

DESIGN FOR SOCIAL LEARNING

TRANSFORMATIVE LEARNING IN THEORY AND PRACTICE

'The Visual Communication of Ecological Literacy'



Making the Invisible Visible

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University of Brighton

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THE VISUAL COMMUNICATION OF ECOLOGICAL LITERACY

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Why? Context

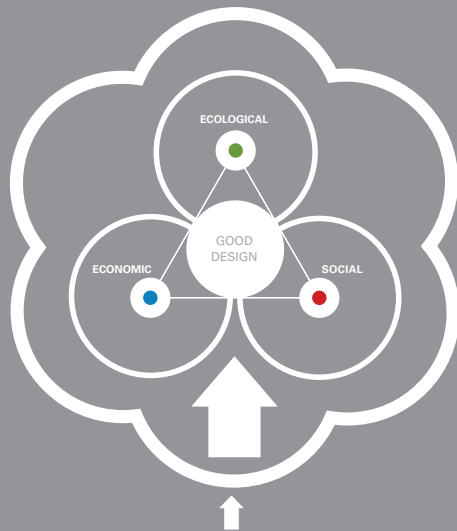
Presently humanity's ecological footprint exceeds its regenerative capacity by 30%. This global overshoot is growing and ecosystems are being run down as wastes (including greenhouse gases) accumulate in the air, land, and water. Climate change, resource depletion, pollution, loss of biodiversity, and other systemic environmental problems threaten to destroy the natural support systems on which we depend.

What? Systems, Networks, Values

Problems cannot be understood in isolation but must be seen as interconnected and interdependent. We must learn to engage with complexity and think in terms of systems to address current ecological, social and economic problems. Images can be useful tools to help with this learning process.

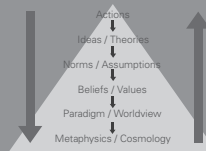
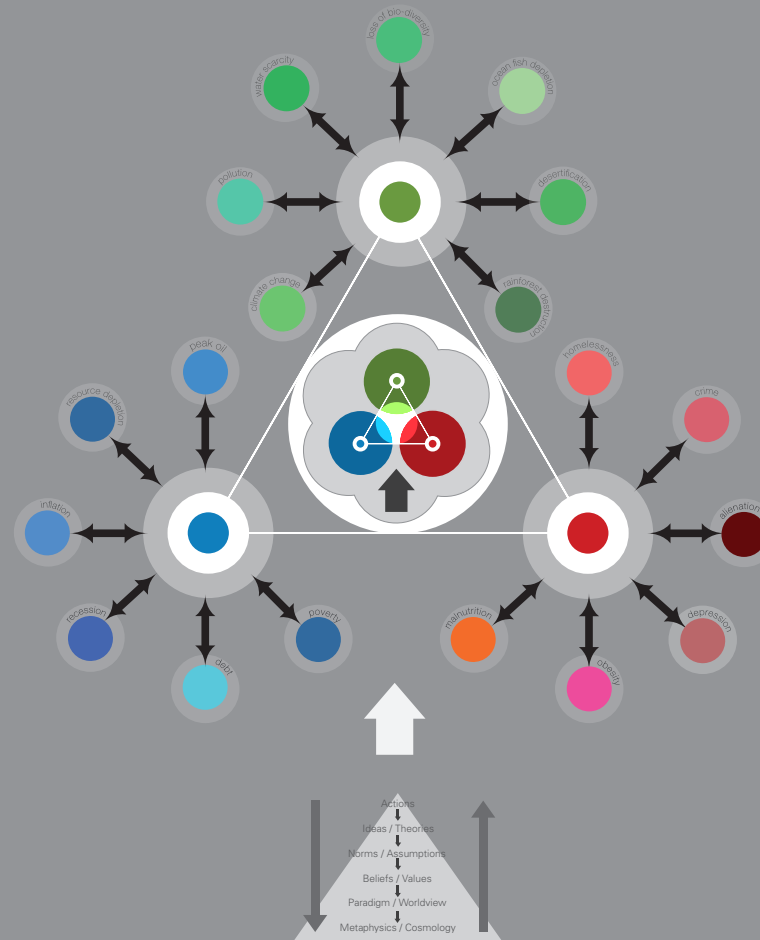
How? Transformational Learning

The value / action gap permeates education for sustainability and is obvious in environmental coverage in the media. The gap between our ideas about what we value and what we are actually doing to address the problem is the notorious value / action gap. This project uses transformational learning to move from values to action. This approach is integrated into cycles of action research and practice based design work.



Ecological literacy - the understanding of the principles of organization that ecosystems have evolved to sustain the web of life - is the first step on the road to sustainability. The second step is the move towards ecodesign. We need to apply our ecological knowledge to the fundamental redesign of our technologies and social institutions, so as to bridge the current gap between human design and the ecological sustainable systems of nature.

Fritjof Capra, 2003



TRANSFORMATIONAL LEARNING

Values, Knowledge, Skills

A: SEEING (Perception)

An expanded ethical sensibility or consciousness

B: KNOWING (Conception)

A critical understanding of pattern, consequence and connectivity

C: DOING (Action)

The ability to design and act relationally, integratively and wisely.

Stephen Sterling, 2009

Levels of Learning & Engagement

1st: Education ABOUT Sustainability

Content and/or skills emphasis. Easily accommodated into existing system. Learning ABOUT change. ACCOMMODATIVE RESPONSE - *maintenance*.

