

Education for sustainable development and holistic curriculum change



A review and guide



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This Guide was developed and authored in 2011 by Dr Alex Ryan, the Project Researcher

I Project landscape

This Guide is aimed at educators and managers in HE institutions (HEIs) seeking to improve teaching and learning institution-wide in line with education for sustainable development (ESD). It is based on an international review and three UK case studies of work towards curriculum change in this area. This review complements the Higher Education Academy's 'Green Academy' institutional change programme which ran in 2010-11 and involved eight institutions across the UK¹.

ESD is a vision of education that seeks to balance human and economic well-being with cultural traditions and respect for the earth's natural resources. ESD applies transdisciplinary educational methods and approaches to develop an ethic for lifelong learning; fosters respect for human needs that are compatible with sustainable use of natural resources and the needs of the planet; and nurtures a sense of global solidarity.

UNESCO Decade of ESD (DESD) 2005-2014

HE is ideally positioned to make a critical contribution to sustainable development through its core academic functions of research and teaching (HEFCE 2009). However, while sustainability research has accelerated in recent years, curriculum development to date has been limited in scope and impact, due to the complexities of sustainability when applied within the existing academic structures and processes of HE.

The field of education for sustainable development (ESD) has the strategic aim of reorienting entire educational systems, which in HE means the challenging goal of achieving large-scale shifts of curriculum priorities, policy and practice. This Guide was developed through an investigation into aspects of this strategic impulse to bring about institution-wide changes to teaching and learning.

Education for sustainable development – background and terminology

'ESD' covers a range of international initiatives across formal and informal learning contexts and at all educational levels. The concept of sustainability focuses on achieving human well-being and quality of life, pursued through the maintenance, care and equitable use of natural and cultural resources. Terminology around sustainability is by necessity extremely complex and highly contested, with definitions varying according to context and perspective.

In ESD, sustainability ideals serve as an educational impulse and a goal for the improvement of learning processes. ESD also takes the contested nature of sustainability as an opportunity to develop learning activities and to explore debates over the issues at stake. Educators in ESD tend to share broad aims and approaches, but may not agree on exact political, academic or educational priorities. However, critical pedagogies geared to futures and systems thinking, participatory and experiential learning, critical thinking, partnership working and values reflection, are all widely used in ESD.

¹ HEA is planning a follow up resource to this work detailing the projects, impact and case studies arising from the 'Green Academy'. This resource is scheduled for publication in 2012.

The project involved two main components, each designed to explore different aspects of the emerging arena for large-scale pedagogic innovation around ESD:

1. A review of international practice was carried out to take perspective on institution-wide curriculum change initiatives in ESD and in other values-based and holistic approaches to teaching and learning.
2. Three case studies were developed of leading UK HEIs with ESD initiatives to shift organisational culture and practice for sustainability, to gain insights from their experiences in curriculum change.

There are many 'adjectival educations' which coexist and intersect and overlap: in addition to ESD and environmental education, there is a host of others: peace education, human rights education, inclusive education, citizenship education, and so on, each with a claim to their specificity and some with a claim to an all-embracing universality; each with porous boundaries and many with an ill-defined claim to superiority ... Our thinking and practice are trapped within disciplinary boundaries, organizational silos and, as we have seen, adjectival loyalties.

(Mark Richmond, Director, Division for the Coordination of UN Priorities in Education, UNESCO 2009 International Seminar on Climate Change Education)

In exploring the range of initiatives seeking institution-wide curriculum change, the project acknowledged the overlaps between ESD and other thematic agendas, such as inter-disciplinary teaching and learning, graduate employability and citizenship education. Several educational concerns influenced the scope of the review:

- emphasis on the need for critical global perspectives and citizenship education at HE level;
- recognition of the value of inter-disciplinarity to guard against the limitations of specialisation;
- increased focus on employability to improve graduate skills and capabilities in HE;
- influences from the liberal arts tradition and its ideals for integrated education.

Many of the values-based educational movements that inform the project have philosophical origins in the German *Bildung* tradition and ideas of the 'free university' and liberal education, developed in the work of Herder, Von Humboldt, Hegel and others. Their traditions have interconnected strands, embracing progressive educational thinkers such as John Dewey, legacies from the liberal arts tradition, the focus on holistic learning environments in Montessori education, and recent commentators on 'holistic education' such as John P Miller.

A broad concept of 'holistic' curriculum change was therefore used to guide the review in its inclusive approach to these educational approaches that engage the entirety of the human personality and promote connectivity with the natural world. Practical and conceptual criteria were established to set the boundaries and scope for the review, as it embraced a wide range of such initiatives, with both explicit and implicit links to ESD.

Institution-wide holistic curriculum change – review framework

The project did not focus on the many valuable examples of special courses, elective or core modules aligned to ESD or to the broader 'holistic curriculum' perspective. Each initiative included in the review was aimed at introducing strategic shifts across the entire undergraduate curriculum. Many were at early stages of development but each exemplar had adopted one or more of the following approaches to reach across the curriculum:

- changes to formal curriculum development processes and/or frameworks;
- actions to improve the graduate profile and student learning experiences;
- strategic enhancement activities to improve teaching and learning practice.

The UNESCO-led Decade of Education for Sustainable Development initiative (2005-2014) provided a broad framework for the educational dimensions of the review. To encompass the overlaps between ESD and other values-based and sustainability-related educations, the review used three basic conceptual components. Each exemplar curriculum initiative showed clear evidence of each of the following points of educational orientation:

Global Futures Perspective: as sustainability is ultimately an international concept, each initiative aimed to foster futures-oriented perspectives on the global situation, geared to improving equity of life chances and inter-generational justice worldwide.

Systems Orientation: each initiative recognised the complexities of the relationships within and between human and natural systems, often with strategies and principles to underline the importance of trans- and/or inter-disciplinary learning for sustainability.

Integrative Educational Ethos: the examples were underpinned by lifelong learning and development principles, addressing the integration of personal and professional life choices and capabilities, as well as the importance of innovation in educational systems.

2 Initial review – headline findings

Stage 1 used desk research to review international efforts to reorient the entire undergraduate curriculum in a broad range of HEIs. Twenty exemplar initiatives were selected for closer analysis, including dedicated ESD initiatives and those oriented to related ‘holistic curriculum’ themes.

The initial review included institutions in the Times Higher Education 2010 top 200 rankings, as well as smaller institutions with stronger focus on innovative teaching and local engagement. The selection of 20 exemplars was structured around ten UK and ten international initiatives, with the sampling priority being ‘fit’ with the review framework criteria (see section 1), rather than representation of certain regions or institutional types. In the findings reported in this section, institutions are not identified individually by either name or location.

One specific intention was to reflect the diversity and range of initiatives under way internationally in relation to both types of strategic approach and stages or levels of implementation. The chosen exemplars had varied ambitions for institution-wide curriculum change and the selection included initiatives that had yet to be fully realised and implemented. This focus on initiatives to reach across the curriculum also meant that some prominent and pioneering institutions in other aspects of ESD and sustainability were not included here.

Review of 20 selected holistic curriculum change initiatives	
Name of institution	Country
Bournemouth University	England
Emory University	USA
Kingston University	England
Leeds Metropolitan University	England
Leuphana Universität Lüneburg	Germany
Northern Arizona University	USA
Otago Polytechnic	New Zealand
Portland State University	USA
Queen Margaret University	Scotland
RMIT University	Australia
University of Aberdeen	Scotland

University of Bradford	England
University of Brighton	England
University of British Columbia	Canada
University of Exeter	England
University of Gloucestershire	England
University of Hong Kong	Hong Kong
University of Melbourne	Australia
University of Plymouth	England
Universiti Sains Malaysia	Malaysia

The review consisted of desk research into various forms of public documentation, including institutional websites, strategic and policy documents. The findings provide a snapshot of trends in the types of approaches and interventions under way internationally to achieve large-scale curriculum change in this area. However, they cannot be taken as fully comprehensive accounts of practice at each institution, due to the inevitable variation in comparing different kinds of materials from very diverse initiatives. Further details about the review context, design and methodology can be found in the final report attached to this project (Ryan 2011).

Findings 2.1 Platforms and progression

The majority of the initiatives used internal sources of funding, with ten institutions (50%) also drawing upon external funding to develop their initiatives, mainly from governmental funding councils and other teaching and learning agencies in their countries. Of the UK three case-study initiatives featured in Stage 2, two had been established using major awards from the Higher Education Funding Council for England (HEFCE).

A wide range of strategic and pragmatic drivers were overtly linked to the curriculum initiatives, including local contextual factors, thematic educational influences and priorities for organisational growth, both academic and corporate in nature. Common prompts included concerns over recruitment and competitiveness, efforts to address weaknesses in existing functions, recognition of the need to build community engagement, and moves to the develop the distinctive ‘USP’ and corporate profile of the institution.

