

Learning to learn for sustainability in higher education: making a difference

*Prof Stephen Sterling
Centre for Sustainable Futures
Plymouth University, UK*

**Sustainable University Day
March 28, 2014
University of Bern**



**TEACHING
AND LEARNING
SUSTAINABILITY
WITH
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PedRIO

CSF – overall aim at Plymouth University

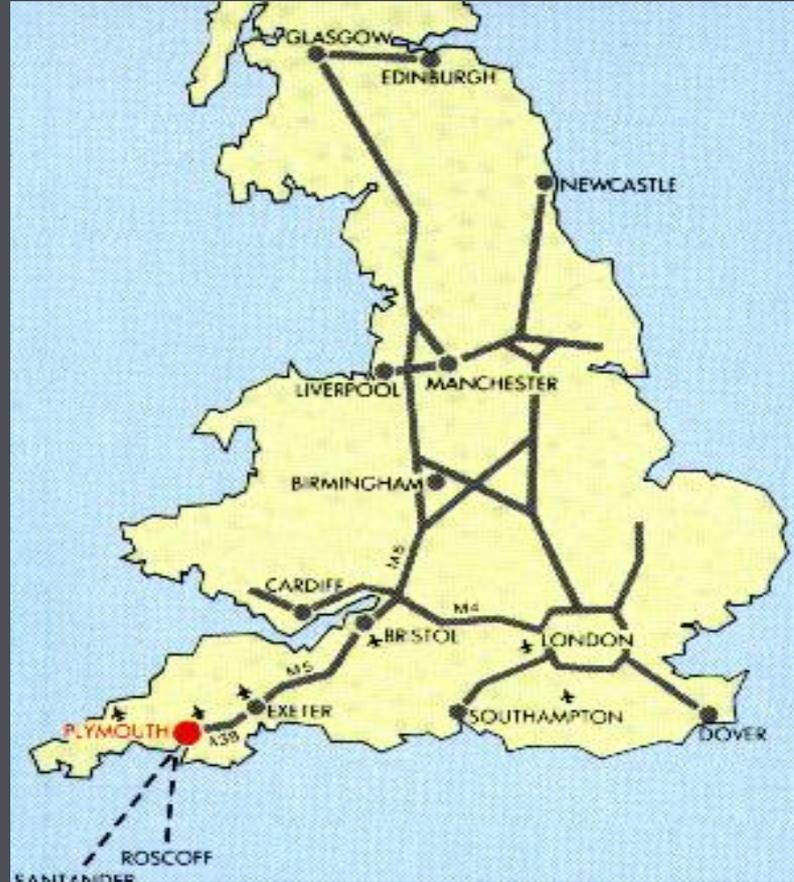
‘To lead and support transformative learning for sustainability across Plymouth University and beyond, working towards the sustainable university with staff, students and partners.’

- Centre for Sustainable Futures (CSF), Plymouth University

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Plymouth University





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The context – Plymouth University

Largest university in the southwest with over 32,000 students and is the fifth largest UK university based on student population.

Some 3,000 staff and an annual income of around £160 million.

Currently markets itself as ‘the enterprise university’.



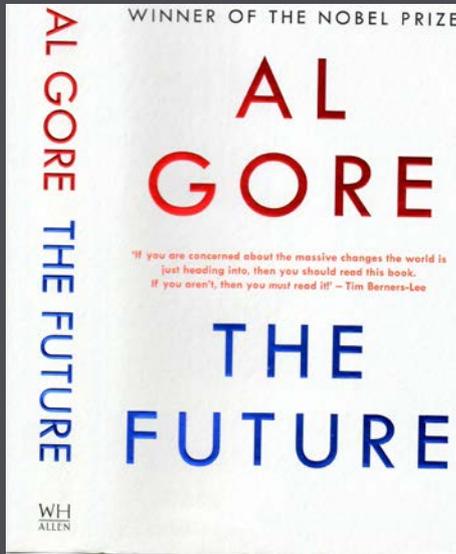
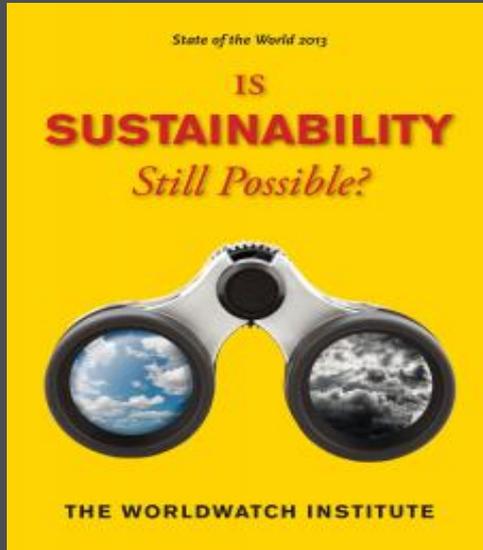


1. The challenge
2. Sustainability education
3. Sustainability competencies
4. Whole institutional change and Plymouth's experience
5. Embedding sustainability – approaches and examples
6. What next?

1 The challenge



Context !



