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## 7 Times of change

### Shifting pedagogy and curricula for future sustainability

*Alex Ryan and Debby Cotton*

#### Introduction

Under the influence of globalisation, technological advances and economic challenges, higher education (HE) is in an era of rapid change. Its role in the transmission and transformation of culture is arguably becoming more complex, as sources of knowledge and learning multiply and as the imperative to meet the educational needs of more diverse groups of people increases. If HE is to continue to fulfil its educational function effectively, it must grasp this challenge while also responding to the full range of societal concerns around sustainability. Educational practice geared to these concerns is variously known as ‘education for sustainability’ (EfS), ‘learning for sustainable futures’ or ‘education for sustainable development’. However, despite exciting developments in this field, there has been difficulty galvanising change for EfS in HE and bringing its potential to life. The international literature confirms that embedding EfS in the HE curriculum is the most difficult area of sustainability practice in which to gain traction. A study by the *Global University Network for Innovation* (GUNI) evidences this trend worldwide (Tilbury, 2011a) and reviews have demonstrated similar concerns in the UK (Policy Studies Institute, 2008; Ryan, 2009; SQW Consulting, 2009).

The performance of UK universities remains internationally impressive, as reflected in league tables, research output and overseas student recruitment. UK HE has retained its reputation for high quality education, bolstered by waves of teaching enhancement funding since the 1980s (Smith, 2005). However, the system is under enormous pressure due to changes in the national funding base, steep increases in student fees, and immigration policy regulations that affect its global competitiveness. The growing influence of prospective employers and students on curriculum priorities and quality systems necessitates greater transparency about teaching practices and graduate employment prospects – both to improve the student experience and to meet the demands of competitive recruitment markets. Some issues may be specific to the UK context, but similar pressures are in evidence worldwide. They present both risks and opportunities for EfS, which competes for attention in a changeable HE landscape with multiple influences on education.

In this chapter, we consider what twenty-first century education systems geared to sustainability could look like and assess the potential of EfS to challenge and influence mainstream HE learning. Educators who embrace EfS have varied approaches, areas of expertise and political viewpoints, but share a concern to change education systems, practices and methods. EfS revolves around shared pedagogic principles and learning processes, as documented in a review of academic literature and educational projects for UNESCO as part of the Decade of Education for Sustainable Development, 2005–14 (Tilbury, 2011b). To explore the potential for systemic change, our primary material is drawn from EfS in the UK HE sector, including policy context, national initiatives and leading practice in specific universities. We consider the value and place of EfS in changing pedagogy and learning experiences across the formal, hidden and informal curriculum. Taking a systems perspective, we reflect on the necessary further steps required to lever change at all these levels for the pedagogic evolution that EfS requires, and consider how far the transformative potential of EfS offers a chance of renewal and redirection at a time of fundamental change in higher education.

### **Changing the formal curriculum – engaging communities of practice**

EfS is geared to innovation in pedagogy, targeting not just the ‘what’ but the ‘how’ of education. This represents a significant challenge in terms of the formal curriculum, not just to encourage teaching ‘about sustainability’, but to reframe the purposes and aims of learning across entire programmes of study. Examples of curriculum innovation in EfS are easy to locate – pioneering work has emerged in a range of subjects and these path-finding endeavours are increasing and diversifying (Blewitt and Cullingford, 2004; Corcoran and Wals, 2004a; Haslett *et al.*, 2011; Jones *et al.*, 2010). The UK has produced ground-breaking programmes guided by EfS, such as the MA in Sustainable Development at the University of St Andrews and the MSc in Education for Sustainability at London South Bank University. The national Higher Education Academy (HEA) has funded small-scale projects since 2005, commissioned research and development work and supported production of the *Future Fit Framework*, a guidance tool for academic staff (Sterling, 2012).

However, EfS developments have occurred largely in the margins of the HE curriculum and it has proven extremely challenging to move to the next stage, where the work of enthusiasts begins to inform mainstream programmes, and the concerns of pioneers begin to change the shared discourse of entire subject communities. Research has established that both staff and students struggle to understand the conceptual range of the term ‘sustainability’, focusing first on its environmental dimensions and missing the integration of social and economic aspects (Bone and Agombar, 2011; Kagawa, 2007). Sustainability is troublesome, contested knowledge (Blewitt, 2008; Hall, 2011); to be effective as an educational tool, it must be reflected in different subject areas and by groups with differing priorities and interests. This conceptual challenge also frustrates efforts to assess

educational engagement with sustainability, especially where curriculum audits are confined to descriptions of course content alone.