Where the institutional drivers and platforms were connected to the new curriculum change priorities, levels of executive support and educational depth were more overtly articulated and formalised. In some institutions, there appeared to be less evidence of clear lines of formal support to implement curriculum change actions, compared to other areas of sustainability practice.

Reviewing strategic documentation showed that:

- 15 (75%) set out the educational agenda in corporate strategies, visions, plans and values;
- 13 (65%) set out the curriculum change priorities in teaching and learning strategies or plans.

The review found a general lack of performance indicators and evidence to show progress against these formally stated ambitions. Strategies and plans to develop the initiative were often detailed, but few had more than the most basic progress measures in place. The review process was unable to identify outcomes or evaluation processes in many of the initiatives, even those that had been in place for several years.

Findings 2.2 Interchangeable conceptual ‘banners’

The HEIs positioned different concepts and educational priorities at the forefront of their initiatives and related strategic efforts, with choices clearly reflecting the specific drivers, institutional contexts and opportunities:

- nine (45%) focused predominantly upon sustainable development practice and ESD;
- seven (35%) showed prioritisation for global citizenship, blended with sustainability;
- four (20%) placed the main emphasis upon inter-disciplinary teaching and learning.

In most cases, the articulation of conceptual priorities was blended in various ways across these three main ‘umbrella’ concepts and no distinct trends were evident regarding institutional type. Inter-disciplinary focus was most evident in research-focused institutions, but the reasons for this are not immediately apparent. Of the seven HEIs with blended focus on citizenship and sustainability, two subsumed sustainability within global perspectives. Those focused on citizenship had varied nuances around intercultural and indigenous issues, local community engagement and broader internationalisation themes. In addition, six HEIs (30%) had embedded a strong emphasis on employability, industry perspectives and professional capabilities in their frameworks.

Findings 2.3 Curriculum change interventions

A wide range of approaches serve as enhancement mechanisms and implementation pathways across the HEIs, as shown in the listing below. The use of staff development events featured strongly, as did the creation of generic graduate attributes to articulate values-based educational principles and enable co-ordinated effort on these principles across diverse subject areas. Research-led teaching featured as a priority in all types of institution, often with clear links to local and regional knowledge exchange.

Mechanisms used across institutions	Number	(%)
Informal learning opportunities on- or off-campus	18	90
Professional development sessions for academics	15	75
Strong strategic focus on the research-teaching nexus	12	60
Institution-wide graduate attributes/learning outcomes	12	60
Establishment of institutes or teams to lead change	11	55
Appointment of curriculum/academic lead roles	9	45
Use of pedagogic research and development projects	6	30
Action to target formal course development processes	6	30
Internal academic staff incentive funds/awards	5	25
Seconded 'champions' to encourage curriculum change	4	20
Development of academic guidance frameworks	4	20
Changes to formal curriculum frameworks/structures	3	15

Almost all the HEIs were making explicit use of targeted informal learning activities for students, to support their formal curriculum initiatives. Many of these were grounded in campus sustainability practice, adopting the 'whole institution' approach favoured in the ESD literature for reorienting the learning culture in HEIs.

The orientation of ESD is ultimately strategic and is targeted at systemic change, to achieve widespread shifts in academic practice. The selected initiatives were therefore driven by intentions to connect with core teaching and learning functions at the organisational level. It was not always possible to detect the degree to which pedagogic innovation featured within the initiatives from public documentation of their aims and objectives.

Outside the selected review exemplars, a range of additional strategies were identified as distinctive methods for progressing ESD in HEIs, as shown in the indicative list below. Many examples were found of special curriculum pathways, as well as other academic enhancements and research-based interventions.

Additional ESD innovation pathways in HE	Lead University
Cross-faculty action research initiatives to fuel ESD innovation	Macquarie University, Australia
Faculty-led community sustainability projects for active ESD	University of Pune, India
Cross-departmental 'HUIGS' postgraduate sustainability diploma	Hokkaido University, Japan
Institution-wide research and CPD to inform curriculum development	St Petersburg State University, Russia
Specialist joint or combined Honours provision in sustainability	Dalhousie University, Canada
Extension of environmental sustainability learning in liberal arts models	Northland College, Wisconsin, USA
Inter-disciplinary sustainable development programmes and modules	University of St Andrews, Scotland
Introduction of values-based education across curricula	Vrije Universiteit Amsterdam, The Netherlands
Cross-institutional collaborative international Masters programme	Tongji University, China
School of Sustainability with multidisciplinary degrees and study abroad	Arizona State University, USA

There were also several signs within the selected 20 exemplar initiatives of the tendency to focus on changing 'topics' and curriculum content, rather than achieving change through innovative pedagogic strategies. The review criteria did not preclude the use of specialist courses and these were identified at six (30%) of the 20 institutions, established in tandem with other generic strategies. Despite its broad vision, most ESD successes to date in HE have been in special courses, or projects in individual subject areas, often those disciplines seen as 'closest' to sustainability agendas. Subject-level developments are critical in fuelling academic innovation and can have more widespread effects, although the challenge of achieving broader impact, and of countering the perception of sustainability as a stand-alone subject, is well documented in the ESD literature.

3 Curriculum change case studies

Stage 2 involved three UK case studies of institution-wide curriculum change for ESD, generated through qualitative interviews with those responsible for leading the initiatives. Each initiative had executive support and had been in place for at least three years. The individual case studies point to the strategies adopted and the issues that emerged. Several comparative findings are apparent, in relation to the approaches used, challenges faced and progress made, as reported below.



University of Bradford

'Ecoversity'

Setting the scene:

Ecoversity stands out as a distinctive example of a 'whole institution' approach, aimed at changing culture and practice in sustainability across the University of Bradford. It is a high profile endeavour, directly supported by the Higher Education Funding Council for England (HEFCE) Strategic Development Fund (2007-2010) and partly inspired by HEFCE's 2005 vision of the contribution that HE could make to the sustainability agenda. A successful HEFCE SDF bid provided £3.1 million, which enabled staff secondments and enhancement activities to be put in place in order to develop a culture change programme as part of the overall Ecoversity project.

Sustainable development was introduced as a core value in the University's 2005-2009 institutional strategy, providing an initial point of focus and impetus for the Ecoversity vision. Ecoversity was developed using organisational learning principles, with a 'three curricula' model for achieving change through:

1. **formal curricula** (official programmes of study on offer across all academic units);
2. **informal curricula** (volunteering and other non-credit-bearing learning opportunities);
3. **physical curricula** (learning opportunities based upon corporate practice on campus).

Beset by a number of institutional problems in 2005, including a run-down estate set in a deprived inner-city area, Ecovercity was developed as a vision that could address a wide range of those problems, but equally importantly, create a positive framework for innovation and creativity around sustainable development and the student learning and living experience. Given the high proportion of students on STEM courses, of professionally accredited courses and of students from minority ethnic backgrounds, the setting for Ecovercity was far removed from the typical green and leafy, white middle-class programmes that often typify HE campus greening and sustainability initiatives.

Curriculum change – actions and tactics:

2006	Appointment of curriculum lead	Following an initial secondment, HEFCE funding enabled the creation of a post to drive the ESD dimensions of Ecovercity. The appointee had led small-scale ESD curriculum projects, which had created initial dialogue and recognition in this area internally. This prior experience informed the vision, academic framework and implementation plan devised for ESD in the curriculum.
2007	Change Academy	Taking part in the Leadership Foundation for Higher Education/HEA Change Academy programme was critical to the progress of the entire Ecovercity agenda. The Bradford team planned the delivery of its project by focusing on building engagement across the University community.
2007	Development of academic framework	Prioritisation in the early stages was given to the creation of a credible and flexible approach to ESD, to build shared understanding and enable deeper discussion about the educational and academic dimensions of the Ecovercity project. This was established in the form of an overarching academic policy framework for ESD in the curriculum.
2007	Introduction of ESD to Teaching and Learning Committee	In parallel it was recognised that the policy framework required an implementation strategy that would set out what was expected of academic colleagues and how these expectations would be articulated and evidenced at school/subject level. This was set out in the form of a formal institutional requirement to articulate ESD at programme level through our course approval and review process (CARP). This paper was approved at Learning and Teaching Committee in 2007 with a view to becoming operational from 2008 onwards.