- United Nations Secretary-General's High-level Panel on Global Sustainability (2012), *Resilient People, Resilient Planet: A future worth choosing*. New York: United Nations
- <http://www.un.org/gsp/report/>
- The Royal Society (2012) *People and the planet*, The Royal Society Science Policy Centre report 01/12, The Royal Society, London.
<http://royalsociety.org/policy/projects/people-planet/report/>
- International Council for Science (2012) *State of the Planet Declaration*, Planet Under Pressure: New Knowledge Towards Solutions, 26-29 March, London.
http://www.planetunderpressure2012.net/pdf/state_of_planet_declaration.pdf
- WEF (World Economic Forum) 2012 *Global Risks 2012 Seventh Edition- An Initiative of the Risk Response Network*, WEF.
http://www3.weforum.org/docs/WEF_GlobalRisks_Report_2012.pdf

A different kind of education?

'That which is known is no longer stable. The shelf-life of knowledge can be very short.

In many disciplines what is taught and how it is taught are both stalked by the threat of obsolescence.

In a changing world, Europe's graduates need the kind of education that enables them to engage articulately as committed, active, thinking, global citizens as well as economic actors in the ethical, sustainable development of our societies.'

- European Commission (June 2013) *Modernisation of Higher Education Improving the quality of Teaching and Learning in Europe's Higher Education Institutes.*

<http://tinyurl.com/nr8dltv>

Higher Education Sustainability Initiative for Rio+20

Teach sustainable development concepts, ensuring that they form a part of the core curriculum across all disciplines so that future higher education graduates develop skills necessary to enter sustainable development workforces and have an explicit understanding of how to achieve a society that values people, the planet and profits in a manner that respects the finite resource boundaries of the earth.

Higher Education Institutions are also encouraged to provide sustainability training to professionals and practitioners.

The Rio+20 Directory of Committed Deans and Chancellors, 2012.

<http://www.uncsd2012.org/rio20/index.php?page=view&nr=341&type=12&menu=35>

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'Major shift'



We should:

'create learning that enhances critical thinking, the understanding of the self, the systems and environments in which we live, and the situations we experience...'

We need to:

'..understand and manage complexity, cope with ambiguity and uncertainty, and grasp the connectedness and interdependence of the systems of which we are a part.'

- Bela Banathy, *Systems Design of Education*, 1991.

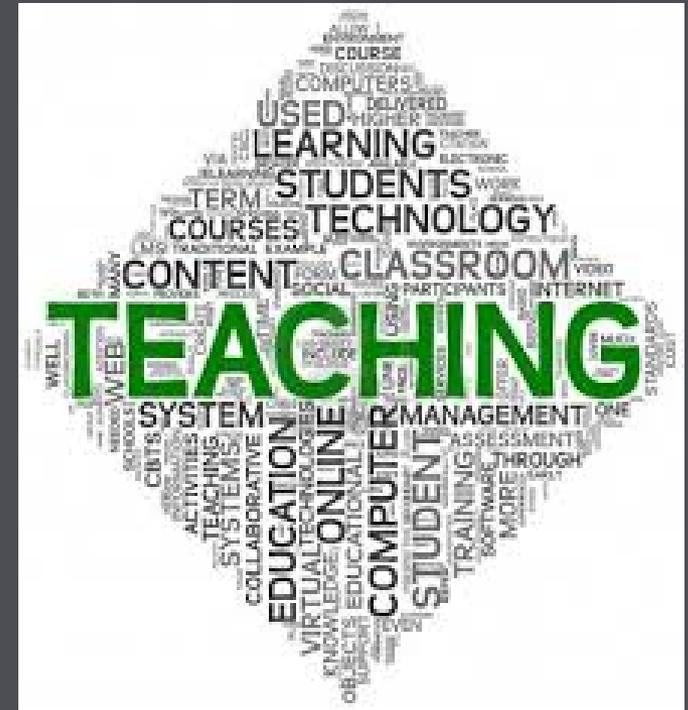
Tensions: *add-on or transformation?*

- Defined issue relating mainly to estates and resource use
 - Principally an environmental issue
 - Requires add-on, or reformative approach
 - Involves a few key disciplines
 - Is an additional agenda, easily accommodated
 - Has clear goals, measurable
- Broad relevance to all aspects of HE operation and provision
 - Also encompasses social relations, justice, ethics, economic viability etc
 - Requires holistic and transformative approach
 - Implications for most disciplinary areas and requires interdisciplinarity
 - Is an overarching agenda and challenges existing policy and practice, involving organisational change
 - Emerging and contested area