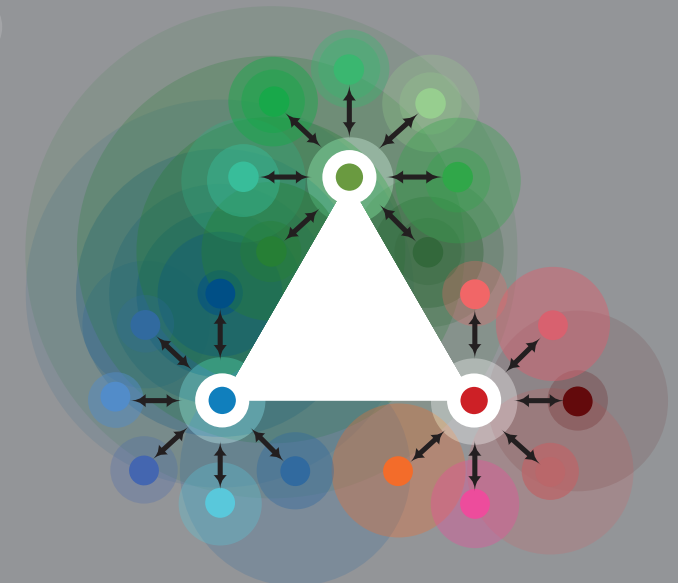
2nd: Education FOR Sustainability

Additional values emphasis. Greening of institutions. Deeper questioning and reform of purpose, policy and practice. Learning FOR change. REFORMATIVE RESPONSE - *adaptive*.

3rd: SUSTAINABLE Education

Capacity building and action emphasis. Experiential curriculum. Institutions as learning communities. Learning AS change. TRANSFORMATIVE RESPONSE - *enactment*.

Stephen Sterling, 2009



The world is a complex, interconnected, finite, ecological-social-psychological-economic system. We treat it as if it were not, as if it were divisible, separable, simple, and infinite. Our persistent, intractable, global problems arise directly from this mismatch.

Donella Meadows, 1982

REFERENCES

Fritjof Capra, *The Hidden Connections*. London: Flamingo, 2003
 Stephen Sterling, *Whole Systems Thinking as a Basis for Paradigm Change in Education*. University of Bath, 2003
 Stephen Sterling, *Transformational Learning*. Researching Transformational Learning. University of Gloucestershire, 2009

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the problem

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value / action gap

So even if people do have the 'right' values,
it does not mean they put them into practice.

CONTENTS

1. DESIGN

1. Applied and transdisciplinary field
2. Shift from designing artifacts to designing processes
3. Shift to designing social learning processes

2. ECOLOGICAL LITERACY

1. Understanding the 'principles of organization' of ecosystems
2. Understanding interconnections across disciplines
3. Critical eco-literacy and cultural literacy

3. TRANSFORMATIVE LEARNING

1. Transformation learning theory and history
2. Mezirow's ten phases of transformational learning
3. Sterling's 'Learning Levels'

4. THE TEACH-IN

1. Example of a project designed for transformative learning
2. Findings and conclusion

1. DESIGN

- Design is uniquely positioned in academic and professional culture to engage in a dynamic process of moving from theory to practice and moving between disciplines and sectors to facilitate trans-disciplinary actions.
- Shift from designing artifacts, buildings etc. to designing processes and futures ways of living.

'a complex social learning process'

Sustainable design pioneer Ezio Manzini explains that the transition towards sustainability will be *'a complex social learning process.'*
(2007, 78)

Social change is about learning. This learning must be designed. This process of learning to live sustainability involves unlearning damaging behaviour patterns, values and aspirations.