To introduce EfS more widely and achieve real impact on student learning experiences, change is needed at subject level. EfS must enhance existing programmes, recognising the different starting points of academic disciplines, both conceptually and pedagogically. Some disciplines have stronger connections with the language of sustainability, for example in geography, earth and environmental sciences, or the built environment, landscape and design. Existing engagement with sustainability may have been driven by research agendas and by policy directives to improve application of the knowledge base. The foundations of EfS in constructivist epistemology and critical pedagogy means that disciplines grounded in these approaches (for example, in humanities and social sciences) find easier alignment between EfS and their existing pedagogic orientation. In disciplines guided by more traditional pedagogies, there is often a struggle to grasp the challenge of EfS and other approaches may be necessary, for example by engaging with the realities that graduates will face in relation to policy engagement or their professional practice (developments in professional engineering regulations in the UK offer a valuable example).

EfS has experienced the problem common in academic innovation driven by enthusiasts: if the 'community of practice' (Lave and Wenger, 1998) is not engaged, the pioneer may move on, their priorities can be sidelined by other agendas, and their module ceases to exist. For longevity, EfS principles must guide the enhancement work of teaching teams, with the advantage that all students gain some experience of EfS, not just those taking particular (often optional) modules. Engaging the communities of practice around academic programmes takes time and careful development, but will yield more secure and credible results (see Health and well-being co-benefits of living sustainably, below). Academic communities respond to EfS in ways that reflect their own trajectories and their conceptual and pedagogic roots. This means that EfS in the formal curriculum can be strongly driven by external influences from professional bodies, governmental agencies and sector level organisations. External agendas are therefore critical and should be harnessed, whether through subject communities or through mechanisms within universities for infusing EfS into teaching and learning practice.

### **Reorienting curriculum development – strategic institutional change**

Curriculum change in EfS must be understood not only in subject context but also in institutional context, which includes corporate strategies and routine curriculum development processes. Increasingly in HE, enhancement priorities affect most (if not all) subjects, for example to improve institutional employability credentials. In recent years, there have been moves for curriculum reform in universities across the globe, focused on learning aims such as tackling complexity, engaging in inter-disciplinary work and developing inter-cultural competence. High profile examples have emerged from institutions with strong

research profiles, such as the University of Aberdeen (UK), University of Melbourne (Australia) and University of Hong Kong. Although these reforms often developed in response to strategic objectives, for example recruitment, differentiation and competitiveness, they have embraced principles aligned with EfS such as inter-disciplinarity, global citizenship, community engagement and professional responsibility (Ryan, 2012).

Often linked to these reforms, the development of institutional ‘graduate attributes’ encourages coherence and integration in curriculum development. As Barrie and Prosser have shown, universities use graduate attributes to ‘specify an aspect of the institution’s contribution to society’ (2004: 43), and EfS aims are both implicit and explicit in numerous examples found worldwide. Generic attributes can reinforce teaching and learning strategies, although they can lack shared understanding, for both staff and students. There are substantial challenges in embedding graduate attributes across very different programmes, as although they can seem ‘relatively innocuous and uncontentious outcomes ... they have their roots in the contested territory of questions as to the nature of knowledge and the nature of a university’ (Barrie and Prosser, 2004: 244). However, these signs that universities are thinking more deeply about how they evolve their teaching and learning practices are significant for EfS and offer platforms for discussion about the aims and purposes of the curriculum, to improve its relevance as well as quality (see EfS through university quality assurance and quality enhancement systems, below).

### **EfS through university quality assurance and quality enhancement systems**

To support institutional development in sustainability, the UK Higher Education Council for England funded a strategic project from 2010 to 2012, *Leading Curriculum Change for Sustainability: Strategic Approaches to Quality Enhancement*, involving a consortium of five universities. Taking a ‘systems’ view of curriculum development practices in universities, the project explored ways to bring EfS principles into quality assurance processes and quality enhancement initiatives, and worked with the UK Quality Assurance Agency to explore links between EfS and national policy in this area.