2007 - ongoing	Secondment of champions	HEFCE funds were used to create secondments for academic staff 'Pioneers' in all seven academic schools, to encourage progress on ESD within their own schools. Their work included audits, assessments and capture of ESD practice in existing curricula and the development of action plans for the next academic cycle.
2008	Tackling course development	To move past the vision and more firmly into the delivery of meaningful curriculum change, the focus later shifted to the process of periodic review and validation of courses, using the CARP requirements above.
2008	Wider student engagement	In parallel to the formal curriculum activities, the team set out to generate as wide and diverse a student engagement programme around Ecoversity as possible. A student engagement officer was appointed to co-ordinate this activity, which took the form of a recruitment-induction-project identification-project doing and post-project review cycle. This was a rapid learning curve and a period of major experimentation with the inevitable range of successes, failures and learning points. The limited number of on-campus halls of residence made engaging students out-of-hours more difficult than originally envisaged, which led to rapid adaptation to find out what worked and what didn't. Over time this activity strand generated an impressive range of student projects with students from incredibly diverse backgrounds and over time these students began to influence the formal curriculum.
2008	Physical curricula	At a time of major campus regeneration from 2008 onwards, the team realised that there were numerous opportunities to promote and use the campus as an outdoor classroom. A green campus trail was developed featuring a number of projects and the trail featured in staff inductions, school visits, open days, etc. This work has continued to the present.
2009- 2010	Managing the process	The period from 2008 provided evidence of how the new institutional CARP requirements were being translated down in the academic 'bunkers'. As can be imagined there were multiple and diverse forms of interpretation (which had been sought) and responses (which were not always as expected). This led in turn to a need to monitor and review progress and outcomes, which in itself proved very difficult given the scale of the process that had been introduced.

<p>2010-ongoing</p>	<p>Project funding ended – sustaining the process</p>	<p>Universities are characterised by numerous short-term projects that attract high levels of funding, generate energy, have an impact and then disappear. The challenge has been to avoid this ‘end of project’ narrative and ensure that Ecoversity and ESD continues to thrive at a time when there are even more changes and turbulent waves within the sector, arising from changes to fees and the removal of the student CAP. Successes since July 2010 have included the retention of core staff to work on embedding key activities for continuity on reduced staff capacity. Efforts have since been directed at securing funding and making the ‘business case’ for Ecoversity, to retain its visibility as a lead institutional sustainability programme.</p>
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Connecting informal and formal learning – reflecting on ‘Sustainability in Practice’

Through a newly developed stage 2 and 3 module, ‘Sustainability in Practice’, space has been created for students to gain accreditation related to their volunteering activities. Students involved in peace education work nationally, as Ecoversity ambassadors on campus, and in working with local asylum seekers, have been able to extend the value of their efforts through research-based analysis of their experiences in the context of sustainability thinking, leading to assessment and recognition for those studying at undergraduate, taught postgraduate and doctoral levels.



Course development and approval – generating School-and programme-level responses to ESD

Through taking steps to bring ESD into processes of course development, review and validation, the University has a formal commitment to enhancement across the curriculum. This encourages individual academic areas to articulate their academic approaches to ESD at School level and within individual programme specifications.

School of Life Sciences

Focusing on integrated practice in personal and social understandings of ethical behaviour (attitudes and values), the School seeks evidence-based approaches to issues of ‘Responsible Science’ and ‘Responsible Professionalism’.

Statements submitted about the place of ESD in the MSc Clinical Pharmacy refer to Department of Health (DOH) policy in public health, for example the contribution of community pharmacies to reduce the impact and incidence of health inequalities.

School of Social and International Studies

The School prioritises the integration of several core ESD principles in programme aims, including inter-disciplinarity, critical thinking, participatory decision-making, and applied, culturally-appropriate learning.

In Psychology, various ways of embedding ESD are adopted within different modules, for example through examination of personality and individual differences in relation to the potential conflicts with values associated with ESD, and through critical approaches to the opportunities and possibilities for bringing about behaviour change.

What has worked well?

<p>✓ Swift ‘in principle’ approval – gaining consent to proceed from the Learning and Teaching Committee ensured that the initiative was not sidelined, leaving discussion of the detail to be raised at course development level.</p>	<p>“The key was I had to get the overarching academic policy framework approved by the University through Learning and Teaching Committee pretty quick, with all the key gatekeepers, about 35 people ... This was the foundation around which everything else would be built ... then we were up and running.”</p>
<p>✓ Quick wins in curriculum – uncovering and sharing examples of ways that ESD concerns had been translated into different subject areas was an invaluable way to build confidence in the initiative</p>	<p>“This was important to overturn the inevitable questions of what does it mean, how do I do it, why are we doing it, etc. It also provided a means of valuing and validating excellent teaching within the Institution.”</p>

<p>✓ Drawing on friends and allies – it was important to gain insight in advance about possible tensions that would arise, through discussions and troubleshooting with experienced and respected colleagues.</p>	<p>“I did this widespread consultation with key gatekeepers about the ESD agenda – not only that but tried to learn about the successes and failures of previous large-scale curriculum change at the University and the concerns that people had about another initiative ... to be both ambitious and also highly realistic about the process of change.”</p>
<p>✓ Informal learning effects – examples soon emerged of the ways that the broader ‘whole institution’ approach could generate informal learning activities that also fuel curriculum innovation.</p>	<p>“A group of students came to us for funding to set up a gardening club ... this eventually became the permaculture garden ... which in turn attracted staff interest and, to cut a long story short, two years after it started we now have a permaculture module within a degree programme available to any student.”</p>
<p>✓ Developing an Academic Framework – ensuring that the academic approach was exciting, flexible and creative was critical to gaining ownership, rather than the initiative being perceived as a burden.</p>	<p>“The ESD bid that was written was pretty well drawn from my experience ... I designed it with colleagues in such a way as to maximise the probability that we could get successful outcomes and we wouldn’t hang everything on one particular idea ... We created a simple resource drawn from several UNESCO documents, as a frame of reference for course teams to begin to discuss and work out the relationship between their subject areas and ESD, rather than prescribe specific outcomes or meanings.”</p>

Where were the most difficulties?

<p>➤ ‘Making sense of Ecoversity and ESD’ – building understanding and confidence in making sense of the range of views around ESD, so as to put ‘flesh on the bones’ of the original broad vision of Ecoversity and create academic ownership of the broader educational agenda, but also to support individual interpretation at the level of individual subjects.</p>	<p>“Ecoversity was a vision and a big and complex project that took a long time to ground in everyday practicalities. At the outset there was no clearly formed view about ESD or what Ecoversity might mean on the ground. The period 2006 to early 2007 was therefore very difficult but par for the course, trying to work through that multiplicity of views and wildly different perspectives ... A small team participated in [Change Academy] where we began to work through how we would develop curriculum and whole institution cultural change – what we were concerned about was how to achieve widespread staff and student engagement, and how to develop communications strategies to take people with us ... we came up with proposals that we put in place and still have today.”</p>
<p>➤ Building a unified approach – ESD places strong focus on pedagogy but initial responses varied widely in relation to ‘getting it right’ – particularly in the balance between merely changing course content to introduce relevant topics, and shifting to innovative forms of pedagogy that build student capabilities.</p>	<p>“Steve Outram’s Change Academy paper, on 53 ways in which colleagues resist change, was a very useful guide for anticipating ways in which people might respond to a large-scale ESD initiative – an area which they had little or no previous understanding or academic connection. Our academic policy paper therefore took these forms of potential resistance as the starting point and instead developed an approach that highlighted curriculum enhancement and pedagogy rather than forcing a specific viewpoint about ESD.”</p>
<p>➤ Making the legacy tangible – once past the initial stages of engagement, issues of transparency and accountability appeared and needed to be addressed, notably through the periodic review and validation of courses, to create clear evidence of changes in practice.</p>	<p>“The lesson I’d learned was that you needed an institutional check and balance where people were called to account ... So the emphasis in the implementation strategy was that it was capacity building, bottom up, innovation, curriculum enhancement, but we knew that if you don’t have that point in time where people have to articulate and evidence what it means, and then follow that through to delivery, then people wriggle off at the last minute (or even before). We have achieved this although there is still a lot of wriggling.”</p>

➤ **Enabling the ‘Pioneers’** – staff champions need the ability and confidence not just in curriculum development but to tackle the learning curve of thinking through subject areas outside their expertise.

“This is a big and complex issue and goes to the heart of the curriculum change process in any University and it is not specific to ESD. In our case we have researched and evaluated what and how the pioneers achieved as well as their individual journeys. This is currently being written up as a journal paper which we hope will appear in 2011.”

Top five lessons and tips:

1. **Know your institution** – the curriculum lead brought to bear a significant depth of prior knowledge of the University and their colleagues, in developing tactics and disarming resistance.
2. **Enlist senior support and work collaboratively to keep it** – the initiative was driven by strong executive mandate with visible involvement and political backing from the Vice-Chancellor and the Pro-Vice-Chancellor for Teaching and Learning. Senior managers are often beset by problems and need to ‘fire fight’ so it has been critical to support them by bringing in external funding, gaining awards and demonstrating success through measurable changes, to keep Ecovercity visible and a source of pride.
3. **The importance of understanding change** – prior insight into processes of curriculum development and curriculum change was a critical element in the design and delivery of the ESD strand of Ecovercity. Recognising the pace of academic evolution meant developing strategies in line with findings from the educational change literature, suggesting that academic innovation takes several years to flourish.
4. **Guard academic freedom** – colleagues had an ‘opt-out’ to declare an inability to connect with ESD if they could give an academic rationale for their stance against it as an organisational priority.
5. **Link ESD with a wider institutional programme** – curriculum change at any level is slow and complex, so by itself it would have been hard to create the level of energy and creativity that characterises Ecovercity. The Ecovercity vision and brand has been instrumental in helping to promote and develop ESD and they are now seen as intertwined – ESD stands as long as Ecovercity stands, and vice versa.