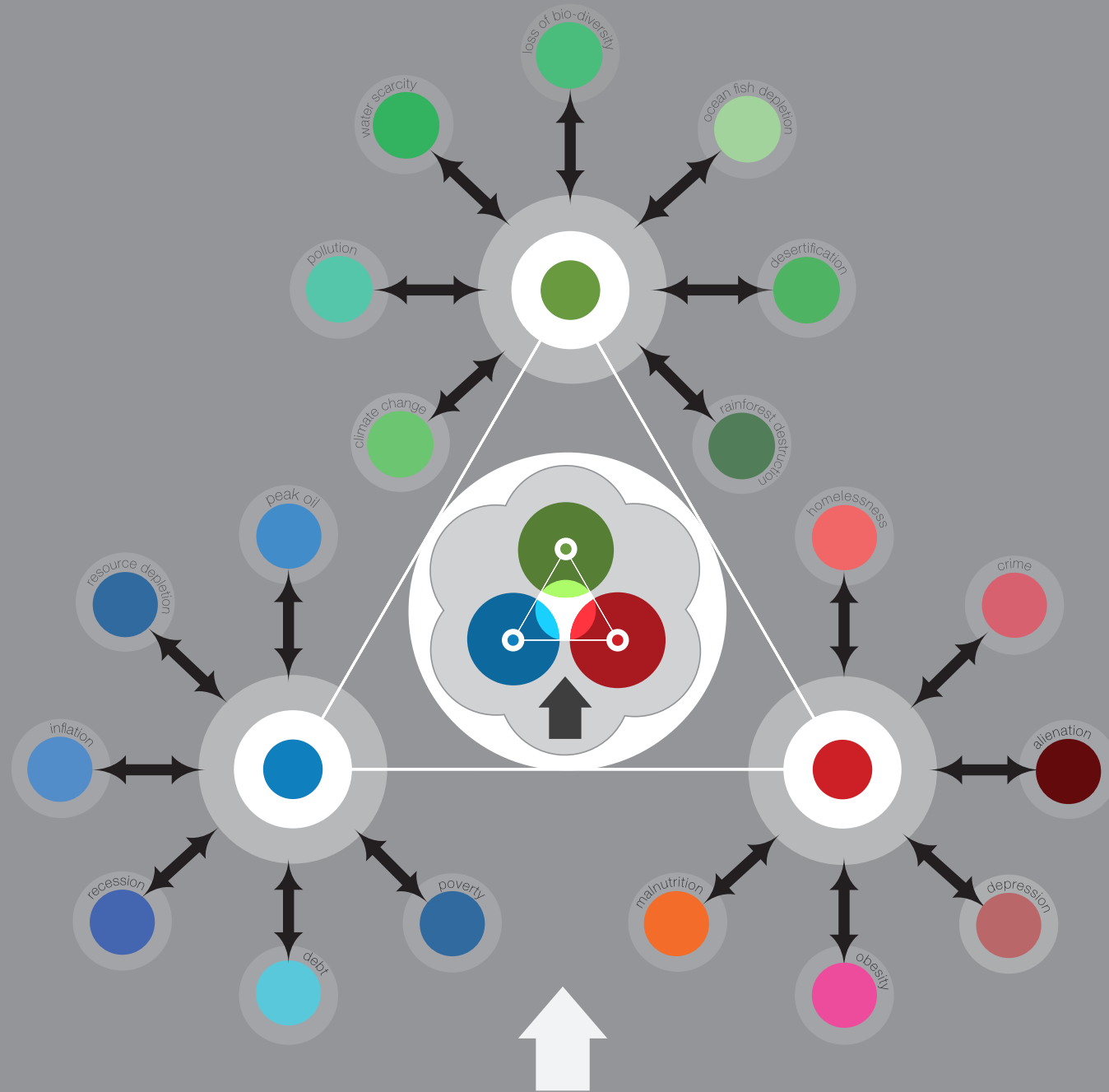
Manzini explains that the *'first step is to enable people to escape from the powerful images.. that are now totally inadequate to face new challenges.'* (2003, 3)

