Embedding education for sustainable development in Initial Teacher Training in the Lifelong Learning Sector

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Abstract
Over the last twenty years, there has been growing international recognition of the importance of education in encouraging sustainable development. There is now a plethora of action plans and strategies from various Government departments expecting teachers to play an important part in this and, in the Lifelong Learning Sector, providers are expected to embed sustainability within their provision from 2010.

This paper explains how the teacher education team at Somerset College, as part of the University of Plymouth partnership which provides the Professional Graduate Certificate in Education/Certificate in Education which incorporate the Diploma in Teaching in the Lifelong Learning Sector, embedded Education for Sustainable Development within these programmes. They used a co-operative inquiry approach to carry out the professional and curriculum development required and are now sharing this within the partnership and further afield. The main focus of this paper is the Education for Sustainable Development curriculum development undertaken; a forthcoming paper (Summers and Turner, in review) will explore the co-operative inquiry process and how this supported the development.

Key words
Education For Sustainable Development; Teacher Training; Lifelong Learning Sector.

Introduction
There is mounting concern about climate change and global warming and overwhelming evidence that human activity is very likely to be the main contributor with the effects being felt worldwide (Canadell, Le Quéré, Raupach, Field, Buitenhuis, Ciais, Conway, Gillett, Houghton and Marland, 2009; Solomon, Plattner, Knutti and Friedlingstein, 2009; Intergovernmental Panel on Climate Change, 2007). As far back as 1972 there was awareness of the importance of balancing social and economic developments with concern for the environment (UN, 1972). The influential Brundtland report, 'Our Common Future' (WCED, 1987), led to the emergence of the concept of Sustainable Development (SD) and the intergenerational responsibility required to meet the needs of the present without comprising the needs of future generations. The recognition that education is a key tool for this was outlined in Agenda 21 (UNCED, 1992), which calls for teaching, learning and assessment processes that emphasise values, attitudes and ethical awareness. This was reinforced when the UN launched its Decade of Education for Sustainable Development (ESD) in 2005 and expressed the importance of a values approach to encouraging the changes in behaviour required and a focus on the principles of the Earth Charter (Earth Charter International Secretariat, 2000) as an important ethical framework and educational tool.

In the UK, sustainability is now a key concept in government policy and the Department for Innovation, Universities and Skills (DIUS, 2008), the Department for Children, Schools and Families (DCSF, 2008), the Office for Standards in Education (Ofsted, 2008a; 2009), the Higher Education Funding Council for England (HEFCE, 2005), and the Learning and Skills Council (LSC, 2005) are all looking to teachers to take the lead. However, the Government has many other priorities and Scott (2002) is a little sceptical about their commitment:

> *'It prefers to stress ICT, literacy and numeracy on the grounds, perhaps, that as the good ship Humanity finally steams into the icebergs, we will at least be able to send grammatical SOS messages, read the instructions on the lifebelts, and count the survivors. Of course, if all the prognoses about global warming are correct, there won't be any icebergs and we shall need a new set of metaphors'.*
>
> (Scott, 2002: p. 5)

Nevertheless, in 2000 the Government set up the Sustainable Development Commission (SDC) as an independent adviser and critical friend and their expectation is that SD principles will lie at the core of the education system and schools, colleges and universities will become exemplars of SD within their communities (HMSO, 2005). Although the SDC recognises the importance of a focus on values as well as knowledge and skills (SDC, 2006), this is not apparent in the various strategies and action plans detailed and, perhaps unsurprisingly, the LSC's (2005) main focus is on SD skills which they are expecting their providers to embed in education and training programmes so that all learners can acquire them, with no mention of knowledge or values. However, although the importance of values is not specified, Ofsted's (2009) 'Common Inspection Framework for FE and Skills', is expecting to see evidence of the development of the skills, knowledge and understanding of learners in future inspections as they will be investigating whether learners make a positive contribution to the community:

> *'To make their judgements, inspectors will evaluate the extent to which:*
> - *learners are involved in additional community-based development activities and projects*
> - *learners develop skills, knowledge and understanding relevant to community cohesion and sustainable development'.*

(Ofsted, 2009: p. 9)

Although these plans and strategies are important first steps, they must be more than simply rhetoric. As Orr (2004) reminds us, colleges and universities have had a huge influence in promoting the domination of nature required to encourage industrialisation which has caused the current environmental crisis and he details the centuries of hard work necessary to clean up the mess and bring the earth back to health. However, as he states, *'we still educate at all levels as if no such crisis existed'* (Orr, 1992: p. 83). If we, as one of the advanced industrialised societies, are to learn to live more sustainably, promote social justice, and produce and consume in a way which is less damaging to the environment, then we need to take a more radical approach to education (Huckle, 2006). This will require eco-centric rather than anthropocentric values and a focus on the role of community, active citizenship and democracy. Instead of efficiency we should be aiming for sufficiency, as Gandhi explained:

