Introduction
Achieving sustainable development is a fundamental challenge facing all societies in the twenty-first century. Recent commitments at national and international levels, such as the declaration by the United Nations of the period 2005-14 as the Decade of Education for Sustainable Development, have put a spotlight on education for sustainable development (ESD). They also provide a major stimulus and opportunity to integrate it into education strategies and action plans.

The key questions that should be considered when introducing geography PGCE students to ESD are:
- What is education for sustainable development?
- How does the teaching of geography link with ESD?
- What teaching and learning approaches best support ESD?
- What qualities do PGCE students need to develop in order to provide effective ESD in school geography?

What is education for sustainable development?
The term sustainable development grew out of the work of the United Nations - particularly the work of the World Commission on Environment and Development (WCED) set up in 1983. The WCED report *Our Common Future* (1987) defined sustainable development as 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs'. Agenda 21, which arose from the Rio Convention in 1992, created the link between education and sustainable development.

However, the concepts and definitions of 'sustainability', 'sustainable development' and 'education for sustainable development' are complex and contested. There is a wealth of literature setting out a range of interpretations. It is important that PGCE students interrogate the rhetoric of ESD, appreciate the range of views and political perspectives, and reflect on their own experience, ideas, values and attitudes to clarify their own views.
A starting point for an exploration of viewpoints could include John Huckle's (1983) discussion of environmental ideologies, and his briefing paper on ESD on the TDA website. Stephen Sterling (2001) and William Scott and Stephen Gough (2003) explore, in different ways, the relationship between learning and sustainable development. Other aspects of ESD are given by:

- David Hicks (2001) who demonstrates the link between ESD, citizenship and a futures perspective;
- Daniella Tilbury (1997) who emphasises the need for teaching values for sustainable living; and
- John Morgan (2000) who argues for a social and political perspective to teaching for a sustainable society.

In addition the UNESCO website offers information on the background, concepts and objectives of ESD. The report of the Panel for Education for Sustainable Development (1998) sets out seven principles of ESD and links them to learning outcomes.

How does the teaching of geography link with ESD?

‘Geography enables well-informed judgements about environments and supports an understanding of sustainable development’ (GA position statement 2003).

That geography can make a major contribution to ESD in the school curriculum is not in doubt, as the GA’s position statement and many of the texts listed above make clear. The geography national curriculum (DfEE, 1999) contains a requirement to explore the idea of sustainable development and recognises its implications for people, places and environments and for students' own lives.

The new Geography National Curriculum for Key Stage 3, required to be taught in schools from September 2008, highlights ‘Environmental interaction and sustainable development’ as one of the seven key concepts for the subject. This involves an exploration of sustainable development and its impact and an understanding of the dynamic inter-relationships and tensions between physical and human geographies.

The new secondary curriculum also promotes a number of (non-statutory) cross-curricular dimensions which include the global dimension and sustainable development. It is intended that these cross-curricular dimensions will be built in to the wider curriculum in order to providing opportunities for young people to ‘...make sense of the world...’ and to provide ‘...real and compelling contexts...’ for developing cross-curricular skills such as literacy and thinking. (QCA 2007)

What teaching and learning approaches best support ESD?

Many teaching and learning strategies already used in school geography encourage effective ESD. These include approaches that:

- are learner centred
- develop autonomous and critical thinking
- develop skills of enquiry, creativity, imagination, and collective decision making
- use a range of text and media resources

These all contribute to the ability of students to envision the sort of future that they want for themselves and for society.
However there are persuasive arguments that suggest we need to go further than this. We have already noted John Morgan's (2000) argument for incorporating sociology and politics into ESD and Stephen Sterling's (2001) which urge a paradigm shift from transmissive to transformative learning, so that students can see different ways of taking action.

David Lambert and David Balderstone (2000) note that effective ESD implies technically challenging teaching, requiring teachers to get students to participate in a culture of argument, in which they take an active participatory role in coming to group and individual responses to questions. David Job, Clare Day and Tony Smyth (1999) comment on the fact that ESD frequently raises issues and problems that seem beyond our control, leading some students to feel anxious or insecure about the future. They suggest that fieldwork in the local community can help counteract this by encouraging students to look critically at their everyday lives and surroundings – and look at ways of articulating their concerns.