“You keep working with what’s working and don’t worry too much about the points of resistance ... so people feel confident, particularly at senior management level, that change will come, because they will finally get it and recognise it’s part of what the institution is saying it stands for, and if they don’t get on board and start to participate, they will be left behind ... So that was our implicit change management model ... We wanted it to take on a life of its own ... where people are highly engaged and they have the confidence and trust that it’s not being dropped.”

“I was looking for some early wins to flush out what each school was doing that could be considered a translation of ESD ... and then I was looking for the timing of when they would go for approval or revalidation and that this flushing out would feed forward into that cycle and that process and create confidence ... if you can make the nudge, you’re on your way – even when people may start with self interest, they can get quite excited.”



This case study was jointly developed by Dr Alex Ryan, the Project Researcher, and Dr Peter Hopkinson, Director of ESD at the University of Bradford, with editorial support from Dr Emma Griffiths at the University of Bradford, as part of the HEA project ‘ESD and Holistic Curriculum Change’. Quotations were provided by Peter Hopkinson during interview in February 2011.



University of Gloucestershire

'Promising Futures'

Setting the scene:

The University of Gloucestershire's sustainability strategy Promising Futures 2009-2015 underpins its efforts to create a unique 'joined-up' approach to sustainability across academic and corporate areas of University. The Promising Futures strategy includes the target of embedding education for sustainability (EfS) across the curriculum using a 'whole institution' approach to ensure that all students experience EfS through their studies.

The University of Gloucestershire prides itself in taking steps to 'embed sustainability in the DNA' of the institution. It recognises, in all its core documents, that modelling sustainability across its campuses is not enough. It acknowledges the need to review its core business – teaching, learning, research and public engagement – in the light of challenges presented by the sustainability agenda. It sees this as a key differentiator from other universities engaged with sustainability and is also unique in its systemic attempt to embed EfS (not just sustainability) across all its portfolios, as confirmed in its strategic and corporate plans.

Strategic actions on curriculum change are led by the Sustainability Team and overseen by the Sustainable Development Committee. The Sustainability Team's Director is a senior manager in the institution and the team is unusual in spanning academic and corporate areas, with specialists in academic development, environmental and carbon strategies, EfS research, volunteering, public engagement and outreach.

A number of enablers have supported the Sustainability Team in progressing EfS efforts University-wide:

- the University's reputation for curriculum innovation, drawing on its traditions of pioneering teacher education since the 19th century. It hosts seven National Teaching Fellows, many of whom have interests and expertise in EfS;
- EfS initiatives were also supported through the University's Centre for Active Learning, one of 74 Centres for Excellence in Teaching and Learning (CETLs) funded by the Higher Education Funding Council for England (HEFCE) from 2005-2010.

These enablers, combined with strategic actions and tactics deployed by the Sustainability Team, have brought changes to the culture and practice of education and learning throughout the institution over the last four years.

Curriculum change – actions and tactics:

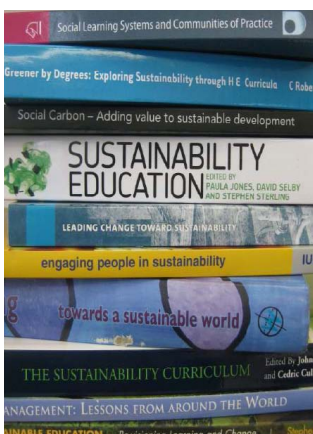
2007	Appointment of Director of Sustainability (academic and corporate)	Executive reprioritisation led to the appointment of a Professor and Director of Sustainability mandated to achieve strategic change across both portfolios, although this required a shift of position description and responsibilities to create the type of leadership role that could effectively support innovation.
2007-2008	Development of sustainability strategy	A series of dialogues supported the development and approval of the institutional strategy: <i>Promising Futures: 2009-2015</i> . The strategy brings together corporate and academic areas in an integrative manner. The document identified the embedding approach as key to progressing the sustainability agenda and discouraged the creation of new specialist courses. It called for the development of subject-specific guidance, professional development support mechanisms, work-focused learning and connectivity between EfS and current University agendas.
2007-2008	Inclusion of sustainability in academic and corporate policies	At the earliest stages, focus was placed on including EfS within key corporate documents: teaching and research strategies, corporate and academic plans. The embedding of EfS in University commitments was seen as a means of differentiating the University from others pursuing the sustainability agenda.
2008	Appointment of curriculum lead and establishment of RCE Severn	An external 0.5 FTE appointment was made to support the Director in creating professional and curriculum support mechanisms and in developing academic initiatives around EfS. This year also saw the establishment of the RCE Severn, a UNU Regional Centre of Expertise in EfS.
2009-2011	Development of academic frameworks and tools	Using consultation internally and across the sector, guidance materials have been developed on generic pedagogic aims of EfS, links with the concerns of specific subjects and the national QAA subject benchmarks, to support teaching teams in identifying EfS principles in existing programmes and planning future enhancements. Heads of Department piloted an assessment and reporting tool for EfS in their course offerings.

2010	External influences	The University won a 2010 Green Gown for Continuous Improvement in EfS. It was also ranked number 1 in the Universities that Count ranking exercise with a score of 96% for its strategic efforts in the area. This external recognition played a key role in ensuring that EfS activity survived the University restructure and realignment of corporate priorities.
2011	First public sustainability report	The University released its first annual sustainability report, which tracks progress in the implementation of <i>Promising Futures</i> . It documents for the first time the University's progress and achievements in EfS.
2010-2012	Embedding processes	In 2009, the University received funding from the European Union for a Marie Curie project supporting the embedding of EfS in professional courses. In 2010, HEFCE funding was awarded to further support the embedding process, focusing on quality enhancement and assurance and through links to key University agendas such as employability.

Supporting academic and curriculum development in the Business School

As the largest programme in the institution, the Business Management (BM) suite of courses presented an important opportunity for embedding EfS in the curriculum and for triggering broader shifts in thinking about EfS across the Business School. To facilitate this process, an action plan was created, involving the Sustainability Team working in collaboration with Business School colleagues, to provide targeted staff development for the BM teaching team as well as broader professional support of relevance to several other programmes.

- Three BM staff development sessions were held in 2009-10 to begin embedding EfS perspectives at Level 1, followed by a written review of issues encountered in the process and progress made, to inform ongoing staff development provision in 2010-11 to include EfS across Levels 2 and 3.
- An eight-month graduate placement award was co-led by the Sustainability Team and Business School to research student learning and employer perspectives on sustainability in business.
- An online resource archive was developed for teaching staff to share publications and materials on EfS and sustainability within organisations and in business studies subjects.
- Review of related library stock was carried out by the Business School subject librarian and purchases were made of several key publications on sustainability in business disciplines.
- Supervision was provided by the Director of Sustainability to one academic member of staff from the Business School to support specific professional development activities.
- Introductory guest lectures and seminars were provided by the Sustainability Team for the first-year BM student cohort during induction week and for the MBA professional development module.
- An external speaker series was organised during 2009-10 on various business and sustainability topics, hosted through the International Research Institute in Sustainability.



What has worked well?

<p>✓ Formalising corporate responsibility – ensuring a clear line of influence and responsibility has been important in gaining credibility with senior managers and support for the ‘big picture’ behind the agenda.</p>	<p>“Somebody in my role to achieve change for sustainability in institution is very important ... I don’t think you get as much leverage being seen as an academic ... your position description needs to be associated with that level of influence – and that can require negotiation. I think this is just as important as the policies ... It’s not about me being here to do research and try to ‘talk people into’ sustainability, I need to have the credibility of institutional influence, as well as the ability to defend the educational foundations and purposes of EfS when they are challenged at the departmental level.”</p>
<p>✓ Systems approach to change – it has been critical to take perspective on the entire system and each part of the University community, to understand the context, trajectories and influences at play.</p>	<p>“Mapping stakeholders, structures and influences in this process is critical to progressing EfS in the institution. This is how one is able to construct the whole picture and develop systemic approaches to change ... Equally, the curriculum lead cannot be someone who operates to progress only the individual academic innovations, as this is not going to give you the Rembrandt – the dots are not going to align ... If you don’t have somebody whose role it is to paint the Rembrandt, you can have numerous people working on different aspects but it will never create the masterpiece.”</p>
<p>✓ Identifying distinctiveness – developing a distinctive approach that builds on existing institutional strengths and characteristics has helped in gaining both intellectual and political ground internally.</p>	<p>“Those who are seeking to advance EfS in their institution need to find those opportunities, to jump onto those trends that are aligned to this agenda – so that you’re not opening new doors all the time, but you can say ‘look it’s aligned to this agenda’ (whether that’s employability, active learning, work-focused learning, improving the overall student experience, and so on...) – then you are aligning EfS to a process and a way of thinking.”</p>
<p>✓ Providing scaffolding – the academic complexities of sustainability meant that colleagues new to ESD were looking for orientation on generic principles and indicative guidance to apply in their own subject areas.</p>	<p>“It was interesting to discover that the concerns at this institution were as much about ‘why’ as they were about ‘how’. Dealing with the ‘why’ requires the articulation of EfS within widely accepted educational theories and good practice. The ‘how’ needs the research and development of user friendly frameworks and illustrations of how to go about bringing it to life – and also to connect with the work people have already begun.”</p>
<p>✓ Structural mainstreaming – tackling tensions between ‘ground’ and ‘strategic’ levels was key and with little time to establish the agenda and show impact, influencing the core frameworks was the priority.</p>	<p>“We needed structure – structure that’s not enforced but structure that provides scaffolding ... without those scaffolds it is very difficult to actually progress that agenda. I think that is really really important ... They’re not an attempt to try and impinge on someone’s view, they’re an attempt to provide those coat hangers for people to hang their meat on, to actually justify what they’re doing and how it fits into the bigger picture.”</p>