> *"Earth provides enough to satisfy every man's need, but not every man's greed".*
>
> (cited in Schumacher, 1973: p. 34)

This questions the concept of sustainable development outlined in the Brundtland report (WCED, 1987), which calls for economic development to solve problems of economic degradation and poverty in the Third World. If development requires the further extraction of raw materials from the earth then, as Harding (2006: p. 232) suggests 'sustainability and development are contradictory concepts'. He calls for the use of raw materials to be reduced or at least kept at a 'steady-state'. The problem for us in the so-called developed, or perhaps over-developed, world is that we have become used to satisfying our greed rather than our needs and we now have to challenge this. As Selby (2007: p. 249) argues 'the heating is happening' and he calls for 'education for sustainable contraction', in which we accept the climate change threat, move away from the current denial (Selby, 2007: p. 265) and respond to the need for transformation. However, one of the key difficulties in determining how ESD might enable the creation of a sustainable society is that it is such a difficult concept to define:

> *'…at present no country is sustainable or even closer…Nobody knows how to meet these new demands. There is no proven recipe for success. In fact, no one has a clear sense of what success would be. Making progress towards ways of living that are desirable, equitable and sustainable is like going to a country we have never been to before with a sense of geography and the principles of navigation but without a map or compass. We do not know what the destination will be like, we cannot tell how to get there, we are not even sure which direction to take…'*
>
> (Prescott-Allen, 2002: p. 2)

Nevertheless, it is time we stopped thinking that the earth is there to be plundered. To enable us to move towards an equitable and sustainable way of life and accept the change in lifestyle required, we need a radical approach to education. As Schumacher noted:

> *'The volume of education…continues to increase, yet so do pollution, exhaustion of resources, and the dangers of ecological catastrophe. If still more education is to save us, it would have to be education of a different kind: an education that takes us into the depth of things.'*
>
> (1973, cited in Sterling, 2001: p. 21)

Although national and international policies suggest education is the key to addressing environmental issues, the main focus of our education is to 'compete and consume' rather than to 'care and conserve' (Sterling, 2001: p. 21). Orr (2004) also questions the current purpose of education when so much of what we depend on in terms of our future health and prosperity are in jeopardy and considers it is the work of educated people which has got us into this state. He suggests that educational institutions should be judged on what their graduates do following their education which should:

> *'…be measured against the standards of decency and human survival – the issues now looming so large before us in the twenty-first century. It is not education, but education of a certain kind, that will save us.'*
>
> (Orr, 2004: p. 8)

He calls for a rethinking of education as a holistic developmental process with a focus on knowledge, responsibility for using that knowledge, teachers and educational institutions as role models and more learning within the environment:

> *'Courses taught as lecture courses tend to induce passivity. Indoor classes create the illusion that learning only occurs inside four walls, isolated from what students call, without apparent irony, the "real world". Dissecting frogs in biology classes teaches lessons about nature that no one in polite company would verbally profess.'*
>
> (Orr, 2004: p. 14)

This demonstrates the importance of considering the messages which are being transmitted through the hidden curriculum and are encouraging students to become passive in their interaction with the natural world. We need to move from a limited focus on education for jobs towards a broader focus on working towards building a society and economy which is ecologically sustainable (Sterling, 2001). This will require a move from transmissive learning, focusing on information, efficiency and effectiveness, towards Sterling's transformative approach which encourages a creative and deep awareness of different world views and how to promote change.

The local context

As the manager of teacher education provision at Somerset College in 2007, it was Sterling's (2001) call for a transformative approach to education which first encouraged me to consider how I could integrate ESD within our curriculum and the LSC's (2005) strategy for all their providers to embed SD skills in education and training by 2010 which provided the policy imperative.

Somerset College has been pro-active in focusing on ESD by developing the 'Genesis Centre' which initially started out as an assignment by construction students. Its aim was to provide a resource for the construction industry to promote new ways of thinking and building through its use of sustainable materials in its construction and renewable energy sources for its power. Genesis has served as an inspiration to many within the college community and I recognised the importance of including this within our provision to support our new teachers in developing develop ESD within their curricula.

