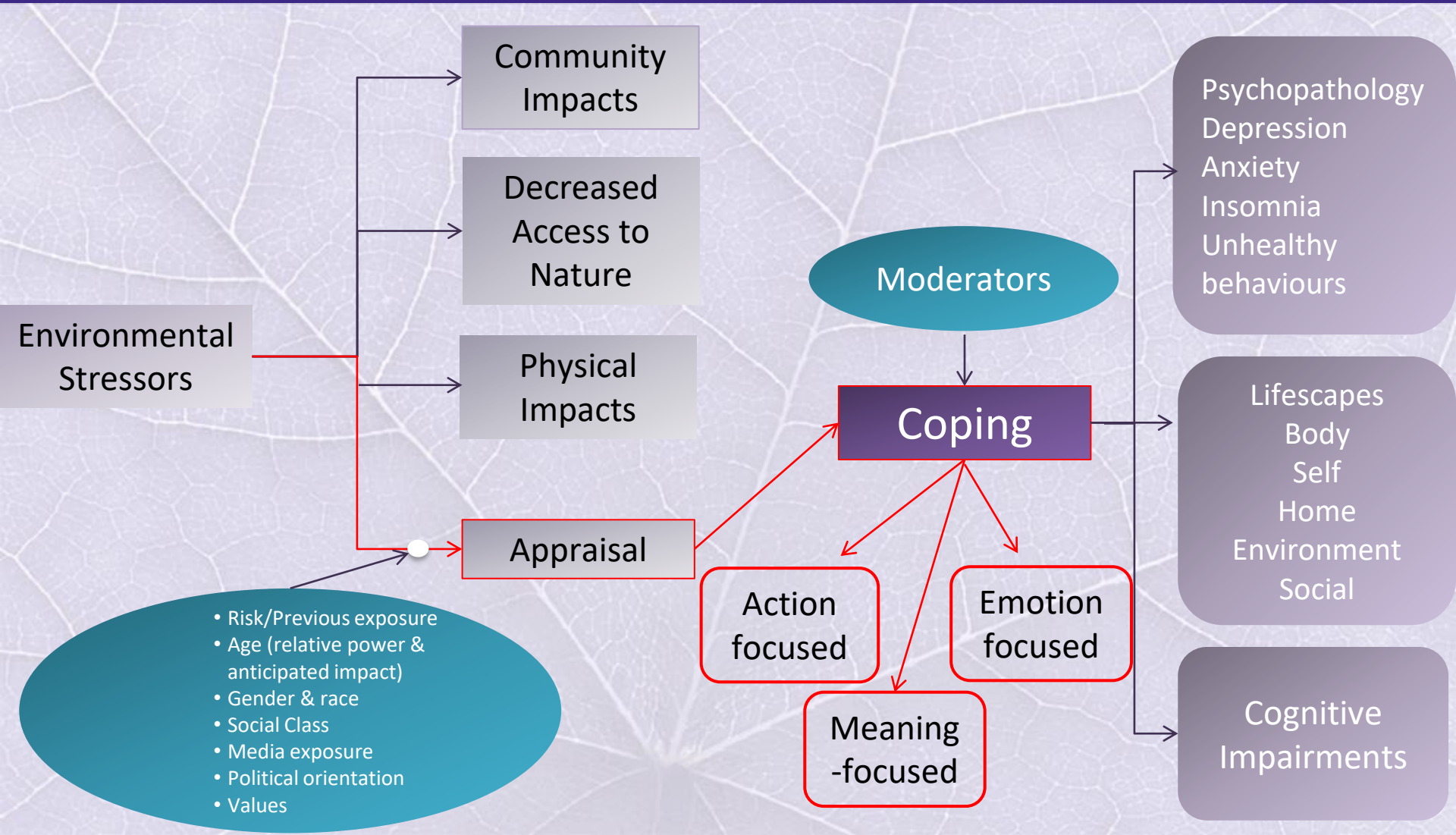


Climate Change Risk Appraisal

Note: Some of these are quickly changing with the impacts of GCC becoming more complex, visible and close and failure to take meaningful action is prolonged

- For many GCC is
 - Somewhat invisible
 - Slow
 - Distant in location
 - Distant in time
 - Not affecting those immediately around us
 - Optimism bias
 - Complex / difficult solve
 - Not in my immediate control
 - Uncertain regarding personal impact on issue (tragedy of the commons)
 - Unknown

Human Stress Responses



Eco-Emotions



Climate Distress

- Directly experiencing climate-related events
- Disruptions to lifestyles
- The anticipation of climate change and its impacts
- Feelings of powerlessness and injustice



“ I think it’s different for young people, for us the destruction of the planet is personal, it’s happening to me, you are doing this to me.”

- Hickman (2020), p. 420

Eco Anxiety

“the generalized sense that the ecological foundations of existence are in the process of collapse” (Albrecht, 2012)


“a chronic fear of environmental doom” (Clayton et al., 2017)

“Various difficult emotions and mental states arising from environmental conditions and knowledge about them. Eco-anxiety can result directly from an environmental problem, but most often it is an indirect impact” (Pihkala, 2018)

How to
address eco-
/climate
anxiety?



- Learn and educate
- Listen & create space
- Allow for messy hope
- Focus on (local) solutions
- Foster systems thinking
- Acknowledge environmental/climate justice
- Focus on (local) solutions
- Empower action / build action competence
 - Radical imagination
- Foster collective care



How does this apply
to the K-12 school
context?

Resources

- [Climate Doom to Messy Hope: Climate Healing & Resilience](#)
- [Climate Change and Mental Health](#)
- [Community Resilience & Wellbeing Amid Climate Crisis](#)
- [Climate Wellbeing Resource Kit](#)

Academic articles available online:

- [Clayton, S. \(2020\). Climate anxiety: Psychological responses to climate change](#)
- [Harre, N., Blythe, C., McLean, L. & Khan, S. \(2021\). A people-focused Systems Approach to Sustainability.](#)

Academic articles available from me (or the library/journal):

- Dittmer, L., Mugagga, F., Metternich, A., Schweizer-Ries, P., Riemer, M. (2017). “We can keep the fire burning”: Building action competence through environmental justice education in Uganda and Germany. *Local Environment*, 23(2), 144-157.
- Hickman, G., Riemer, M., & the YLEC Collaborative. (2016). A theory of engagement for fostering collective action in youth leading environmental change. *Ecopsychology*, 8(3), 167-173. doi:10.1089/eco.2016.0024
- Riemer, M., Van Voorhees, C.W., Dittmer, Alisat, S., Alam, N., Sayal, R., ... Schweizer-Ries, P. (2016). The Youth Leading Environmental Change Project: A mixed-method longitudinal study across six countries. *Ecopsychology*, 8(3), 174-187. doi:10.1089/eco.2016.0025.

Thank you!

Contact me at:
mriemer@wlu.ca



Thanks to my students Jennifer Dobai
for her help