International Research Institute in Sustainability (IRIS) – learning from international EfS research

As the research arm of the University’s sustainability strategy, IRIS provides opportunities for broader engagement with good practice internationally in the field of ESD, bringing wider context and perspective to ongoing curriculum development and academic innovation strategies. Research ongoing through IRIS has explored the development of indicators and competencies in ESD, frameworks to map relationships between ESD and cultural diversity, and evaluations of practice and policy in the UNESCO Decade of ESD.

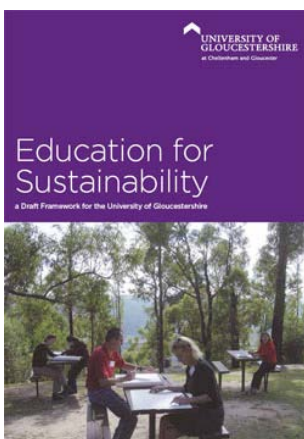


Where were the most difficulties?

- **Building shared understanding** – building unity of approach across extremely diverse corporate agendas and academic interests in ESD represented a sizeable initial challenge and requires continued negotiation.

“I was trying to communicate to the institution about the need to stand back from their perception of sustainability, because it was all going towards a ISO 14001 angle, or a biodiversity angle ... there was a history of active learning, there was a history of content sustainability ... so there were discussions to try and shift the strategic direction towards understanding that we need to embed the education for sustainability rather than the sustainability element into the institutional framework ... The discourses are so complex in sustainability ... not everybody is going to see it in the same way and they are going to be inspired to engage with it for very different reasons.”

<p>➤ Developing collaboration with the T&L function – it was really important to try to understand the language and culture of education in the institution, but also difficult to gain better positioning within senior academic committees and other forums to inform academic agendas.</p>	
<p>➤ Avoiding enclaves and silos – commercial pressures and academic traditions have brought several potential threats that might have sidelined the ‘big picture’ through focusing on special courses or by favouring the existing expertise of certain subject areas – and the curriculum lead role was central to maintaining this perspective.</p>	<p>“I wanted to appoint someone to the role of the Associate Director with responsibility for academic and curriculum development who really understood education, educational change, and people ... the last thing I wanted was somebody who was going to bulldoze their ideas on sustainability through the system ... We can’t keep looking down – we’ve got to be looking out ... If you want to upscale, if you want to mainstream, you need to have that support. It is also extremely important but often difficult to create synergies with the other strategic priorities in the institution such as internationalisation or employability and this role must also be working to achieve these connections.”</p>
<p>➤ Blocks due to institutional change – the speed of progress has stalled in recent periods of substantial organisational change, particularly when seeking to introduce cross-faculty initiatives.</p>	



Developing academic frameworks and tools

One critical move to support academic staff has been the development of an institutional framework to provide guidance about the core teaching and learning approaches used in EfS. This covers basic pedagogic methods, approaches to curriculum design and signs of demand among students and organisations for sustainability skills in the graduate employment arena.

Additional discipline-specific guidance has also been produced, which makes links to existing QAA subject benchmarks, as well as simple curriculum enhancement planners. These tools indicate shared points of focus and dialogue for both enthusiasts and newcomers, to identify priorities for bringing aims and principles of EfS to life in different courses.

Top five lessons and tips:

1. **Build credibility and respect** – it is critical not to underestimate the need for communications and dialogues at all levels, to create social context and educational ground for acceptance of the agenda.
2. **Get the positioning right** – to bring innovation in, there needs to be appropriate formal positioning and directorial influence, otherwise initiatives remain as fringe projects and expectations are disappointed.
3. **The centrality of executive support** – initiatives can emerge from different parts of the institution, but to change curricula institution-wide, firm high level backing in the senior team is a necessity.
4. **Contextualise the approach** – building on distinctive characteristics and specific angles of engagement is important – there is no one ‘model’ for bringing sustainability into the practice of HE institutions.
5. **Dedicated resource is essential** – an overarching perspective and supportive resource has been vital to ensure that the ‘big picture’ is protected despite academic diversity and organisational changes.

“I think it is now embedded. For the new VC to stand up and say this is a USP and we are going to be taking this forward means we have been successful. It was never a USP before I arrived – the wish was there for it to be – it now is. Sustainability is here to stay – and that I think is an achievement ... I think that the first priority always is to put the documentation and the policy in place – and then things will flow from there ... building relationships comes after that. This comes from my previous experience where I didn’t do that – I built fabulous relationships, we got lots of really interesting projects going, but we could never upscale them, because it wasn’t in the frameworks.”



This case study was jointly developed by Dr Alex Ryan, the Project Researcher, and Professor Daniella Tilbury, Director of Sustainability at the University of Gloucestershire, as part of the HEA project ‘ESD and Holistic Curriculum Change’. Quotations were provided by Daniella Tilbury during interview in February 2011.



University of Plymouth



University of Plymouth

'Centre for Sustainable Futures'

Setting the scene:

The Centre for Sustainable Futures (CSF) is a well-known presence in the field of ESD and has been promoting the 'whole institution' approach to sustainability at the University of Plymouth since its foundation in 2005. It has developed strong links with several organisations active in the field of ESD, such as Schumacher College, Sustainability South West, South West Learning for Sustainability Coalition and the HEA ESD Project.

CSF was established as one of the 74 Centres for Excellence in Teaching and Learning (CETLs) funded by the Higher Education Funding Council for England (2005-2010). The mandate of CSF was to "transform the University of Plymouth from an institution characterised by significant areas of excellence in Education for Sustainable Development (ESD) to an institution modelling university-wide excellence and, hence, able to make a major contribution to ESD regionally, nationally and internationally". Its considerable challenge was to develop a strategy and activities that could transform the University towards a state where sustainability permeates the curricula, physical campus, and the whole institutional culture, as well as influencing relations with immediate environs and the wider region, and contributing to similar work across the sector.

It became clear from the start that there was considerable enthusiasm and commitment from right across the University for delivering this ambitious target, yet it was important that CSF developed a convincing and practicable strategy. To this end, the work of CSF was built upon a holistic '4C' approach, seeing curriculum, learning and teaching (and related research), campus change and community engagement as mutually embedded and enhancing spheres and, as such, powerful contributors to the student learning experience. All these components are encircled and related to a fourth 'c', culture, as reflected in institutional values, policies and practices. This systemic model has been influential in the sector.

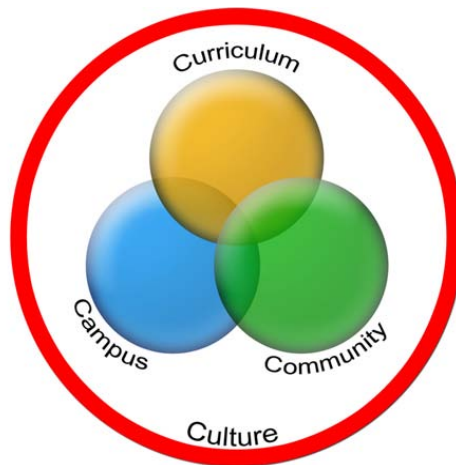
The University of Plymouth has over 30,000 students and some 3,000 staff, and is the ninth largest university in the UK by student numbers. The University has acknowledged strengths in both teaching and research across a wide range of programmes, as well as a focus on strategic positioning in relation to enterprise. Its academic profile includes expertise in health sciences, as the largest health education provider in the south west and a partner in the Peninsula College of Medicine and Dentistry.

The University was unusual in having been awarded four CETLs, although the CSF remit extended beyond teaching and learning agendas to broader organisational change, in line with the ‘whole institution’ approach promoted in ESD. Existing strengths in marine and environmental sciences and environmental construction programmes, as well as the presence of the GEES Subject Centre, afforded valuable platforms to assist a more thoroughgoing institutional and strategic approach. The fact that by 2011 sustainability had become one of the University’s key identifiers and platforms can, in no small degree, be attributed to the work of CSF between 2005 and 2010.