Each of the five universities carried out a development project to connect EfS with its existing quality systems and to reflect current educational priorities and organisational strategies:

*Aston University* – making connections with the institutional focus on industry engagement and investment in ‘green ICT’, to align its focus on sustainability with educational quality issues.

*Oxford Brookes University* – using the established platform of institutional ‘graduate attributes’ and prior work to internationalise the curriculum, to improve awareness and practice of EfS.

*University of Brighton* – bringing EfS more deeply into each stage of the course development process using an integrated approach, to avoid EfS being viewed as an extra layer of education policy.

*University of Exeter* – drawing on investment in sustainability research and the lead of one academic college, to build support and extend policy development for EfS in the curriculum.

*University of Gloucestershire* (Project Lead) – building an inclusive enhancement approach to enable diverse EfS work across faculties but with an explicit, transparent assurance mechanism.

Project outcomes included the development of policy frameworks and educational guidance materials to progress EfS as an educational quality issue, as well as the broader engagement of senior managers and staff with oversight of curriculum quality, with principles of EfS. National sector dialogue was extended through the involvement of key agencies and experts, with several outcomes, including the development of sector guidance and links to national policy.

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There are important synergies for EfS at the intersection between the institutional and subject levels, and a recent review shows various tactics being adopted worldwide to stimulate interest in EfS across institutions (Ryan, 2012). As has been noted in other studies and in change management literature, the approach must fit the institutional context (Brooks and Ryan, 2008; de la Harpe and Thomas, 2009). In addition, concerns raised about the imposition of educational agendas only underline the critical need for understanding the social practices that influence change. The contradictory and conflicting nature of curriculum development in universities means that there is a need to understand the process, rationale and implementation of change, as well as levels of resistance to it, to achieve strategic progress in EfS (de la Harpe and Thomas, 2009: 77–8), which is apparent in prominent examples of ‘whole institution’ EfS initiatives in the UK (Ryan, 2012).

Promoting EfS as a paradigm-shifting educational proposition requires that it is aligned with broader curriculum priorities. To miss this point is to risk divorcing EfS from exciting opportunities to shape and inform the emerging discourse and practice of university education. However, to work strategically to shift the formal curriculum means that not every innovation that might be labelled as EfS *will* be labelled that way. Explicit association with EfS may

improve the credentials of some programmes, but at other times, connections to different priorities will better serve the needs of recruitment, professional accreditation or institutional strategy. Hopkinson *et al.* (2008) pointed to ‘self-recognition’ issues among academic staff in EfS, an issue also noted by Kagawa *et al.* (2010) and in a review of practice in Scotland (Ryan, 2009). For both educational and tactical reasons, not all academics connect their efforts with EfS explicitly, preferring implicit approaches to the learning process. As EfS involves dialogue around values and negotiation of contested meanings, both directness and concealment have their advantages (Blewitt, 2008; Cotton *et al.*, 2009; Wals and Jickling, 2002). This ambiguity also provides opportunities to use the invisible dimensions of learning, which are revealed powerfully in the dynamics and spaces in which learning unfolds.

### **Under the radar – the hidden curriculum**

It is well known that students learn significantly more than what is explicitly taught: for example, the formal curriculum may involve taking students on a field trip to South Africa, where the learning outcomes are connected to field techniques and identification of plants and animals. However, what students learn from such an experience may include awareness of cultural differences, of political context, of the challenges associated with sharing a living space with 30 other students, of the difficulties of conducting fieldwork in an unfamiliar climate, and so on. Even in more familiar contexts, the environment may impact on the student experience in powerful and significant ways: what the campus ‘says’ about sustainability may leave a lasting impression on students who live and work there for a sustained period, and communication about sustainability through official channels can be subverted easily through ‘noise’ caused by competing messages in the campus environment (Djordjevic and Cotton, 2011). These aspects of learning form part of the ‘hidden curriculum’ of educational settings, a term first used to describe, in schooling, the ‘unpublicised features of school life’ (Jackson, 1968: 17), and which is made manifest through the ethos and values of an institution (Skelton, 1997).