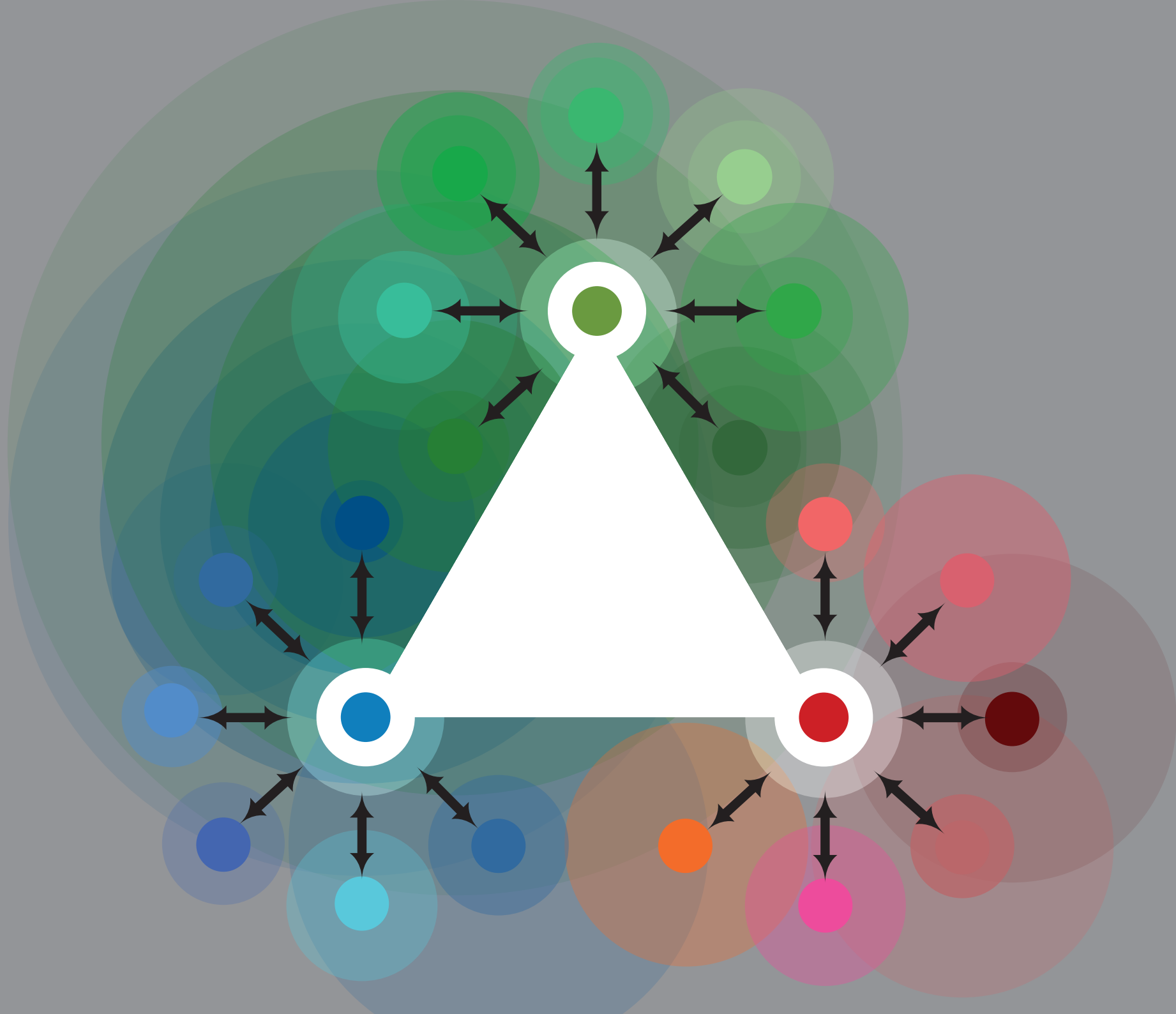
2. ECOLOGICAL LITERACY

The interconnections and interdependence between human, economic and ecological systems must become an educational stable. Ecological literacy implies that each discipline must recognize human embeddedness in the wider ecological system and transform its theory and practice to make sustainability a reality (Orr 1992, 90).

An understanding of the 'principles of organization' of ecological systems. (Capra 2003, 201).

Critical eco-literacy is linked to cultural literacy for a more robust analysis of the connections between social and ecological systems (Kahn 2010, 66).





3. TRANSFORMATIVE LEARNING

Transformative learning (TL) holds the potential to transcend the notorious value/action gap that divides our awareness of environmental threats from our capacity to take appropriate action.

TRANSFORMATIVE LEARNING THEORY (TLT)

TLT describes a process of increasing an individual learner's capacity for change.

Transformative Learning Theory proposes that this process gives learners greater agency as they become more emotionally capable of change.

This maturity is developed through encounters with deep emotion and the results are evidenced in reflective discourse and in ultimately in action. Transformative learning processes can reveal assumptions behind our behaviours, beliefs and values. It does this while helping to create agency and the ability to make change happen.

TRANSFORMATIVE LEARNING - HISTORY

Jack Mezirow first introduced the concept of transformative learning in a 1978 paper titled 'Perspective Transformation'. Mezirow was influenced by Thomas Kuhn's work on 'paradigms' (1962), Paulo Freire's concept of 'conscientisation' (1970), Habermas' 'domains of learning' (1971) and the consciousness raising women's movement in adult education in the 1970s. (Kitchenham 2008, 105)

Mezirow describes TL as a process of '*becoming critically aware of one's own tacit assumptions and expectations and those of others and assessing their relevance for making an interpretation.*' (2000, 4)

This process is informed by a critical awareness of contextual, biographical, historical and cultural aspects of our collective beliefs and feelings in regard the problems under examination. TL '*enables us to recognize, reassess, and modify the structures of assumptions and expectations that frame our tacit points of view and influence our thinking, beliefs, attitudes and actions.*' (Mezirow 2009, 18)

Through TL we learn to act on our own purposes, values, feelings, and meaning rather than those we uncritically assimilated from others.

TEN PHASES OF TRANSFORMATIVE LEARNING

Jack Mezirow's *TEN PHASES OF TRANSFORMATIONAL LEARNING* (1978) was based on extensive research in a 1975 American nation wide study of women education. An eleventh phase was added in 1991 stressing the importance of altering present relationships and forging new relationships. (Mezirow 2000, 22)

1. A disorienting dilemma
2. Self-examination with feelings of fear, anger, guilt or shame
3. A critical assessment of assumptions
4. Recognition that one's discontent and process of transformation are shared
5. Exploration of options for new roles, relationships and actions
6. Planning a course of action
7. Acquiring knowledge and skills for implementing one's plans
8. Provisional trying of new roles
9. Building competence and self-confidence in new roles and relationships
10. A reintegration into one's life on the basis of conditions dictated by one's new perspectives
- & 11. Altering present relationships and forging new relationships

TRANSFORMATIVE LEARNING THEORY (TLT)

Simplified -

1. critical reflection
2. reflective discourse
3. action

Despite its potential, transformational learning is a severe challenge due to the fact that individuals are often intensely threatened by the prospect of re-examining accepted norms of beliefs and behavior. Yet TL can work. Transformative learning is now the subject of over 100 PhDs and has been developed over the three decades, it is a powerful pedagogic practice.

LEVELS OF LEARNING IN EDUCATION FOR SUSTAINABILITY

Communications theorist Gregory Bateson first described learning levels in 'The Logical Categories of Learning and Communication' (1964). Drawing on Bateson's theory, Stephen Sterling describes a four stage process in sustainability education:

LEVELS OF LEARNING IN EDUCATION FOR SUSTAINABILITY

Level A- No change (no learning: ignorance, denial, tokenism)

Level B- Accommodation (1st order - adaptation and maintenance)

Level C- Reformation (2nd order learning - critically reflective adaptation)

Level D- Transformation (3rd order learning - creative re-visioning) (2001, 78)

Sterling maintains that learning for sustainability must transcend the traditional transmissive learning approach because information alone does not necessarily lead to change. Sterling: *'not only does it not work, but too much environmental information (particularly relating to the various global crises) can be disempowering, without a deeper and broader learning processes taking place'* (2001, 19).