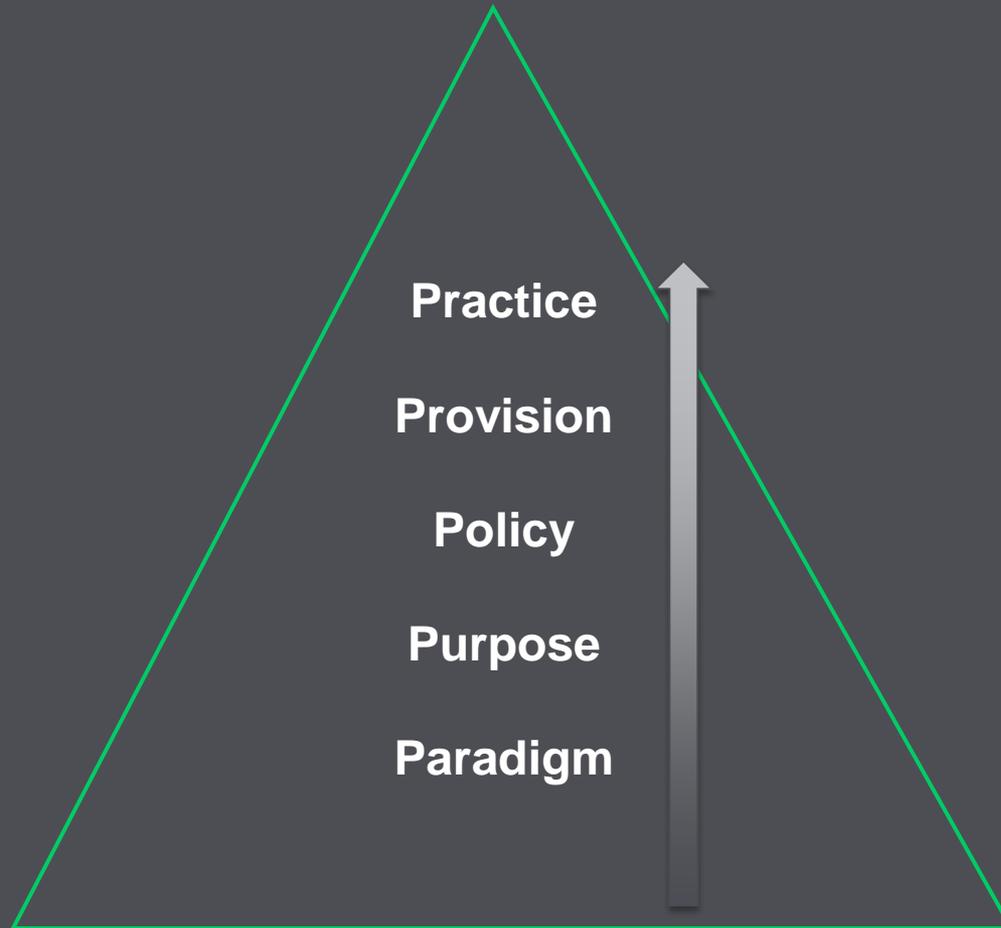
Education for unsustainable development?

‘at present most of our universities are still leading the way in advancing the kind of thinking, teaching and research that...accelerates un-sustainability’
(Arjen Wals 2008, 31).



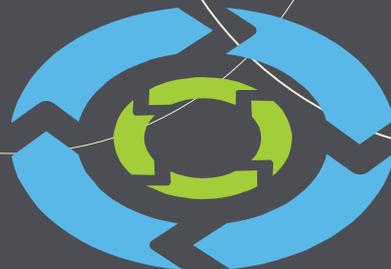
Wals, A (2008) (ed.) *From cosmetic reform to meaningful integration: implementing education for sustainable development in higher education institutes - the state of affairs in six European countries*, DHO, Amsterdam.

Educational culture: levels of manifestation



Double learning challenge

- *Structured learning:*
 - intentioned learning amongst students in formal education which arises from educational policies and practices
- *Organisational learning:*
 - the social learning response to sustainability in organisations, institutions and their actors



Barriers



Cited factors

- Crowded curriculum
- Irrelevance
- Limited staff awareness and/or expertise
- Limited institutional commitment
- Limited commitment from external stakeholders
- Too demanding

Types of barriers

- **Paradigmatic/psychological**
- **Policy/purpose related**
- **Structural (governance, compartmentalisation etc)**
- **Resource/information deficiency**

Drivers and opportunities

Wider context

- Socio-economic and ecological conditions characterised by fluidity, complexity and unsustainability
- Rising public interest/concern

Economic and employment context

- Low carbon economy
- Students want to work for ethical employers

Policy and mandate

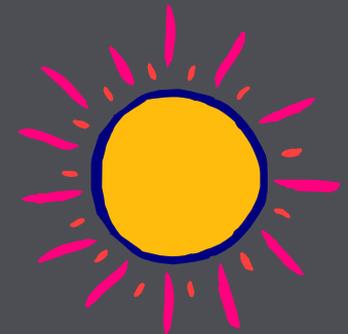
- Professional requirements
- National mandate from HE funding councils

Institutional advantage

- Student demand
- Corporate social responsibility and + SD links
- Financial savings
- Marketing and recruitment advantage

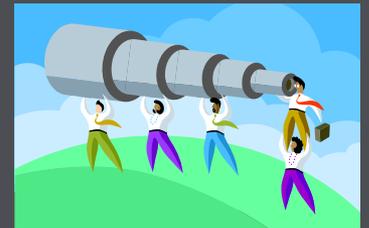
Education and quality

- Rising interest in quality education and sustainability



Sustainability goals

- a) Integrating actions of conservation and human development.
- b) Satisfying basic human needs.
- c) Achieving equality and social justice for all.
- d) Facilitating social self-determination and cultural diversity.
- e) Managing our legacy for future generations.
- f) Maintaining ecological integrity.
- g) Developing new technologies and product manufacturing processes



- *The Sustainability Professional: 2010 Competency Survey Report*

A research study conducted by the International Society of Sustainability Professionals

http://www.sustainabilityprofessionals.org/system/files/ISSP%20Special%20Report_3.10_final_0.pdf



2 Sustainability education



Sustainability Education is...

..about developing the kinds of education, teaching and learning that appear to be required IF...



...we are concerned about ensuring social, economic and ecological wellbeing, now and into the future.

It is relevant to four domains: the *personal*; the *professional*; the *organisational* (HEI); and the *social or community level*

Sustainability education is not...

- a separate subject or discipline (ideally)
- only relevant to a few subject areas
- separate from and unrelated to other HE agendas such as employability, enterprise and internationalisation
- just about 'the environment'
- a passing fad



ESD can 'colour' all areas....