The hidden curriculum is a complex and ambiguous term, used in a range of different ways to describe the (sometime) disconnect between what is overtly taught in educational institutions and what students actually learn. In HE, this may include societal, institutional or individual values transmitted (normally unconsciously) to students through the campus environment or the attitudes and values of university staff. For example, lecturers’ attitudes and beliefs about EfS have been shown to have a strong impact on what is taught in the formal curriculum as well as on how they interact with students in formal and informal settings (Cotton *et al.*, 2007). Lawton claims that ‘Every statement that a teacher makes in a classroom is value laden, connected with ideas about the purpose of education, probably connected with more general values and beliefs, and maybe with the purpose of life’ (Lawton, 1989: 3). While many lecturers believe that they should be (or even that they are) offering a balanced and unbiased view of

their subject area, research indicates that this is all but impossible for many sustainability-related topics (Cotton, 2006). In HE, where lecturers have significant control over the content of the curriculum as well as the means by which it is expressed, a hidden curriculum based on their beliefs and values is potentially very significant.

Clearly, the hidden curriculum can take a negative form; early research investigated the ways in which schools reproduce the social inequalities of wider society (for example, Willis, 1978), and the hidden curriculum may act to reinforce discrimination. Yet it can also have positive impacts: recent research indicates that participation in HE may lead to an increase in environmental commitment, for example, which may be partly due to changes in social identity that occur outside the formal curriculum (Cotton and Alcock, 2012). In addition, there have been several high profile campus development projects in sustainability suggesting that ‘being a student in such an environment may influence commitment towards environmental sustainability’ (Cotton and Alcock, 2012: 12). If correct, this indicates that the hidden curriculum of HE can act as a force for good in terms of EfS – but it also suggests that the risks of good work in the formal curriculum being undone by a lack of sustainability in the hidden curriculum are significant (see *Harnessing informal learning about sustainability*, below).

Consideration of the relationship between formal and hidden curricula in HE raises serious questions for policy-makers and practitioners in EfS: it confirms the need to prepare students to ‘make sense of and respond to exposure to contradictory information, values, beliefs and practices’ and to ensure that they are ‘cognisant and critical’, rather than ‘over-determined, passive recipients of hidden curriculum messages’ (Skelton, 1997: 177). The lessons the hidden curriculum teaches are often experienced daily (if embedded in the learning environment) and, given the duration of students’ experience of formal education, the importance of understanding these messages cannot be underestimated. This aspect is directly connected to the sphere of informal learning, and considering links between the formal, informal and hidden curriculum is crucial to enhance all aspects of sustainability learning.

### **Integrating informal learning – broadening the terrain**

Much of the existing HE research and development effort has focused on EfS in the formal curriculum in various contexts. In some ways this is both inevitable and understandable since the formal curriculum is the most visible part of a university’s activities. The formal curriculum is marketed to students: students engage in HE initially through their course or programme and marketing is focused on specific disciplines and subject areas as well as contact hours and pedagogic approaches. However, practitioners and researchers focused on informal learning have encountered an arena which is eminently suitable for, and already influential in, enhancing EfS opportunities for students. Informal learning offers a potential route which bypasses the disciplinary silos and

sometimes negative academic attitudes which can hinder the embedding of EfS in the formal curriculum. The campus, for example, provides a subject-neutral forum through which sustainability can be experienced, discussed and critiqued regardless of the ‘limitations of [disciplinary] tunnel vision’ (Jucker, 2002: 13). Yet, while the informal curriculum may be more important than the formal curriculum in sustainability learning, its impact in HE is only just starting to be explored. Moreover, developing and researching informal learning can be problematic: informal learning is largely invisible, may not be recognised as such by the learners, and can be hard to describe (Eraut, 2004).