Levels of Learning & Engagement

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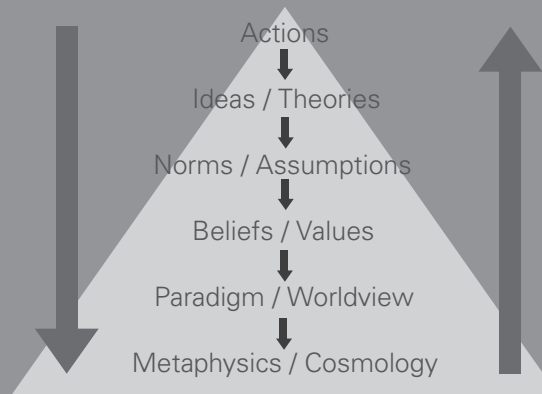
Learning FOR change. REFORMATIVE RESPONSE - *adaptive*.

3rd: SUSTAINABLE Education

Capacity building and action emphasis.

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Learning AS change. TRANSFORMATIVE RESPONSE - *enactment*.



TRANSFORMATIONAL LEARNING

Values, Knowledge, Skills

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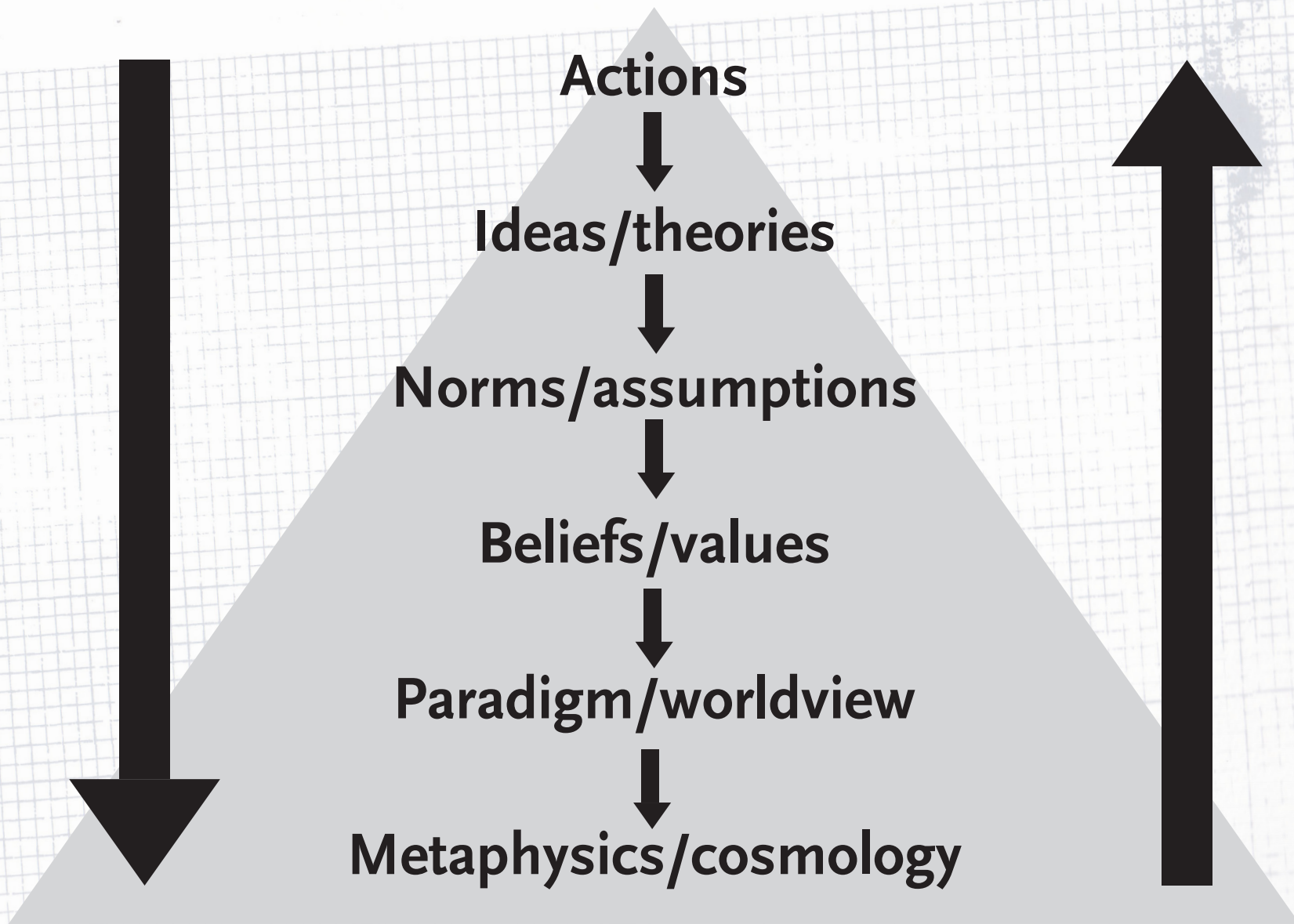
An expanded ethical sensibility or consciousness

B: KNOWING (Conception)

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3. THE TEACH-IN

AN EXAMPLE OF TL FOR EL

300 students from over 15 different universities attended the 2012 Imperative Teach-in at the Victoria and Albert Museum 12 October 2009.

The project has an ambitious goal: to embed with ecological and sustainability literacy in design education by 2012.

Several hundred more watched a live Internet broadcast and over 300+ have signed up to a collaborative site to continue working towards project goals.