- Curriculum
- Hidden curriculum and learning environments
- Most (all) disciplines
- Interdisciplinarity
- Pedagogy
- Research-teaching linkages
- Student engagement
- Campus operation and management
- Procurement
- Community links
- Institutional governance
- Corporate policy and plans



Benefits to students and Faculty

- Student interest and motivation
- Student recruitment
- Relevance
- Community links
- Quality agenda
- Sustainability performance
- Employability
- Employers' views



<http://www.usinfogroup.org/EDUCATION01.jpg>

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A different way of looking at education?

Possible characteristics

- Importance of context
- Holistic approaches to knowledge
- Interdisciplinarity across most subjects
- Critical thinking and systemic thinking valued
- Value explicitness and ethical concerns
- Real world issues
- Futures oriented
- Participatory learning approaches
- Place based learning and experiential learning
- Reflexive learning
- Action research
- Local and global citizenship
- Collective (social) learning as well as individual

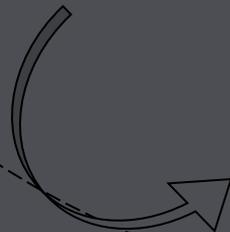
Shifts with regard to curriculum and pedagogy

FROM:

- Curriculum as top-down 'product'
- Fixed knowledge
- Disciplinarity
- Abstract knowledge
- Teaching/instruction
- Few learning styles
- Passive learning

TOWARDS:

- Curriculum as experience/situated learning
- Provisional knowledge
- Inter- and transdisciplinarity
- Real world knowledge
- Participative learning
- Multiple learning styles
- Reflective/active learning

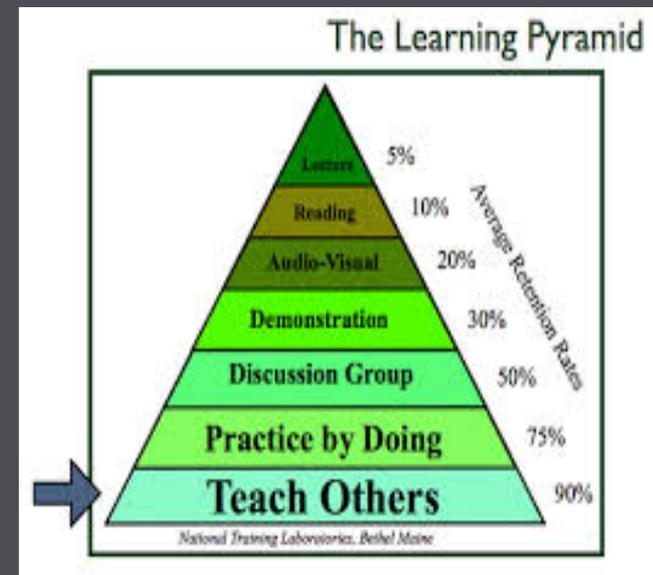


Five pedagogic dimensions

- Futures thinking
 - Critical and creative thinking
 - Participation and participatory learning
 - Systemic thinking
 - Partnerships
- Tilbury, D. and Wortman, D. (2004) *Engaging People in Sustainability*, IUCN – The World Conservation Union, Gland, Switzerland

Sustainability and pedagogy

- Role plays and simulations
- Group discussions
- Stimulus activities
- Debates
- Learning journals
- Critical incidents
- Case Studies
- Reflexive accounts
- Personal Development Planning (PDP)
- Critical reading and writing
- Problem based learning
- Fieldwork
- Futures visioning
- Worldview and values research
- Action research and cooperative inquiry





3 Sustainability competencies



A 'sustainability literate' person...

Would be expected to:

- understand the need for change to a sustainable way of doing things, individually and collectively
- have sufficient knowledge and skills to decide and act in a way that favours sustainable development
- be able to recognise and reward other people's decisions and actions that favour sustainable development