Since 2005, I had been introducing ESD informally into the Professional Graduate Certificate in Education/Certificate in Education, which incorporate the Diploma in Teaching in the Lifelong Learning Sector, offered in partnership with the University of Plymouth and other Further Education Colleges in South West England, to teachers in the Lifelong Learning Sector. However, it was not an assessed part of the curriculum, and so it was not essential for the student teachers to engage with it and, unless they developed a particular interest, it had limited effect on their teaching practice. To explore what they felt about the introduction, students were asked to complete a questionnaire to inform future course developments. There was a 75% response rate from the 20 students involved. Of these, seven felt their understanding had been enhanced 'a lot', eight 'a little' and three felt it had not influenced them at all professionally, although one mentioned greater understanding of global issues and would share this with students, when appropriate. Other responses ranged from being more aware of the subject, not wasting paper and turning off lights in classrooms, to feeling more confident about exploring ESD more deeply in order to develop their curriculum. Four respondents were actually developing ESD within their curriculum and three others wanted to do so but needed more support.

When asked what might support them in this, the majority needed more suggestions and resources, in order to help them move from theory to practice. When asked about barriers to including ESD, seven mentioned 'time', four mentioned 'concern about lack of knowledge' and one mentioned 'reluctance and prejudice from students'. The majority of the respondents felt more time could be devoted to ESD within the programme, some wanted more suggestions and others felt it should be a formal part of the curriculum. Twelve of the students felt the introduction had affected them personally. Overall, the message seemed to be that the introduction had affected the majority to various extents, although only a minority had actually started to integrate it within their own curriculum and the majority felt they needed more guidance.

As teacher education programmes for the Lifelong Learning Sector were being rewritten for September 2007, due to changes in Government policy (DfES, 2003 and 2004) which require a fully qualified teaching profession within the Lifelong Learning Sector based on meeting the Lifelong Learning UK (LLUK) Professional Standards (LLUK, 2007), the time was right to make ESD an underpinning theme of the new programme. Based on the content of an article written by Dr Ken Martin, Harriet Sjerps-Jones and myself (Martin, Summers and Sjerps-Jones, 2007) entitled 'Sustainability and Teacher Education', my recommendation that ESD should be an integral part of our indicative syllabus content and have a specific learning outcome in at least one of the six modules was agreed and all students now have to meet the following outcome in the second year of the programme:

> *'Understand and demonstrate how to apply theories, principles and models of Education for Sustainable Development within own professional practice.'*
>
> (University of Plymouth, 2007: p. 25)

At that stage, ESD had only been introduced into one module of the programme and the only students introduced to it were those I was teaching. As it is important that it is not seen as a 'bolt-on' extra and is embedded throughout the curriculum (Dawe, Jucker and Martin, 2005), it was important to address this imbalance and consider the development needs of the whole team. Recognising that teacher educators often have many years' experience and strongly held professional values underpinning their teaching practice, it was important to explore how the team felt about engaging with ESD, as this would play a crucial part in encouraging their student teachers to do so within their own curricula. This was discussed at an annual away day in 2007, where we reflected on the previous year and made plans for the future. Although each of the team members had an interest in ESD, there was a lack of confidence and understanding in how we might integrate it into, what had become, an increasingly mechanistic curriculum. As each of us had different levels of knowledge and experience, although we shared similar values, the development we required was to share this and work together to consider ways in which we could thread ESD throughout our curriculum.

It was decided that an appropriate way forward was through an action research, co-operative inquiry approach (Heron and Reason 2001). This approach involves each member of the team acting as co-researchers and co-subjects moving through a series of cycles of action and reflection (Summers and Turner, in review). This participatory and democratic approach was particularly appropriate in meeting the aims of embedding ESD within the team's practice. In regular meetings, the team shared ideas, experiences and resources, drew up action plans, and each member of the team reflected on their progress with these actions, and this informed the following meeting. The importance of the co-operative inquiry approach which encouraged a collaborative approach within the team was essential in enabling these developments to take place. During the

first year of the project, the team developed session plans and resources to be used in four of the six modules that were further developed during the following year informed by the team's critical reflections on previous attempts and feedback from students.

Curriculum developments

We have now embedded ESD into each of the six modules. In the first module, alongside the usual session in which the development of teaching/learning resources was explored, students are now also encouraged to consider the sustainability of their resources, adapting an activity from the 'Linkingthinking' resources for teachers (Sterling et al, 2005). They were also introduced to the concept of sustainable communities of practice (Stuckey and Smith, 2004) to encourage student teachers to identify colleagues from whom they can receive support, and as they develop, provide mutual support to avoid the isolation that new teachers often experience (Summers, 2005).

In Module Two we encourage students to focus on 'sustainable assessment'. Boud (2000: p. 151) recognises the need for summative assessment for certification purposes, but also calls for a greater focus on formative assessment to encourage 'sustainable assessment' which he links with the Brundtland definition of 'sustainable development' by defining it as 'assessment that meets the needs of the present and prepares students to meet their own future learning needs'. By encouraging students to make the processes of formative assessment their own, rather than what they are subject to, and preparing them to self assess their progress throughout their lives and seek feedback from a range of sources including their peers and other practitioners, as well as written texts, this will encourage their development as effective lifelong learners and assessors, reducing their reliance on teachers and other more formal sources of advice. Alongside this, they also explore different methods of assessing their carbon footprints which they relate to the development of other assessment opportunities within their subject areas.