STATS:

300 in the audience at the V&A
500+ in the remote audience
300+ people signed on to the Teach-in Ning
5,000+ Teach-in documents downloaded



Teach-in

12 October & 13 October 2009

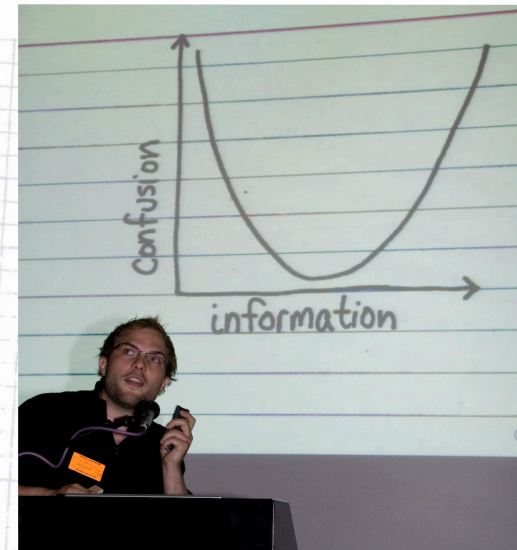
at the Victoria & Albert, On-line & at your University or College

The Teach-in attempted to create conditions for transformational 3rd order learning by creating a transformative, participatory, social learning process.

This orientation is needed to allow learners to re-access basic assumptions in regards to the systemic roots of environmental problems.

Reflecting on our own ideas and perceptions in relation to the environment is necessary to create an ecologically literate basis for action.

This epistemic learning provides a foundation to enable learners to achieve deep 3rd order learning.



The 2012 Imperative challenges individuals to work towards embedding ecological literacy in the curriculum while also attempting to transform university facilities to reflect good environmental practice.

- Participatory activities / processes at event
- Ning social network: <http://teach-in.ning.com>
- 2012 Imperative action document
- 10 step check list for carbon reduction at universities (to reducing carbon emissions by 10% in 2010)
- Speakers videos and other resources on website

www.teach-in.eco-labs.org.uk
<http://teach-in.ning.com>



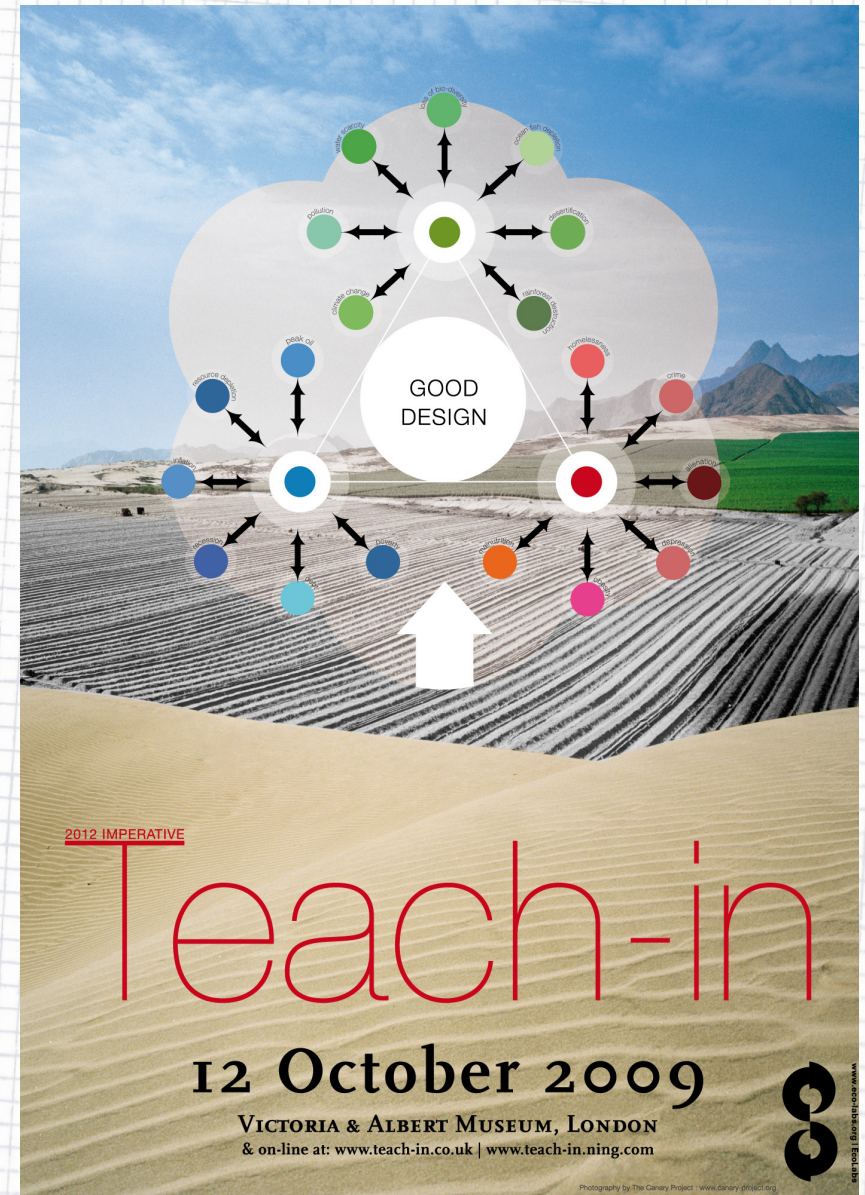
The Teach-in was informed by Mezirow's '10 Phases of TL'