- Higher Education Partnership for Sustainability,
Forum for the Future

Widening the focus

Conventional occupational skills

Sustainability skills

Professional, disciplinary and delimited

Cross-professional and interdisciplinary

Focus on present

Future oriented

Local focus

Local and global outlook

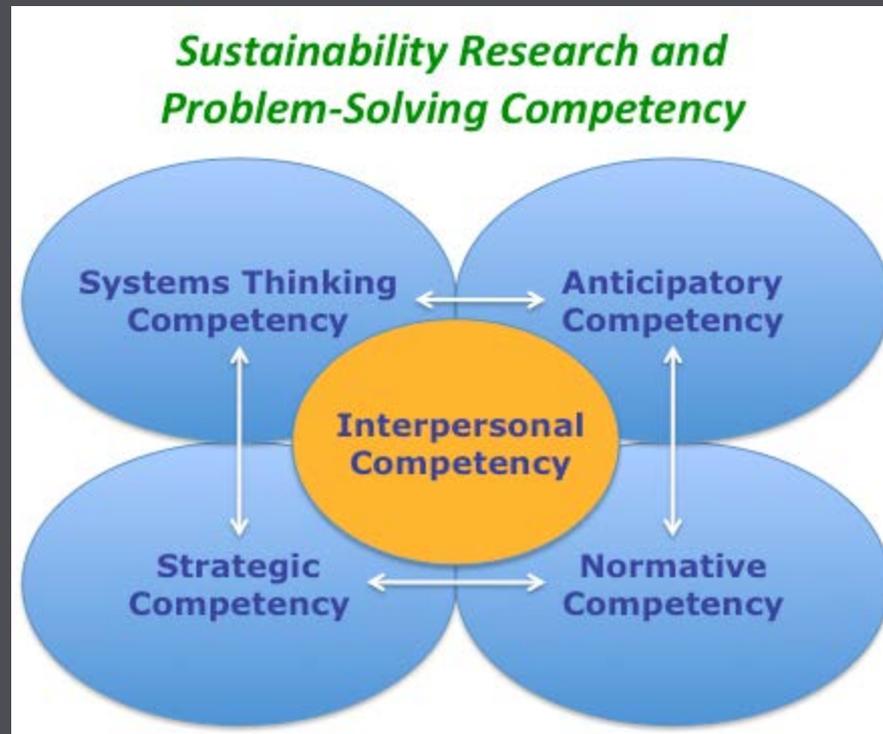
Health and safety concern

Risk, precaution, uncertainty

Competence categories

- HOLISTIC APPROACH - integrative thinking and practice
- ENVISIONING CHANGE - past, present and future
- ACHIEVING TRANSFORMATION – people, pedagogy and educational systems
- *Learning for the future: Competences in Education for Sustainable Development*, UNECE, 2011 (United Nations Economic Commission for Europe)

A 'sustainability competencies' model



Wiek, A (2010) Core competencies in sustainability

http://unhsdm.weebly.com/uploads/5/9/6/5/5965715/forum_w
[workshop_guide_final.pdf](#)

'Sustainability literacy': the ability..

- to appreciate importance of environmental, social, and political contexts	- to solve real-life problems in a non-reductionist manner	- to think creatively and holistically and make critical judgements
- to develop high-level of self reflection , personal and professional	- to identify, understand, evaluate and adopt values conducive to sustainability	- to bridge the gap between theory and practice
- to participate creatively in inter-disciplinary teams	- to initiate and manage change	AND, have a broad and balance foundation knowledge of SD

- *SD in HE: Current practice and future developments*, Higher Education Academy 2005

UBC graduate attributes

The graduates of UBC will have developed strong analytical, problem-solving and critical thinking abilities; they will have excellent research and communication skills; they will be knowledgeable, flexible, and innovative. As responsible members of society, the graduates of UBC will value diversity, work with and for their communities, and be agents for positive change. They will acknowledge their obligations as global citizens, and strive to secure a sustainable and equitable future for all (UBC, 2012)

- University of British Columbia mission statement

Sustainability Education at UBC: Desired student attributes and pathways

Holistic systems thinking	Sustainability knowledge	Awareness and integration	Acting for positive change
1. Demonstrate a capacity to appreciate that all actions have consequences within, between and among systems	1. Demonstrate an ability to critically evaluate competing sustainability models and paradigms	1. Appreciate that sustainability demands participation from all disciplines and contributions from society	1. Demonstrate skills and strategies to enter into dialog and create persuasive arguments relating to sustainability
2. Comprehend systemic limits and the ways humans can and do impact ecological systems	2. Understand the complexity of land use and the changing relationship between humans and nature over time	2. Empathize with intercultural perspectives and recognize their value to illuminate environmental and social issues	2. Advocate for positive change through collaboration, mediation and consensus building strategies

From *competencies* to *outcomes*

- unlock and foster creativity, enterprise, resourcefulness and resilience
- build competence, confidence and willingness to engage
- raise awareness, build understanding and shift attitudes and values in favour of sustainability
- promote reflection on behaviour and facilitate practical change
- help build social capital and promote partnerships and collaboration particularly in local contexts
- promote participation and engagement amongst target groups and stakeholders
- create mandate for sustainability policy development and implementation
-*And ultimately build resilient and sustainable systems*

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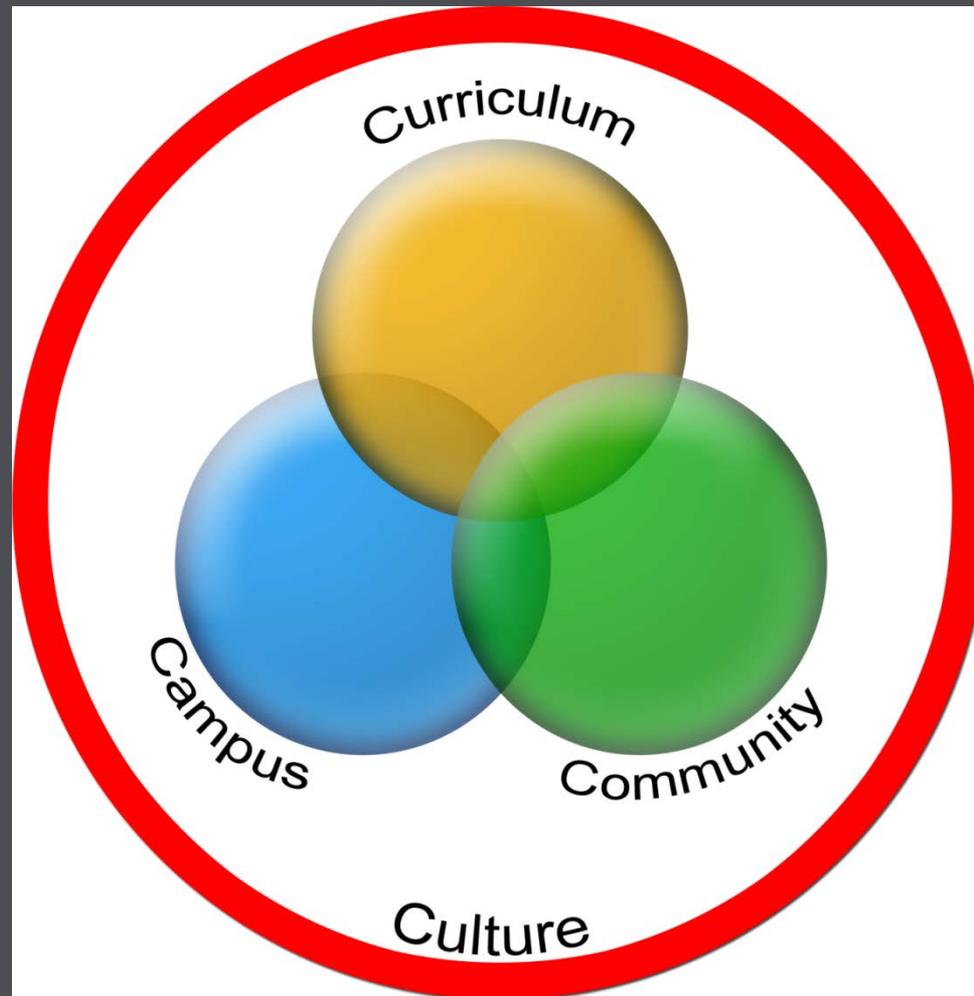