Informal learning is usually understood to mean learning from other people outside the formal educational context and in a range of different locations. According to Eraut, informal learning ‘draws attention to the learning that takes place in the spaces surrounding activities and events ... and takes place in a much wider variety of settings than formal education or training’ (2004: 247). In relation to sustainability, Lipscombe (2008) defines the informal curriculum as consisting of extra-curricular activities and experiences such as volunteering, internships, membership of clubs and societies and attending sustainability events. In HE, this may constitute a very important part of the learning in which students engage, since they are often living in a different area, possibly independently for the first time, and with significant social contact outside formal classes. They may be based in accommodation on campus, thereby being open to opportunities for learning from their physical environment as well as through dialogue and activities with others. Kagawa describes the campus as a potential site for learning and EfS through a ‘sustainability orientated pedagogy of place’ (2007: 320). In addition, recognising the potential for campus learning experiences to contribute to EfS may go some way to addressing concerns that ‘the student experience at most universities typically has a fragmented connection of the values, ideals and practical aspects of living, studying or working in a sustainable way’ (Hopkinson *et al.*, 2008: 439). Evidence of the potential impact of informal learning can be gathered easily through small-scale studies such as that at Plymouth University (see below).

### **Harnessing informal learning about sustainability**

Given the power of the informal context to influence student learning about sustainability, this is an area with which aspiring sustainable universities would do well to engage. A small-scale research project at Plymouth University (using video diaries to capture student experiences of sustainability on campus) indicated that student learning about sustainability through the campus environment was variable. Students were very conscious of issues surrounding energy and carbon, and perceived recycling as an important issue for the university, but were concerned (and sometimes confused) about the way energy was seemingly

used unsustainably for lighting or computer power in parts of the institution. Although the university was seen as setting a good example in some areas (new buildings, automatic lighting), the students felt that more could be done to develop the campus as part of the learning environment (with more signage and more involvement of students in decision-making about sustainability issues).

Although the institution has an enviable external reputation for sustainability, internally this was seen as being in conflict with other university agendas, and what students learnt through their experiences outside the formal curriculum acted as a mediator of their learning about sustainability. Recent moves to address this issue include harnessing students' informal learning through a volunteering module, encouraging extra-curricular activities in sustainability through the Plymouth Award, and increasing efforts to involve students in projects and placements which link the campus with the formal curriculum – supported by the Office of Procurement and Sustainability (OPS) and the Centre for Sustainable Futures (CSF). However, there is always more which could be done: signage could be improved, and confusion about whether and why it is more sustainable to use an automatic revolving door remains a live issue. Communication with staff and students about sustainability developments is challenging, and enthusiasm for drawing on informal learning to enhance the formal curriculum is scattered. However, the structures in place (including an Institute for Sustainability Solutions Research, as well as OPS and CSF) offer opportunities for further linking informal and formal learning through the campus, curriculum and community.

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While informal learning often takes place without much structure, harnessing its full power may involve its integration with formal learning by encouraging reflection on everyday activities or experiences. Marsick and Watkins identify three ways in which informal learning may be enhanced:

critical reflection to surface tacit knowledge and beliefs, stimulation of proactivity on the part of the learner to actively identify options and to learn new skills to implement those options or solutions, and creativity to encourage a wider range of options.

*(Marsick and Watkins, 2001: 30)*

As support for campus greening expands across HE, driven in part by the need for carbon reduction plans, universities increasingly provide leadership as sustainable organisations: 'Universities can be a model for the community about how a sustainable organisation ought to operate' (Ferrer-Balas *et al.*, 2008: 296). Linking campus and operations development with student learning offers the

next step towards a fully integrated EfS, which encompasses the formal, informal and hidden curricula, and provides a student experience which contributes both to sustainability and employability. By providing such a holistic experience, universities can capitalise on the potential of sustainability-related informal learning to contribute beyond the current stand-alone ‘volunteering module’ or HE award scheme. Explicit efforts to link the formal and informal curriculum (for example, through sustainability placements, campus-based projects or portfolios in which students reflect upon extra-curricular activities) can go some way to overcoming the view that ‘the typical campus is mostly regarded as a place where learning occurs but, itself is believed to be the source of no useful learning’ (Orr, 1993: 597).

### **Pedagogic evolution – EfS at the heart of the HE system**

This discussion of different curricular possibilities has illustrated the potential for EfS to play a significant role in the twenty-first century HE landscape. However, bringing EfS to life is no small task, given the scale and complexity of HE systems, which are influenced by various educational, political and financial agendas (Corcoran and Wals, 2004a; Wals and Jicking, 2002). Academic autonomy is enshrined at institutional and disciplinary level, which protects innovation but can also be an excuse to resist change (Bawden, 2004; Corcoran and Wals, 2004b; Cotton and Winter, 2010). If sustainability as a component of the curriculum is controversial, EfS as a pedagogic approach, touching all forms of learning and all levels of the curriculum, is even more so.