The phases of TL can be modified to inform a learning process for ecological literacy:

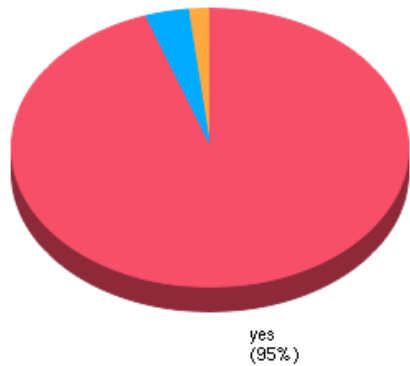
1. Confronting the overwhelming data re: environmental crises.
2. Self-examination with feelings of fear, anger, and / or guilt.
3. A critical assessment of assumptions and basic premises.
4. Recognition that feelings of disempowerment are shared.
5. Exploration ideas associated with ecological literacy.
6. Planning a learning process of ecological principles and concepts.
7. Acquiring new knowledge, i.e. skills needed in sustainable industries.
8. Developing new methods of working and living sustainably.
9. Building confidence to actively promote EL within communities.
10. Reintegration into one's life based on ecologically literate perspective.

Within the context of this research project these steps become more specific. Each of these phases can be facilitated through visual resources:

1. Create visual resources representing converging environmental crises.
2. Illustrate processes to help individuals negotiate emotional reaction.
3. Map the conceptual territory occupied by a hegemonic paradigm.
4. Help individuals understand that they are not alone.
5. Explore ecological literacy with visual displays.
6. Represent key ecological principles and concepts.
7. Promote new skills in new sustainable design.
8. Develop new methods of working and living sustainably.
9. Promote EL within workplaces and communities.
10. Demonstrate how to integration EL into everyday life.

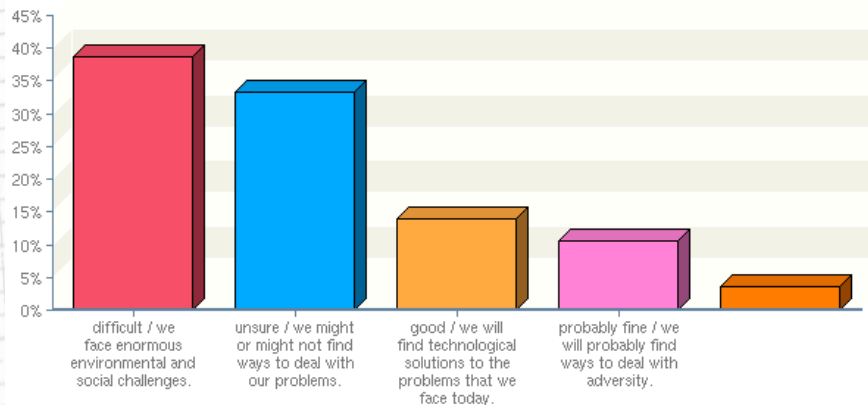


Surveys and feedback forms demonstrate a strong desire amongst participants for universities to address sustainability. 95% of respondents thought that universities have a responsibility to teach students skills to deal with environmental and social problems.

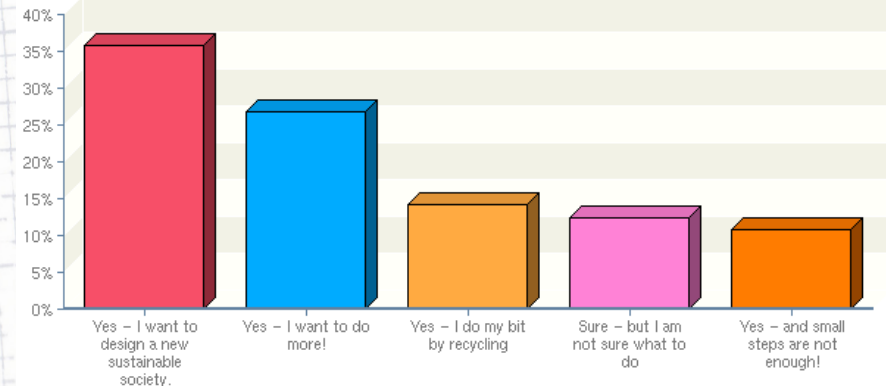


Although responses in were committed to sustainability, understanding of the processes through which we might be capable of designing a sustainable society are far less developed. The disconnect occurs in the space between what we would like to do (our **values**) and what we are actually capable of doing under current circumstances (given a lack of **agency** and systemic understanding or **eco-literacy**).

11. The future we will be _____ because _____.



14. Should YOU do something about environmental problems?



CONCLUSION : VALUES AND DESIGN FOR LEARNING

There is a need to problematize the notion of 'indicators' for values.

ACTION as the only indicator that counts.