In the third module, students consider the use of Bloom's Taxonomy in relation to ESD values, which is followed up by encouraging them to consider how they might use this model with their students to explore values relevant to their own subject specialism. Also, alongside a session on classroom management in which behaviourist strategies are discussed, the concept of non-violent communication (Rosenberg, 2003) is considered as an alternative, humanist approach to behaviour concerns.

In the fourth module students explore ESD in more depth and are introduced to the policy context and relevant texts. We also encourage them to develop their critical thinking and consider the bigger picture in relation to issues of concern, again using the 'Linkingthinking' (Sterling et al, 2005) materials. The students explore a range of materials and resources to support them in developing creative ideas to introducing ESD within their own subject areas as, in this module, they are required to meet the outcome above, in which they develop a rationale for including ESD in their practice and plan a lesson and resources to demonstrate this.

In the fifth module students explore different curriculum ideologies and consider how their practice relates to the transformative approaches required by Sterling (2001), Orr (2004) and Huckle (2006), as well as the holistic curriculum encouraged by Miller (2007). This encourages a deeper exploration of their own curricula and how these may be developed.

In the final module, the introduction to non-violent communication is developed in relation to community cohesion and cultural diversity, which is recognised by Ofsted (2008b) as an area requiring development. Students are also guided to David Orr's chapter on 'Rating colleges' in *Earth in Mind* (2004) to consider how they might develop their quality procedures, (which is the focus of this final module), to consider the environmental and social, as well as the economic impact, of their students on their communities following the completion of their programmes of study.

Evaluation

The process of staff development has continued through regular co-operative inquiry meetings over a two year period to enable the team to further develop the knowledge, values and skills base to embed ESD confidently within their practice. Having trialled the programme, it is now providing the basis for a number of regional and national staff development opportunities to promote not only the embedding of ESD into teacher training programmes, but also to encourage the appropriate co-operative learning mechanisms that have worked so well within their team. The process by which this Initial Teacher Training programme has been redesigned and developed through a team based co-operative learning process is an example of how not only the curriculum needs to change along with teaching/learning methods, but also how the teacher's own epistemology also needs to be challenged.

Two groups (at the time of writing) have experienced the embedding of ESD right through the programme and their feedback has provided further evaluation data to inform future developments. Comments from the majority of students were very positive and included feedback on their gaining knowledge and developing resources to introduce sustainability to their students, demonstrating that as teachers they are able to bring about change in a professional and educational context. However, a few of the comments were less positive and suggested there was too much focus on ESD, whereas some felt they needed more practical support in developing plans for their own practice. The team considered student reaction to all developments throughout the co-operative inquiry, which enabled them to adjust and refine their practice throughout.

The first student teachers to meet the ESD outcome have now presented an impressive range of work for vocational, academic and leisure programmes and they have planned lessons, activities and resources which encourage their students to become aware of sustainability issues within their subject areas. Responses to their questionnaires show they have developed their understanding and improved their confidence considerably and now feel able to introduce ESD to their students. Although some already had an interest in ESD, one stated that when I first started talking about it, she thought 'another tick box exercise to get the qualification'. However, as we explored the subject and she started researching her own subject area, she wondered why she had never considered talking to her students about how the silver they use in their jewellery making was produced. She is now able to introduce them to the way in which silver is mined, the environmental waste caused and the conditions in which miners work and feels this encourages them to value their resources, rather than just clicking on a website to order the silver they need, with no thought of how it is sourced.

Although we are still collecting data to analyse the effects on our students and their curricula, there has been an overwhelming interest and engagement with ESD and development has been both personal and professional. However, we have also had less positive responses to our initial introductions in the first modules, as students have remarked on the amount of paper we generate on the course. This is a constant concern as we have to balance the need for learning resources and the evidence requirements of the course, although we are taking steps to use the college's virtual learning environment to share resources where appropriate. It was also felt that we should have emailed questionnaires, rather than using more paper and we shall do this in future, although we shall also need to compare response rates, as when we have used paper, students have completed them in class, ensuring a healthy response rate.

What next?

We shall continue to disseminate our work throughout the University partnership as well as further afield through the national Centres for Excellence in Teacher Training.

We are now moving towards the regular re-writing of our programme and this will involve changing from only core modules to core plus enhancement modules which students will be able to choose from. Although one of these will focus on ESD, we are working to ensure that it is also embedded in each of the core modules, and the enhancement module will be available for those who wish to explore the subject further.

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