One of the challenges to be addressed is the need for clearer articulation of the ways that EfS principles relate to existing educational literature and academic practice in HE. Too often, EfS appears to present a ‘special case’ for pedagogic change, with a remedy that can be applied equally in all parts of the HE system. In fact, some pedagogic approaches fundamental to EfS, such as critical thinking, are part of the discourse and practice in many HE disciplines (Barnett, 1997; Moon, 2005). However, other pedagogies advocated for EfS are not in widespread use in HE and there may be practical or philosophical limitations to their use in some disciplines (Cotton *et al.*, 2009). This includes approaches such as clarifying personal values, envisioning more positive and sustainable futures, thinking systemically and exploring dialectics between tradition and innovation (Tilbury, 2011b). Universities have been built around transmissive and didactic models of learning, devised for the efficient transfer of abstract (academic) knowledge from teacher to student. Personal and societal transformation has not traditionally been an imperative, positioned as central to the purpose of educational business, yet it underpins EfS.

Many prominent commentators have insisted that EfS should have transformative intent. The concept of transformative learning originated in adult education and encompasses a range of participatory pedagogies to promote critical self-reflection, leading to transformed ‘habits of mind’ (Mezirow, 2000). Arguably, any university education worthy of the name should be transformative:

students should see the world differently at the end of their course of study (Barnett, 2011). However, the appearance of transformative learning in HE is relatively new and its models may need refinement to support effective EfS. As Sterling has observed, transformative learning must engage the intellect alongside affective and existential domains, encouraging empowerment and action. Surface approaches – ‘the mainstream emphasis on cognitive learning, with a little “values education” thrown in’ – simply will not suffice (Sterling, 2011: 27). Truly transformative education involves integration and change, as outlined in Gregory Bateson’s work on third-order learning (Bateson, 1972). This moves beyond first-order change (‘doing things better’) and second-order change (meta-learning – or ‘doing better things’), to ‘seeing things differently’, where engagement with ethical frameworks, belief systems and interpersonal relationships is deeply implicated.

The benefits of connecting EfS and transformative learning are easy to anticipate, in the pursuit of higher-order learning that entails links with the wider community as well as the ability to deal with complexity and uncertainty (Cranton, 1996; Sterling, 2011). In many ways, transformative learning provides a model for effective education in the twenty-first century and its applied, action-oriented tenets are appearing in influential educational forums and dialogues, such as the 1996 International Commission on Education for the Twenty-First Century report to UNESCO, *Learning: the Treasure Within* (Delors, 1996). Its value for EfS is reflected in the 2011 publication of *Learning for the Future: Competences in Education for Sustainable Development*, produced by an expert group for the UNECE Steering Committee on Education for Sustainable Development, drawing on the four Delors educational principles: *learning to know, learning to do, learning to live together, learning to be*.

Given the increasing range of influences on HE, concerns have been raised about ‘how far mainstream higher education is able to provide transformative learning experiences, or whether [they are] inevitably associated with innovative learning environments outside the constraints of conventional education’ (Sterling, 2011: 17). It is profoundly challenging to attempt to develop more democratic and innovative approaches to pedagogy in a system which is not itself democratic and is under considerable structural pressure. In the UK, consumerist economic pressures and the persistence of managerial ideologies (Deem and Brehony, 2005) engender certain types of staff performativity and discourses around student employability, which have serious implications both for EfS and for HE in general (Blewitt, this volume; Sterling, this volume). However, there may also be some unanticipated benefits for EfS in the ‘performance culture’ of leagues and rankings, which has also permeated the sustainability agenda. These schemes can support EfS through informal learning, campus greening and ‘whole-institution’ development for sustainability, as in the UK *Learning In Future Environments* benchmarking initiative and People and Planet’s *Green League*.