4 Whole institutional change and Plymouth's experience



Towards holistic change - the 4C model



Plymouth University Strategy 2012-2020

‘We aim to:

- differentiate our academic offer by ensuring issues and principles of sustainability permeate and inform our teaching and learning programmes, enabling students to engage positively with sustainability issues affecting their personal and professional lives in a rapidly changing world.’

- **Ambition 4: Achieving Resilience, Sustainability and Effectiveness**

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Towards sustainable institutions

FROM:

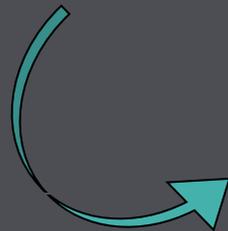
- Incoherence and fragmentation
- Large scale
- Little connectivity (silos)
- Closed community
- Teaching organisation

• *Microcosm of unsustainable society*

TOWARDS:

- Human scale
- High connectivity
- Open community
- Learning organisation
- Systemic coherence and synergy

Microcosm of sustainable society?



CSF's nine project areas supporting change

- Curriculum innovation, support and advice
- Student engagement
- Learning spaces and campus
- Resource development
- Communication and marketing
- Research
- Networking and facilitation
- Whole institutional change (including monitoring and evaluation)
- External impact, profile and observation

Possible curriculum responses

- Minor modifications
- ESD in PDP
- New “podules”
- New modules
- New programmes
- Generic or common modules
- Cross-disciplinary and extra-curricular events
- Dissertations, projects and work place learning placements
- SD infusion in assessment



Self-imposed criteria re whole institutional change (2008)

- Sustainability vision – policy statement
- Whole institution strategy and action plan
- Senior manager with known responsibility for implementation
- Senior executive committee
- Regular sustainability and environmental auditing
- Sustainability applied to all aspects of campus operation
- Ethical investment policy
- Excellent internal communication
- Excellent external communication of sustainability message
- Holistic perception and management of 4 Cs
- Embedding sustainability in formal and informal learning of students
- Sustainability principles and pedagogy in L&T policy
- University sustainability research centre and research strategy
- Culture of organisational learning and improvement
- Concern for wellbeing of whole community as well as achievement

Sustainability at Plymouth University



Sustainability Strategy is implemented through a 3 part approach and structure:



- **Curriculum** - CSF within the Teaching and Learning Directorate (T&L)
- **Operations** - Office of Procurement and Sustainability (OPS)
- **Research**- Institute for Sustainable Solutions Research (ISSR)



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people & planet
student action on world poverty and the environment

People & Planet Green League 2013

First Class award

Rank	University	CASE STUDY	Policy									Performance				Total Score	Bar Chart		
			Env. Policy	Env. Staffing	Env. Auditing	Ethical Investment	Carbon Management	Ethical Procurement and Fairtrade	Sustainable Food	Student and Staff Engagement and Learning	Renewable Energy	Waste and Recycling	Carbon Emissions	Water Reduction					
1↑	Manchester Metropolitan University	CASE STUDY	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	59.5	
2	University of Plymouth	CASE STUDY	★	★	★	!	★	★	★	★	★	!	★	★	★	★	★	59.0	
3↑	University of Gloucestershire	CASE STUDY	★	★	★	★	★	★	★	★	★	★	!	★	★	★	★	58.0	
4↑	University of Worcester	CASE STUDY	★	★	★	★	★	★	★	★	★	★	★	!	★	★	★	57.5	
5↓	University of Brighton	CASE STUDY	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	57.0	
6↓	University of Greenwich		★	★	★	!	★	★	★	★	★	★	★	★	★	★	★	56.0	
7=↓	Nottingham Trent University	CASE STUDY	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	55.0	
7=↑	Oxford Brookes University	CASE STUDY	★	★	★	★	★	★	★	★	★	★	★	!	★	★	★	55.0	
9=↓	University of Bradford	CASE STUDY	★	★	★	★	★	★	★	★	!	!	★	★	★	★	★	54.0	
9=↓	University of Central Lancashire	CASE STUDY	★	★	★	★	★	★	★	★	★	★	★	!	★	★	★	54.0	
11↓	Bournemouth University	CASE STUDY	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	53.0	
12↓	Aston University	CASE STUDY	★	★	★	★	★	★	★	★	★	!	★	★	★	★	★	51.0	
13↑	University of Exeter	CASE STUDY	★	★	★	!	★	★	★	★	★	!	★	★	!	★	★	50.5	