Curriculum change – actions and tactics:

2005-2010	Establishment of resource base	HEFCE CETL funding was awarded, with the initial bid for CSF being strongly supported by the Deputy Vice-Chancellor. The £4.5 million award was deployed for capital funding, CSF staffing plus additional enhancement activities and projects. The priority measures included the creation of curriculum support materials, a dedicated CSF website, staff wiki and staff development workshops.
2005	Secondment of Fellows	48 staff in total were seconded through CETL funding, often on a 0.2 basis, to support curriculum change across the 17 schools within all five faculties. Each one was provided with a CSF mentor, space and access to development funds, and most were also engaged in related research activities.
2005	Appointment of curriculum lead	An external appointment was made to the CSF team to head up curriculum change and enhancement related to ESD, and disseminate across the sector.
2005-2010	Research programme	A key part of CSF’s work was in both initiating and researching the processes of curriculum and institutional change, as well as ESD pedagogy, resulting in published papers and feedback to the institution and wider sector.
2006	Link with HEA ESD Project	One CSF staff member was seconded as adviser to the HEA ESD Project on 0.2 basis, to link CSF’s work with the academic and curriculum development activities supported by the Project.

2006-2008	Development of the Sustainability Strategy	A consultation process to produce the organisational Sustainability Strategy and associated Action Plan helped CSF to build broader engagement with the agenda among colleagues, and encouraged wider involvement with the ESD dimensions of the initiative.
2008-2009	Integration into the Teaching and Learning Strategy	The CSF team were able to bring the ESD agenda to bear on the institutional 'Skills Plus' policy, influencing the range of skills sets articulated for graduates. This proved to be invaluable as the policy was incorporated in the 2009-2012 Teaching and Learning Strategy when it was revised.
2009-2010	Curriculum audit exercise	An institution-wide audit was carried out by CSF with the involvement of Heads of School in all academic departments. This provided a baseline assessment that will be used to inform future efforts to benchmark progress and to develop indicators of change for ESD in the curriculum.



Curriculum audit exercise – understanding and identifying ESD

The 2009-10 curriculum audit process carried out at the institution was devised as a research exercise as well as to engage Heads of School and other academic participants through self-evaluation and reflection, rather than using a set of predetermined criteria for viewing school contributions to ESD.

The findings provided a series of insights and snapshots about the institutional ESD profile, such as:

- 13 of 17 schools (76%) asserted that the development of sustainability literacy for students is either ‘very important’ or ‘important’ for their curriculum enhancement efforts;
- signs of which ‘curriculum contents’ are most prominent in the institution (e.g. environmental sustainability and pollution) and which are least studied (e.g. war and peace);
- an indication of the pedagogical approaches linked to sustainability in use across schools and of the range of externally accredited professional programmes that connect with sustainability;
- oversight of the level of ESD innovation across all programmes, using a model of five stages in engagement with sustainability through modules and within teaching teams.

Curriculum development – making changes

Two professional programmes at the institution illustrate the types of changes that have begun with the support of CSF, particularly through funding and mentoring curriculum development projects:

Nursing and Midwifery

Enriching learning experiences – sustainability is embedded in three formal curriculum areas and within student handbooks, through resource use and course delivery considerations, and in the attitudes and values of staff members.

Connecting with professional bodies – academic staff are seeking active engagement in dialogue about sustainability with the Royal College of Nursing and the Nursing and Midwifery Council.

School of Law

Inclusion in core course components – in addition to an existing third-year elective, the entire programme now exposes all students to sustainability ideas and concepts in the first and second year. The effect of such a shift is to increase the engagement of student numbers with sustainability from around 20-25 to many hundreds.

Connecting with professional bodies – although there are as yet no formal curriculum requirements in the area of sustainability, academic staff are monitoring initiatives under way within the Solicitors Regulation Authority and the Bar Standards Board.

What has worked well?

<p>✓ The ‘whole institution’ approach – the wide reach of the sustainability strategy and its range of activities helped to build greater connectedness between campus management, organisational learning and curriculum development.</p>	<p>“You could argue that process was more effective than if the Chancellery had announced from the top ‘this is what our Sustainability Strategy is now everybody’. So we had a kind of passive mandate from the top, and it was our job to give that substance, and developing the Sustainability Policy was one way we achieved that. By doing this we gave the whole University a concrete mandate – rather than the rather generalised and less active mandate which came with the CETL – which also helped us pursue our aim of systemic institutional change.”</p>
<p>✓ Prestige and strength of the initiative – the presence of several externally funded CETL teaching and learning initiatives across the institution increased the leverage they jointly held at senior level and enabled them to work supportively with one another for mutual benefit.</p>	
<p>✓ Enlisting Fellows – the work of CSF Fellows legitimated and enabled some of the successes achieved at programme level and also helped to create alignment across the range of CSF activities.</p>	<p>“We had a research team who were researching the change process and that was important ... there was lots going on all the time so it’s hard to point to major milestones, as much as just a hive of activity that gradually shifts people’s awareness and engagement, within the limits of what a small team can do ... I think we’ve achieved a level of integration which is part of the culture change including the campus as a learning resource.”</p>
<p>✓ Influencing educational strategies – integration of ESD into the institutional skills policy helped to create the pathway to ensure that inclusion of an agreed articulation of ESD in the Teaching and Learning Strategy was reached through a process that satisfied all parties.</p>	
<p>✓ External profile-raising – national recognition and international activities were valuable ways to trigger interest and engagement internally, through formal links to other organisations and groups prominent in the field of ESD.</p>	



Supported by



South West RDA

Hosting international ESD conferences – ‘All Our Futures’

2008 – All Our Futures 1 ‘Education Waking to Threat, Hope and Possibility’ welcomed participants from the business community, city, region and internationally, with over a hundred papers and workshops plus leading ESD keynote speakers such as Mark Lynas, David Orr and Juliet Davenport.

2009 – All Our Futures 2 ‘Getting Real – Investing in Our Future – by Design’ shifted away from the conventional conference to offer an opportunity for the local and regional community to join academic researchers, teachers and learners in discussion of challenges from multiple perspectives, with keynotes from Victoria Hurth, Alastair Fuad-Luke, John Elkington and Sarah Parkin.

Where were the most difficulties?

<p>➤ Communication and outreach – CSF staff and Fellows encountered varied and sometimes narrow perceptions of ESD across different academic departments, while communication across a large institution was an ongoing challenge, in relation to conveying information and monitoring activity.</p>	<p>“You never know how many people you’re reaching and clearly we were dealing with quite a lot of people who were already enthusiastic, rather than those who were sceptical ... you can get a false idea of how well you’re doing. Having said that, we kept a broad church – it was part of our communication strategy to frame it fairly loosely and thereby invite dialogue and discussions ... You have to tread a line along that spectrum between openness and definition ... Our approach provides a kind of mandate, in that it ‘invites’ disciplines to consider how they might respond and I think this is probably the wisest approach to take in academia.”</p>
<p>➤ Opportunistic approach to change – working to put ideas of systemic change into practice, the CSF team took up opportunities as they arose within the organisation, but this had to be balanced with planned strategies. This was difficult without more central support.</p>	

<p>➤ Developing collaboration with the T&L function – as an externally funded self-contained initiative, CSF operated fairly independently from the main Teaching and Learning Directorate, which did not help in finding alignment and acceleration for the critical pedagogic agenda of its ESD component.</p>	<p>“CSF acted semi-autonomously because it had a big budget – the weakness of that model is that we were to some extent divorced from the teaching and learning structures in the University ... CSF now is much more part of the Teaching and Learning Directorate which is a big plus as it is responsible for enhancement across the University, whereas before CSF was a bit isolated ...”</p>
<p>➤ Variable senior support – the relative strength and visibility of the executive mandate for sustainability waned after the Deputy Vice-Chancellor who had supported the initial CSF proposal had moved to take up a post at another institution.</p>	<p>“The support of senior management is crucial of course. We had an interregnum for some time characterised by a vacuum in terms of support for CSF and ESD, but the arrival of a new VC in the last years of the CETL funding made a significant positive difference.”</p>

Top five lessons and tips:

1. **Understand systemic change** – it was critical to act both on systematic aspects of change (policies and structures) and systemic change (the flow and networks of colleagues and communications).
2. **Harness opportunities and allies externally** – collaborative relationships with the HEA ESD Project benefited the CSF initiative and the conducive sector climate helped to add weight to its aims.
3. **Be opportunistic, but also pragmatic and tactical** – opportunism reaped some major rewards but some interventions took up greater capacity and resource for comparatively little return and benefit. More effort is now being directed at working with central academic and quality assurance structures, to maximise benefits through connectivity with academic development across the institution.
4. **Avoid working in silos and forge new connections** – the wide remit and independent status of CSF had some downsides in relation to linking areas of institutional practice. Constant monitoring intelligence helped to broker connections between academic staff, between academic and support staff, and between staff and students, often leading to collaborations that would not have happened otherwise.

