

7 Steps to: Embedding sustainability in your teaching

Overview

There is increasing awareness of social, economic and environmental issues such as climate change, economic vulnerability, social inequality and resource depletion. These issues are characterised by complexity, uncertainty and risk, requiring alternative approaches to problem solving that often challenge traditional ways of seeing and doing things (Sterling, 2012). This has led to calls for education that equips students with the competencies and graduate attributes that can enable them to contribute to a more sustainable future (Bone and Agombar, 2011). This is sustainability education, or Education for Sustainable Development (ESD).

In the UK, Higher Education (HE) has been identified as a major contributor to society's efforts to achieve sustainability (HEFCE, 2009). This rationale is based on:

• HE Policy

HEFCE's sustainable development strategy states that the 'greatest contribution HE can make to sustainable development is to enable students to acquire the skills and knowledge that allow them to make a lasting difference. What they are taught is therefore critical' (HM Government, 2005:3).

• Curriculum and Pedagogy

ESD is more than just giving students information, it is about providing them with opportunities to work collaboratively, to appreciate other peoples' perspectives, to be reflective, to think critically and creatively, and act constructively. HEFCE (2009:21) suggests that in order to do this the sector must 'develop curricula and pedagogy that will give students the skills and knowledge to live and work sustainably'.

• Employability

As professional bodies increasingly call for sustainability skills in accredited programmes, their infusion into certain areas of the higher education curriculum is growing (BITC, 2010).

These drivers, alongside increasing student awareness and concern about sustainability issues (Bone and Agombar, 2011) are motivating academics to embed sustainability into their teaching. This guide is based on the HEAs *Future Fit Framework* (Sterling, 2012) and offers some practical suggestions for how to do this.

1. Understand the principles of sustainability

Sustainability, sustainable development and ESD are contested concepts (Jacobs, 1999) and this can be frustrating for academics trying to incorporate them into their teaching. However, lecturers need to have some understanding of the main components of environmental, social and economic sustainability in order to embed them.

Practical pointer:

Sterling (2012:4) claims that ESD is about 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'. However, a range of interpretations exist and it is a good idea to make yourself familiar with their key principles through reading core texts such as Jones et al. 2010; Stibbe, 2009 and Murray, 2011, 2002. Consider some of the definitions that have been produced and choose one that you are comfortable with. Then reflect on what sustainability means to you and discuss this with colleagues.

2. Identify the key sustainability issues in your discipline

Once you have a general understanding of sustainability, sustainable development and ESD, think about the key issues in your discipline and how they might be linked with sustainability. Virtually all disciplines and subject areas can make a contribution to ESD in some way and benefit from introducing an ESD dimension. For example, corporate responsibility in Business, the life cycle of materials in Engineering, industrial symbiosis in Manufacturing or global energy policy in International Relations.

Practical pointer:

Find out what is already going on in your discipline within and beyond the University. You might start with reviewing the curriculum and identifying where sustainability concepts are already present, noting further opportunities to embed them. There are online resources to help with this, such as the HEA's 'Sustainability Resources' page (<http://www.heacademy.ac.uk/education-for-sustainable-development>), the EAUC site (<http://www.eauc.org.uk/home>), the JISC OSIER site (<http://escalate.ac.uk/osier>), the Centre for Sustainable Futures (CSF) site (<http://csf.plymouth.ac.uk>) and online publications 'Sowing Seeds' (<http://csf.plymouth.ac.uk/?q=node/585>) and 'The Future Fit Framework' (<http://www.heacademy.ac.uk>).

3. Embed opportunities for students to develop sustainability skills

The ESD literature suggests that in order to negotiate complex and interdisciplinary sustainability issues, students need to develop sustainability skills. These include problem solving using holistic and systemic approaches, making critical judgements on real life issues, applying theory to practice and vice versa, and working collaboratively and in interdisciplinary teams (Dawe et al. 2005; Parkin et al. 2004). In addition to these generic sustainability skills the UK government is increasingly specific in the sorts of sustainability attributes it wants to see present in graduates. Students should be equipped to deal with the 'triple crunch' of climate change, the end of cheap energy and economic instability and have the skills to lead a low-carbon eco friendly economy which is resilient to climate change (Sterling, 2012).

Practical pointer:

Many sustainability skills can be promoted regardless of subject matter through pedagogy. Identify which skills can be developed or reinforced in your discipline, and create teaching activities that can enhance these using sustainability pedagogies (see below). It is also worthwhile considering how your discipline equips students to deal with the triple crunch scenario and evaluating how this can be embedded or improved.

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4. Utilise sustainability pedagogies

There are a number of general principles regarding teaching and learning about sustainability all of which involve student-centred and interactive enquiry-based approaches (Sterling, 2004). These include participatory and inclusive learning processes, transdisciplinary collaborations, experiential learning and the use of local environment and community as learning resources. HEFCE (2008:34) suggest there are additional benefits as 'good sustainable development pedagogy is often simply good pedagogy', thus it fits well with a broader move towards more constructivist, learner centred approaches in HE.

Practical pointer:

Cotton and Winter (2010) review a range of potential sustainability pedagogies including: role play, simulations, stimulus activities, debates, reflexive accounts, personal development planning and problem-based learning. Consider material you already deliver and explore how making changes to its delivery might enhance sustainability skills in students.

5. Experiment with interdisciplinarity

The multi-faceted nature of many sustainability issues invites interdisciplinary approaches to teaching and learning. This poses challenges for HE which primarily remains structured around disciplinary and compartmentalised structures.

Practical pointer:

Talk to lecturers in other disciplines to share ideas about integrating sustainability into teaching and consider joint activities or extra-curricular events. Alternatively you could set up learning activities which encourage students to consider phenomena from different disciplinary perspectives (Tomkinson, 2010). The HEA has commissioned a number of research projects about interdisciplinary teaching which can be accessed on their website (www.heacademy.ac.uk) and Blake et al. (2009) have produced a useful occasional paper on interdisciplinarity.

6. Use the informal curriculum to enrich your teaching

Students may have valuable sustainability relevant experiences related to the campus (see '7 Steps – Using the Campus') or to extra-curricular activity such as volunteering or work-experience. Making explicit links between the formal and informal curriculum can broaden students' experience and perceptions of sustainability (Winter et al., 2012).

Practical pointer:

Link informal learning to the formal curriculum through designing co-curricular activities which bridge the formal and informal spheres. Linking subject content with initiatives such as the Student Union, work-based learning and independent study modules offer possibilities, as do knowledge transfer schemes and the Plymouth Award.

7. Influence others - become part of the University's sustainability community

Research suggests that one of the main barriers to greater incorporation of sustainability into teaching and learning is lack of knowledge and confidence (Dawe et al., 2005). You can use your own developing expertise in this area to engage and help others by becoming a Sustainability Education Developer (SED) in your disciplinary area and contribute to Plymouth's reputation for excellence in sustainability.

Practical pointer:

Read the Sustainability Strategy to find out about the University's whole institutional approach to sustainability. Check out the Centre for Sustainable Futures (CSF) 'Curriculum Support' leaflet and website for details of the ESD curriculum and ESD research communities, and the University's sustainability pages (<http://www.plymouth.ac.uk/sustainability>) for useful ideas and resources. In addition to this the Educational Development team offers a level 7, 15 credit module on ESD to all staff. If you are interested in becoming a recognised SED then contact teachandlearn@plymouth.ac.uk for further details.

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