5 Embedding sustainability – approaches and examples

SUSTAINABILITY WITH PLYMOUTH UNIVERSITY

- Award-winning sustainability courses
- Sustainability-focused placements
- Fairtrade campus
- Energy efficient buildings
- Carbon reduction plan
- Over 200 sustainability research experts

Find out more:

t: 01752 588 890

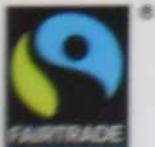
e: sustainability@plymouth.ac.uk

www.plymouth.ac.uk

LEARN RESEARCH GET INVOLVED



Work-Based Learning placement student Sarah Jackson making her 'Green Pledge' during Green Week



Plymouth Business School aims

- To ensure students are given every opportunity to explore issues of sustainability throughout the curricula in the PBS.
- To support and drive the visible presence of the PBS as a centre of excellence in study and research for sustainability in the business world.
- To become an authoritative voice on the impact of sustainable strategies on the business community in the UK and through contacts with other universities on a wider international stage.
- To consider the need for a flagship programme relating to sustainability in business.
- To work closely with other partners throughout the university to enhance the position of the university as a sustainable organisation



Curricula for tomorrow

“The HE sector is in need of rising to the sustainability challenge in more strategic and holistic ways and embedding sustainable development into the overall student experience.

This includes learning, teaching and curricula – with the intention of ensuring future graduates are globally aware and responsible citizens in the 21st century.”

- The HEA Green Academy Programme

http://www.heacademy.ac.uk/projects/detail/esd/esd_green_academy

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Universities 2013-14

Anglia Ruskin University - [Connecting up experiences of sustainability](#)

University of Chichester - [Embedding Sustainability in the Curriculum](#)

De Montfort University - [Green citizens for the real world](#)

University of East Anglia - [Greening Tomorrow's Leaders across disciplines](#)

University of South Wales - [Embedding Sustainable Development](#)

University of Kent - ['4C'ing the Future: an inclusive approach to sustainability](#)

University College London - [Unlocking the Potential](#)

Nottingham Trent University - [Food for Thought](#)

University College Plymouth, St Mark and St John - [Sustainability and Identity](#)

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University of the Arts, London - ['Lightening the Load':
sustainability through Fashion Education](#)

Support mechanisms and positive steps

- University sustainability strategy
- ESD explicit in teaching and learning strategy
- Overall ESD curriculum lead
- Academic guidance or framework for ESD
- ESD curriculum audit
- ESD champions in departments and faculties
- Student engagement
- Inclusion of ESD in faculty policies and plans
- Senior management support
- Funding and staff rewards
- Induction courses for staff and students
- Continuing professional development
- Resource provision
- Cross-university fora and communication
- Research change processes