Rapid globalization, ICT advances and economic crisis are profoundly affecting the ways that universities design and deliver education, prompting

changes in learning models and relationships. HE is being forced to reconsider traditional approaches to teaching and to refresh its curricula and pedagogies in ways that could provide strong foundations for EfS. There are indications that the current system serves particular interests: for example, the ongoing underperformance of male and ethnic minority students at all levels is a growing concern (Richardson, 2008). Yet there is evidence of a shift to more democratised modes of learning, as cohorts become more diverse and hierarchies between lecturers and students begin to dissolve. Policy trajectories that support the commodification of learning tend to encourage passive forms of education and inhibit the creative curriculum development needed to address the issues students will face in their future lives and workplaces. Yet there are significant drivers for EfS, not least from students and employers concerned about the need for literacy and capability to deal with global sustainability challenges. The twenty-first century HE landscape offers opportunities as well as risks for EfS, and there is growing awareness of the need for learning cultures that foster enquiry, challenge, flexibility, connectivity and responsibility (Barnett, 1997; Boyer, 1990). As this need increases, EfS can help the HE system to achieve the transformation it requires. Taking this systems view, ‘sustainability is not just another issue to be added to an overcrowded curriculum, but a gateway to a different view of curriculum, of pedagogy, of organisational change, of policy and particularly of ethos’ (Sterling, 2004: 50).

## **Conclusion**

Arguably, HE is approaching a tipping point, but despite the many constraints upon the system, we remain optimistic about the potential for EfS to thrive within it. The HE system is in flux and if there was ever a time for evolutionary change, perhaps it is now. In this chapter we have attempted to draw attention to the ‘feasible utopias’ (Barnett, 2011: 4) that can already be glimpsed in our universities, offering great promise and possibility for a different kind of education. Piecemeal approaches may not survive the larger shifts affecting HE, but an infusion of EfS thinking and practices could help to protect the best of our educational traditions and recent learning innovation. For those who think progress in EfS may have stalled, that the agenda has been corrupted, or that nothing will ever shift the HE curriculum, a historical view might suggest that the sustainability agenda has rapidly achieved a substantial presence in public life and educational practice. As Kuhn’s original model of scientific ‘crisis’ and ‘wars’ showed, significant paradigm shifts do not take place quickly (Kuhn, 1962). EfS is informed by several fields of thought and practice, so to expect revolution without strategic effort and systemic change would be unrealistic.

Two key messages are important if this movement is to continue to evolve. First, EfS needs to be more effectively positioned in relation to the broader pedagogic development literature and strategic approaches to curriculum change. Engagement with entire communities of practice and scholarship will be

essential for future EfS, within teaching teams and institutional settings, with external organisations and international subject associations. The emphasis on reframing individual practices must not be to the detriment of efforts to shift education paradigms in terms of the systems themselves (Sterling, 2004; 2011; Tilbury, 2007; 2011b). This means increasing the level of dialogue and engagement with other movements for educational change, to avoid EfS being seen as a special political petition and becoming marginalised from the core educational concerns and practices of HE.

The second key issue is the need to consider all dimensions of curriculum and pedagogy. Universities are places of inspiration and creativity, and if EfS is to become part of the mainstream, it must engage all parts of the system. This means finding its place in contributing to academic innovation, institutional change and improved learning environments. It requires pedagogic approaches that enable EfS to flourish in the formal curriculum and through informal learning. Proactive support and continued dialogue will be needed, within universities and across the sector, to ensure that conceptual changes are translated into action on the ground. All of the key UK sector agencies and funding councils have shown willingness to join the vanguard and support change in this area, through funding schemes, formal declarations and practical support – a sign of their trust in the importance of the issue.

This chapter has sought to unpack issues that merit further attention in order to progress understanding of EfS and ensure its place in the future of HE. Its role in this book is as part of a holistic system, in which each component contributes to the growth of effective EfS, which in essence should mean effective learning in general. Connecting informal and formal learning, integrating learning across different parts of HE institutions and shifting boundaries between universities and their surrounding communities, using the full range of EfS pedagogies and understanding the change processes involved, are all crucial to this endeavour. Conceived in this way, EfS offers a vision of education that would serve the global community well. To move in this direction will be neither swift nor easy, but it will be a satisfying journey.

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