5. Curriculum change requires legitimisation, dedicated support and appropriate approaches – progress was made on all aspects of the CSF model, but proportionately greater resource was directed at curriculum development, given the inherent difficulty of change in this area. It was critical to adopt invitational and supportive approaches, rather than being directive, to build effective working relationships through which people felt valued rather than judged in relation to academic innovation.

“If you look at the story of change at Plymouth, we didn’t pull any one lever hard ... We tried to operate on as many levels as it was feasible to do both vertically and horizontally, so that you start getting shifts occurring almost autonomously – that was our systemic change model if you like. We didn’t say ‘we must change this because it’s the key to everything’ – we were taking initiatives, taking opportunities, building networks, trying to shift policy by achieving synergies.”

“We all felt that sustainability actually implied a shift of culture, which I still think. So I wanted us to get into a position where sustainability was both understood and implemented in more than a superficial way in terms of the cultural dimension, but also more than a superficial way in terms of inter-disciplinarity and whole institutional change, so that the curriculum ideally would fully reflect some of the dimensions that we associate with ESD, rather than bolt-on. This is still quite a vision to aim for, but there has been to some extent a shift of culture.”

This case study was jointly developed by Dr Alex Ryan, the Project Researcher, and Professor Stephen Sterling, Professor of Sustainability Education at the University of Plymouth, as part of the HEA project ‘ESD and Holistic Curriculum Change’. Quotations were provided by Stephen Sterling during interview in February 2011.

Comparative commentary

Findings 3.1 Mechanisms for mainstreaming

The record of key steps taken in each case-study institution shows the range of interventions put in place to try to broaden practice from existing pockets of expertise in ESD to an institution-wide approach:

Mechanisms used	Bradford	Gloucestershire	Plymouth
Appointment of curriculum lead role in ESD	•	•	•
Inclusion of ESD in teaching and learning strategy	•	•	•
Academic guidance/framework for ESD	•	•	•
Overarching institutional sustainability strategy		•	•
Inclusion of ESD in course development process	•	•	
ESD curriculum audit exercise	•		•
Appointment of ESD curriculum champions	•		•
Inclusion of ESD in academic policies and plans		•	•
Sustainability director role		•	
Externally facilitated change process	•		

Comparison with the trends evident in the Stage I review shows that the three case studies demonstrated:

- significant prioritisation of and dedicated resource allocation towards staffing curriculum lead roles;
- close attention to developing academic frameworks and organisational sustainability strategies;
- emphasis on alignment with learning and teaching strategies and course development processes.

Findings 3.2 Most successful approaches

The case studies record that certain types of intervention appear to work effectively, when the strategic intentions are tailored to specific institutional contexts and opportunities:

- **Targeting the institutional mainframe:** building connectivity to central academic strategies and plans; consolidating position in and support from key committees; developing shared academic frameworks that have formal approval; and acting as part of the broader culture of institutional learning.
- **Gaining recognition and prestige internally and externally:** through the development of partnerships and allies; by creating identity and distinctiveness; and via promotion, funding, awards and rankings.

Interestingly, in 20% (four) of the review exemplars and in two of the case studies, ‘champions’ had been adopted, but mixed views emerged about this tactic. Several significant benefits were noted, in uncovering ‘quick wins’ and nurturing subject-level changes. However, this was offset against the varied effects of their differences in institutional positioning and the challenges they inevitably faced in working across multiple and at times unfamiliar disciplines. The third case-study institution had intentionally avoided the ‘champions’ approach:

We had been commissioned by the Australian government to undertake research in this area – looking at experiences across the globe. We focused on the work of champions and about how one instigates and manages change in institutions and organisations ... and every single case study we looked at, champions’ success was shortlived and often occurred in the fringes. Champions were not embedding change. Staff would say ‘that’s his or her agenda, not mine’ ... It was almost anti-mainstreaming – it was having the opposite effect ...

(Daniella Tilbury, University of Gloucestershire)

Findings 3.3 Most intractable challenges

Each case study discusses and localises the main difficulties faced by curriculum leads and while the circumstances are particular to each institutional ‘journey’, certain issues arise in comparative view:

- Creating unified understanding around ESD: the complexities of ESD at HE level mean that bringing together shared strategic intent is extremely challenging, on two fronts: i) resolving the different interests and aims of several institutional functions; and ii) outlining academic approaches that encourage institution-wide engagement while also protecting academic diversity and freedom.

- Developing connected strategies across the organisation: each case study worked towards curriculum change within a ‘whole institution’ approach and noted many benefits of this. Nonetheless, the sheer scale and reach of central strategies and operations meant that problems were encountered in identifying the right targets for intervention within the institutional mainframe and in generating coherent and mutually supportive alignment with other thematic educational priorities.
- Alignment with institutional teaching and learning functions: the case studies show the importance of integration with central processes to enhance teaching and learning – in two cases difficulties were noted in building collaboration and achieving more connected positioning within the institution.
- Content overtakes pedagogy: in all the case studies, the relative ease of achieving changes in course ‘content’ was noted. This was likened to a reflex action in ESD, which then heightens the challenge of communicating the rationale for and benefits of focusing on innovative critical pedagogies.

Findings 3.4 Moving forwards

Considering the horizon and the ongoing challenges of progressing ESD, each case study highlighted quite similar steps to be tackled: to deepen and broaden their approaches, and to evaluate and evidence the effects.

In seeking to achieve greater permeation across academic Schools and Departments, comments from the institutional leads showed clearly the importance of visible mechanisms to continue to reflect the mandate and resource base for the curriculum change work, with clear resourcing being particularly critical.

	Bradford	Gloucestershire	Plymouth
Continuity and development challenges	2007-08 was the baseline year for the Ecovercity initiative and having operated for three externally funded years and produced action plans for course development, the focus is now on consolidation of the continuity strategy.	Broader grassroots collaboration is now a priority, as two planned initiatives in 2009-10 to engage colleagues in sharing practice and pedagogic innovation across faculties and departments were halted due to a series of major organisational changes.	At the end of the funded period, the impetus has been retained in a professorial post mandated to continue the curriculum development work, although greater permeation and connectivity is needed across academic units.

The comments made with regard to assessing achievement show clearly that the changing sector climate has been important in the emerging thinking of these institutions. Changes in approaches to evaluating the quality and impact of HE teaching and learning, and developments in measuring

sustainability progress, have arguably both contributed to the context that is reflected in the quotations below from each institutional lead.

	Bradford	Gloucestershire	Plymouth
Demonstrating and evidencing progress	Given the growth of corporate commitment to sustainability in an era of resource contraction, there is increasing pressure to measure progress in curriculum change aspects of the initiative, particularly in the area of course development and validation.	The University achieved sector recognition and high scores in national rankings for its education for sustainability (EfS) work but now needs to develop and publicise thorough methods to evidence and maintain these rankings, while protecting the desired enhancement emphasis.	The Centre for Sustainable Futures (CSF) model for embedding ESD across the institution included high level aims around curriculum development, but now needs to match the sector in moving towards more clear-cut indicators that identify the effects of its activities.

I'm looking both ways at once – I don't want to get too hung up on particular outcomes ... you're trying to create a sense of confidence and trust ... so people wouldn't suddenly veer off, get nervous and anxious, and say 'how many courses have you got nailed down' ... it was very action focused, without necessarily worrying too much about any specific outcomes.
 (Peter Hopkinson, University of Bradford)

Looking back, I do think we should have developed a monitoring and evaluation system from the start – it was just so difficult to know what we were looking for at this stage. The process required engaging in dialogue with colleagues who could translate the EfS generic outcomes into context specific results. We did not know what these would be at the start.
 (Daniella Tilbury, University of Gloucestershire)

Universities are into metrics and instruments and accountability and all the rest of it. In a way CSF was playing kind of an agent provocateur role, slightly unleashed, in the early years, with the blessing of HEFCE and senior management. But now that sustainability is more institutionalised, we have to play the measuring game more ...
 (Stephen Sterling, University of Plymouth)

4 Strategic insights

The project uncovered certain critical insights, based on the review of trends and case studies of experiences in institution-wide curriculum change. Outlined below are the main lessons learned about leading curriculum change at the organisational level in line with the aims and vision of ESD.

The literature on strategic change for ESD at HE level has traced the many challenges faced when attempting to progress organisational development for sustainability. These include issues of connectivity and of the co-ordination of drivers, social connectors, funding and individual incentives, as well as the general lack of lessons learned and then applied from examples of successful institutional change in HE.

This perspective on structural and strategic matters is invaluable in order to use lessons from organisational change to forge pathways for institution-wide curriculum change. Extra complexities come to the fore when tackling the conceptual, educational and professional dilemmas that surround academic innovation – and these two levels of complexity – organisational and academic – must be reconciled. The insights that follow attempt to summarise the learning gained by integrating the findings from both components of this project.