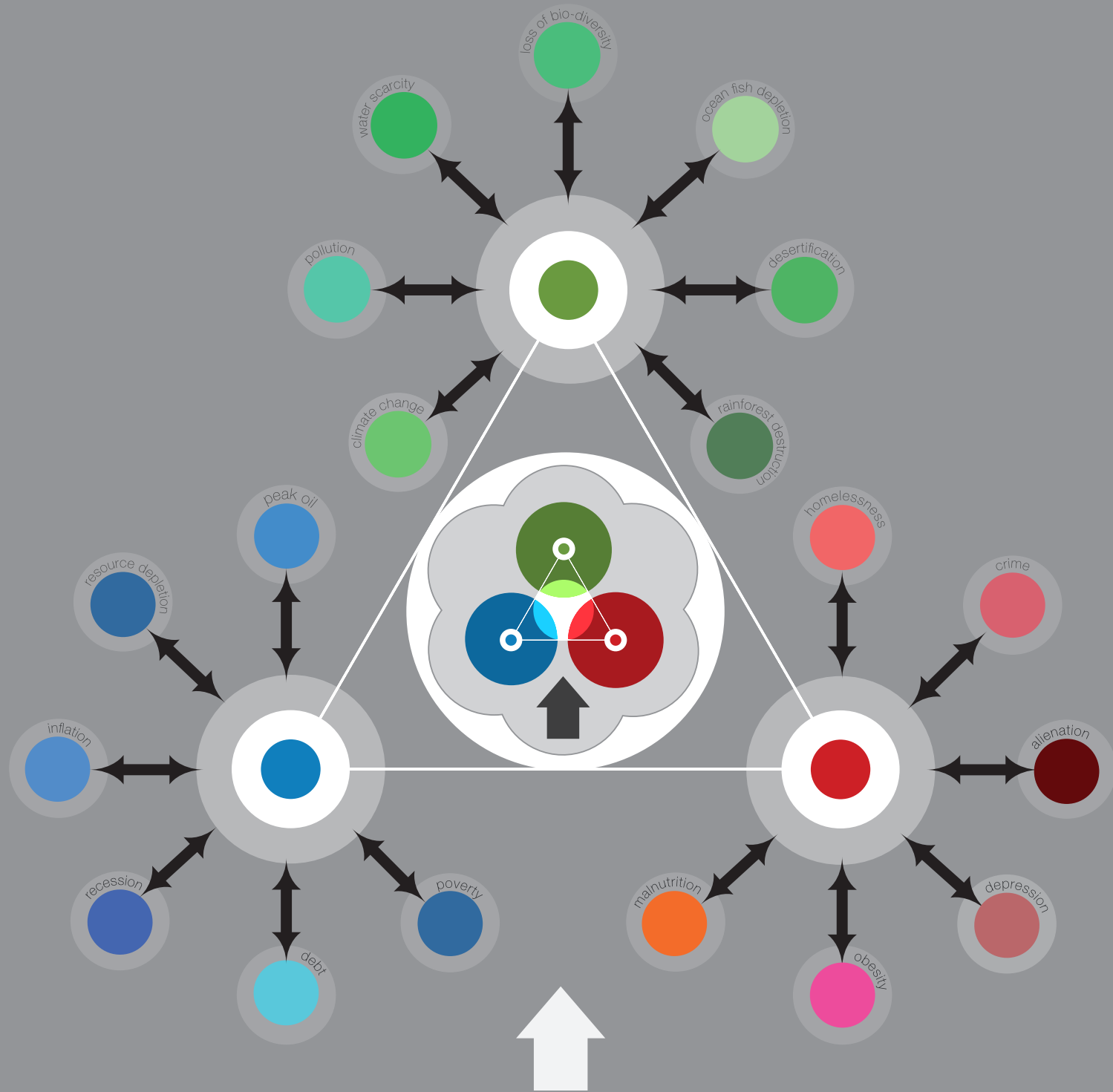
Paulo Freire:

'An inauthentic word... results when a word is deprived of its dimension of action, reflection automatically suffers as well; as the world is changed into idle chatter, into verbalism, into an alienated and alienating 'blah'. It becomes an empty word, which cannot denounce the world, for denunciation is impossible without a commitment to transform, and there is no transformation without action (1970, 68).

Furthermore reflection without action cannot lead to true knowledge:

'A mere perception of reality not followed by [a] critical intervention will not lead to transformation of the objective reality – precisely because it is not a true perception (Freire, 1970, 34).

Values and knowledge must be forged
through action and demonstrated in
practice in order to have value.



The nature of quality - from the 'Qualitative Growth' report

The new systemic understanding of life makes it possible to formulate a scientific concept of quality. In fact, it seems that there are two different meanings of the term – one objective and the other subjective. In the objective sense, the qualities of a complex system refer to properties of the system that none of its parts exhibit. Quantities, like mass or energy, tell us about the properties of the parts, and their sum total is equal to the corresponding property of the whole, eg, the total mass or energy. Qualities, like stress or health, by contrast, cannot be expressed as the sum of properties of the parts. Qualities arise from processes and patterns of relationships among the parts. Hence, we cannot understand the nature of complex systems such as organisms, ecosystems, societies, and economies if we try to describe them in purely quantitative terms. Quantities can be measured; qualities need to be mapped.

...the notion of quality always seems to include references to human experiences, which are subjective aspects. For example, the quality of a person's health can be assessed in terms of objective factors, but it includes a subjective experience of well-being as a significant element. Similarly, the quality of a human relationship derives largely from subjective mutual experiences. The aesthetic quality of a work of art, as the saying goes, is in the eye of the beholder. Since all qualities arise from processes and patterns of relationships, they will necessarily include subjective elements if these processes and relationships involve human beings.

Accordingly, many of the new indicators of a country's progress use multi-disciplinary, systemic approaches with appropriate metrics for measuring the many aspects of quality of life. (Capra and Henderson, 7)