The Future Fit Framework

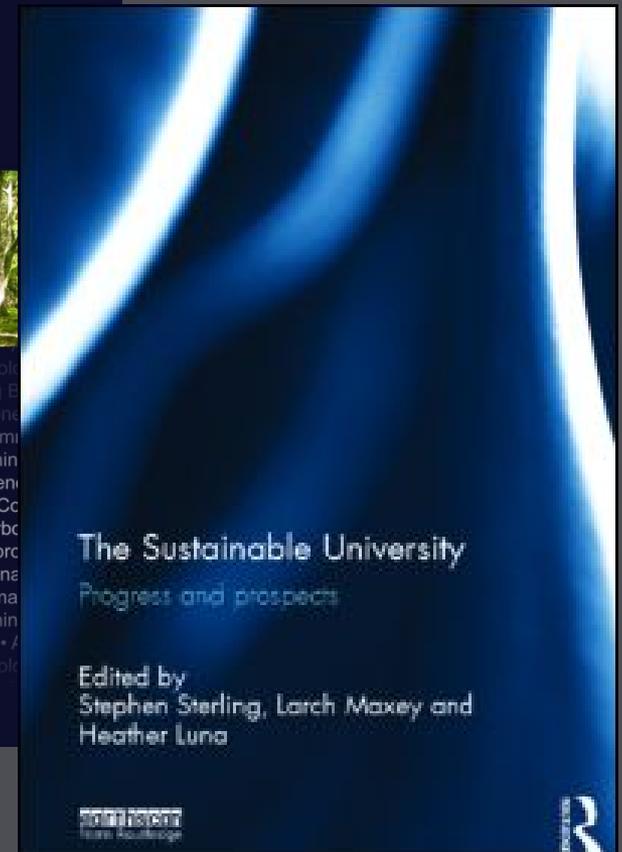
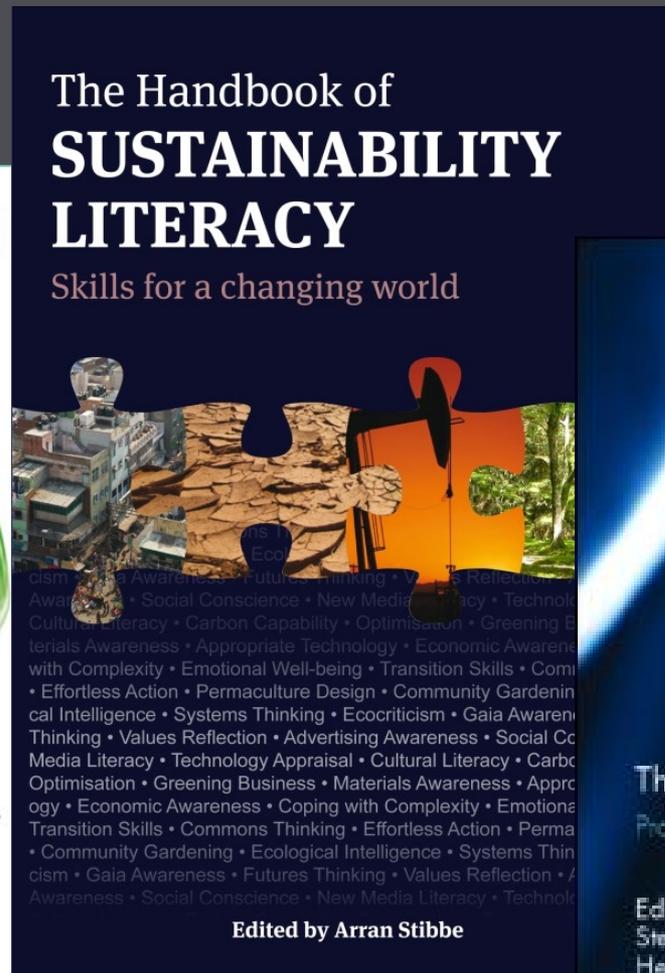
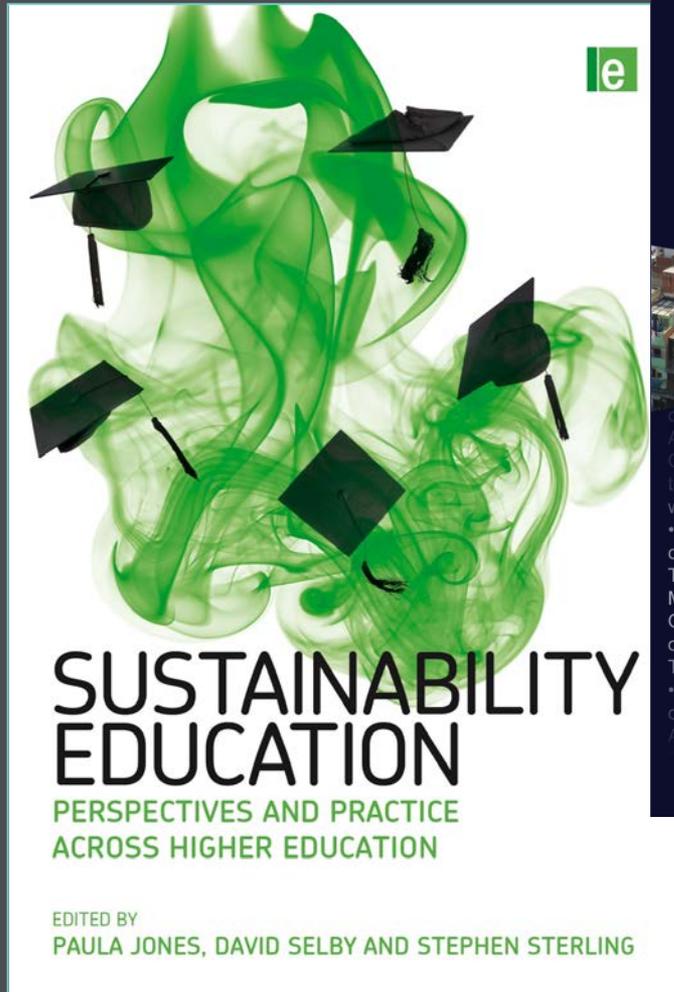
*An introductory guide
to teaching and
learning for
sustainability in HE*

- Higher Education Academy, 2012

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Stimulating new thinking





6 What next?

Some challenges for the 'sustainable university', how to...

- bring together and reconcile agendas coherently: eg.employment, internationalisation, enterprise and sustainability
- spearhead sustainable development regionally with stakeholders, and support healthy and sustainable economies and communities
- model sustainability on campus, procurement, food and resource use etc
- anticipate social, economic and ecological change, particularly related to climate change
- ensure 'sustainability literacy' of staff and students
- *Work to make all this a central part of the institution's culture*

Reorienting policies and programmes

Context – do its boundaries of concern embrace the wider context of sustainability and futures?

Congruence – is it sufficiently grounded in real world issues and concerns?

Culture – is it sufficiently attuned to the culture in which it is located, and to the existing values, understanding and needs of the learners?

Criticality – does it examine and weigh assumptions and values in relation to building a more sustainable future?

Commitment – does it engage with the ethical dimensions of issues, towards an ethos of critical commitment and care?

Contribution – will the learning outcomes and outputs make a positive (or negative) difference to sustainable development?

Responding to sustainability: 4 R's

Regarding *what we do now*:

- What is of value that we need to *keep*?
 - **Retain**
- What might need *modification*?
 - **Revise**
- What, if anything, might we need to *abandon*?
 - **Reject**
- What *new ideas*, concepts, principles, methodologies, working methods, pedagogies etc are needed?
 - **Renew**

csf@plymouth.ac.uk

<http://www.plymouth.ac.uk/sustainability>

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