Insight I Ensuring academic credibility

As the detailed case studies make abundantly clear, academic freedom and credibility are critically important to ensure that curriculum change advances. The tendency to lose grasp of more radical forms of pedagogic development and to revert to ‘content-based’ approaches appears to be ever present. Transformative educational approaches require carefully focused tactics, but have significant potential to stimulate academic development. One important point made was that for genuine shifts to take place, all the factors affecting subject-level development and professional academic identity must be factored in:

The challenge was to work out the culture and the disciplinary drivers within each area and work with that, not against it. For example in pharmacy, a lot was about responsible professionalism – and then on the science side, it’s relatively easier around resources ... using all the levers we’ve got, to bring to bear on the different subjects – putting the wagons around the subject to show what is happening.
(Peter Hopkinson, University of Bradford)

Working to contextualise approaches for each subject area then has to be achieved within the broader context of meaningful educational discourse. The role of the curriculum lead comes to the fore in maintaining this strategic balance and having the ability to understand institutional leadership and management perspectives:

Academic credibility is vital to instigate change. If you don't get the credibility right for the agenda, you're going nowhere. That means the right sort of intellectual respect as well as respect at the corporate level, for the institutional culture – understanding the discourses, the terminology, the context and the research. If you don't do this you are mainly relying on people who are already interested ... An important part of the process is being challenged on the why, what and how of EfS – having credible responses which help to support the discourse and being able to point to evaluation or good practice research is also critical.
(Daniella Tilbury, University of Gloucestershire)

Insight 2 Joining vision and structure

It is clear that protecting academic credibility must be aligned with the creation of enabling structures to support implementation. The three case-study initiatives were established with executive support and in two cases with significant external funding (by contrast, internal funds had resourced many review exemplars). This dedicated support had enabled existing pockets of good practice to become part of a larger change initiative:

I think a lot of universities have a lot of latent potential, so that means there are pockets of good work going on. There are individuals who have an understanding of sustainability and its implications and are enthusiastic in their own way, but they don't feel empowered or part of a larger framework or operation.
(Stephen Sterling, University of Plymouth)

In the initial review, the exemplar initiatives showed that a wide range of senior colleagues and enabling structures play decisive roles in supporting change agendas. Similarly, the case studies showed that directorial roles, executive team support and prestigious funders can all be enlisted and applied to progress change.

The case studies also show that several levels of connectivity are needed for effective ESD, most importantly between curriculum change goals and central strategies and functions, particularly in academic development. Undoubtedly the most important lesson is simply to harness governance and management mechanisms in tandem with academic enhancement activities, so that innovation and structure are joined together:

I think the experience of all of this is that you would be hard pressed to find a university that has naturally aligned sustainability leadership with its frameworks or practice. Where you start is not important but the process does require questioning and challenging the governance mechanism for EfS or sustainability in the institution.
(Daniella Tilbury, University of Gloucestershire)

Insight 3 Forecasting and localising

UK HE faces a rapidly shifting and uncertain climate as the project closes, with profound changes to its funding landscape and strategic drivers. One of the most distinct trends set to accelerate in this climate is the increase in emphasis that students place upon the relevance and employability value of their HE studies.

This is an important opportunity for ESD, which places considerable importance on the capabilities of graduates and the cultivation of what they can do rather than simply what they know when leaving HE. One particularly interesting finding in this review was the level of activity globally around the development of cross-institutional graduate attributes and learning outcomes, which featured in 60% (12) of the exemplars. In this respect, the case-study institutions had made less progress, but showed awareness of the importance of this type of work.

The responses of HE institutions are also likely to be influenced by further commercial pressures, resulting in functional differentiation of institutional strategies and missions. Again, for ESD there are connections here to be followed through, as the contextualisation of approaches is at the heart of its educational vision:

A lot of the rhetoric – at my university anyway – around enterprise, employability, and flexible graduate skills, and the need for the university to reflect agility in anticipating and adapting to new conditions and opportunities, is consistent with achieving closer orientation to sustainability, but helping the university to recognise this potential synergy fully is an ongoing challenge.
(Stephen Sterling, University of Plymouth)

For each institution seeking coherent pathways to address graduate needs, ‘triple crunch’ issues, pressing civic concerns and prospects for sustainability, alignment is needed between generic educational goals and specific organisational contexts. As demonstrated by the range of conceptual frameworks uncovered in the review, the smartest institutional responses will blend educational values with corporate priorities and resonant pedagogic agendas. This echoes findings from explorations of the organisational challenges in sustainability in HE (Brooks & Ryan 2008) that initiatives, thinking and actions must be context-specific and mutually supportive:

Standing back, a key lesson learned is the importance of understanding context – you cannot just pinch an idea from another institution and start implementing it. You need to really understand where the roots of the institution lie, where the weaknesses are in your institution with this agenda – and get a foundation for existing efforts before you start introducing new ideas. You need to almost improve the soil before you start planting new ideas.
(Daniella Tilbury, University of Gloucestershire)

5 Information and resources

Resource	Description and location
Ecoversity	University of Bradford – see: http://www.brad.ac.uk/admin/ecoversity/
Promising Futures	University of Gloucestershire – see: http://insight.glos.ac.uk/sustainability
Centre for Sustainable Futures	University of Plymouth – see: http://csf.plymouth.ac.uk
Ryan 2011	<i>ESD and Holistic Curriculum Change</i> – the report linked to this Guide contains further details of the context and rationale for the project, methodology, research process and findings. See: http://www.heacademy.ac.uk/resources/detail/sustainability/esd_ryan_holistic
HEFCE 2009	<i>Sustainable development in higher education: 2008 update to strategic statement and action plan</i> , Higher Education Funding Council for England (HEFCE) 2009/03. See: http://www.hefce.ac.uk/pubs/hefce/2009/09_03/
Policy Studies Institute 2008	<i>HEFCE strategic review of sustainable development in higher education in England</i> – sector review of sustainable development practice, research and teaching in HEIs in England, commissioned by the Higher Education Funding Council for England (HEFCE). See: http://www.hefce.ac.uk/pubs/rereports/2008/rd03_08/
Ryan 2009	<i>2008 Review of ESD in HE in Scotland</i> – sector-wide survey of sustainable development practices in Scottish HE, with four case studies of HEI teaching and learning approaches. Commissioned by the Scottish Funding Council and Universities Scotland in collaboration with the HEA. See: http://www.heacademy.ac.uk/ourwork/teachingandlearning/alldisplay?type=projects&newid=esd/esd_SFCreview08&site=york
SQW Consulting 2009	<i>Education for Sustainable Development and Global Citizenship (ESDGC): Analysis of good practice in Welsh higher education institutions</i> – sector-wide report on sustainable development practice in HEIs in Wales, commissioned by the Higher Education Funding Council for Wales (HEFCW). See: http://www.hefcw.ac.uk/documents/about_he_in_wales/wag_priorities_and_policies/SQW%20ESDGC%20Final%20Report.pdf
Tilbury 2011	<i>Education for Sustainable Development: An Expert Review of Processes and Learning</i> , UNESCO Paris. See: http://insight.glos.ac.uk/sustainability/iris/Pages/UNESCOESD.aspx

UNESCO 2009	<i>Learning for a Sustainable World: Review of Contexts and Structures for Education for Sustainable Development</i> , UNESCO Bangkok. See: http://unesdoc.unesco.org/images/0018/001877/187757e.pdf
King's Warwick project	<i>Creating a 21st Century Curriculum</i> – report of a collaborative project on curriculum change funded by HEFCE. See: http://kingslearning.info/kwp/
Leading curriculum change for sustainability	<i>Leading Curriculum Change for Sustainability: Strategic Approaches to Quality Enhancement</i> – collaborative project funded by HEFCE, with five HEIs progressing ESD through quality assurance processes and building capacity with key sector agencies. See: http://insight.glos.ac.uk/sustainability/hefcelgquality/Pages/default.aspx
Brooks & Ryan 2008	<i>Education for Sustainable Development: Strategic Consultations among English HEIs</i> – report on a series of dialogue events in three HE institutions to investigate structural and strategic issues in tackling academic and corporate sustainability practice from the 'whole institution' perspective. See: http://www.heacademy.ac.uk/assets/York/documents/ourwork/sustainability/esd_EnglishHEIs.pdf
UNESCO DESD	UNESCO Decade of Education for Sustainable Development initiative 2005-2014. Resources and project materials can be viewed at: http://www.unesco.org/new/en/education/themes/leading-the-international-agenda/education-for-sustainable-development/
University leaders for a sustainable future	Secretariat for the 400+ signatories worldwide of the Talloires Declaration (1990), supporting sustainability in HE teaching, research, operations and outreach. See: http://www.ulsf.org

Acknowledgements

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The three case studies were jointly developed by the Project Researcher and the lead representatives for the curriculum initiatives at these institutions:

- **University of Bradford** – Dr Peter Hopkinson;
- **University of Gloucestershire** – Professor Daniella Tilbury;
- **University of Plymouth** – Professor Stephen Sterling.

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