Alun Morgan (2006) explores the futures orientation of sustainable development, arguing that, as yet, we do not have a vision of what a sustainable society will require and so we need to educate students to think positively about their future role and actions.

The ideas above are followed through in other Think Pieces on ESD and overlap with ideas in other Think Pieces (Citizenship and Fieldwork) and Orientation Pieces (Research).

Recent Government Initiatives
In response to the UK Government's sustainable development strategy 'Securing the Future' (2005), the Department for Education and Skills have produced a sustainable development action plan, a key strand of which is for all schools to become models of sustainable development for their communities.

To help schools achieve this, a Sustainable Schools Framework was launched in 2007. The framework, which is supported by a sustainable schools web service and a school self evaluation tool linked to Ofsted's self evaluation headings, features eight 'doorways':

**Environmental action:**
- food and drink
- energy
- water
- purchasing and waste
- buildings and grounds

**Social action:**
- inclusion and participation
- local well-being (local citizenship)
- the global dimension (global citizenship)

These actions can have learning benefits (fitter, more alert pupils), and economic benefits (lower bill for utilities), and the good practice demonstrated in schools can spread via parents, school suppliers and through the local community.

Schools are encouraged to draw these activities together, highlight opportunities for school improvement, and link them to other agendas such as 'Every Child Matters' (for instance by giving pupils the opportunity to act positively to shape society and their own future).
What qualities do geography PGCE students need to develop in order to provide effective ESD in school geography?

The above discussion suggests that PGCE students can be most effective in teaching about and for ESD in geography when they:

- can investigate and interrogate the discourse of ESD
- have developed a critical and holistic understanding of ESD
- have reflected on and analysed their own views of ESD
- can apply this understanding to planning, using and evaluating classroom materials (which meet curriculum requirements) in ESD
- are prepared to rethink ways of teaching geography that take account of complex social and political issues
- can move from promoting transmissive learning to promoting critical and creative transformative learning

and are equipped to:

- tackle difficult, controversial issues where there are a range of alternative answers
- deal with the anxiety that might arise in students from the studying of these issues.

Ideas for addressing ESD in PGCE sessions

1. Drain or sustain?

This activity encourages PGCE students to think about the concepts underpinning sustainable development:

1. Divide the PGCE students into groups of four. Each group is a 'community'.

2. Give each community a pile of 16 pebbles. Each pile of pebbles represents a valuable renewable resource. The resource is replenished after each round of play.

3. In each round, each community member can take freely from the pile (but must take at least one pebble from the pile in each round in order to survive). At the end of each round one member of the community records how many pebbles are left in the pile; an equivalent number of pebbles is then added to the pile.

4. After four or five rounds, stop the game and compare notes between the communities using the following questions as a guide:
   - In which communities did some members not survive (i.e. were not able to take at least one pebble)?
   - Which communities had the most pebbles left in the resources pile at the end of the game?
   - Which communities are confident that they will always have enough pebbles for everyone providing the pile is renewed each round? How did these communities arrive at this point?
   - What strategies were used? Was there a leader in these communities? If so, why did the community listen to that person? Could these communities have reached 'sustainability' without communication?

5. Compare per capita pebble ownership around the room. Which individual had amassed the most pebbles? How did he or she accomplish this? Did this keep others from surviving? Where do we see this sort of greed in the real world?
6. Concluding discussion points:

- What information is necessary to know how to manage a resource sustainably (e.g. community size, resources renewal rate, environmental carrying capacity)?
- What is actually needed to put that information into practice (e.g. leadership, legislation, trust)?


2. Exploring concerns about teaching sustainable development

This activity uses a recent research report as a starting point for sharing PGCE students' concerns about teaching sustainable development. Students then work collectively to find some possible ways forward.

1. Ask the PGCE students to read the article by Graham Corney (2006) 'Education for sustainable development: an empirical study of the tensions and challenges faced by geography student teachers' (http://geography.org.uk/download/GA_PRGTIPRGECECorney.pdf) in IRGEE 15, 2 pages 224-240. To what extent do they personally identify with three areas of challenge mentioned?

2. In small groups, share individual feelings. Are some tensions/challenges more widely held than others? Can any causes be identified?

3. Look at Corney's list of actions to address the challenges. Suggest any further actions that might be added to the list. Taking one action, develop more fully (perhaps on a poster) a way of implementing this when teaching about sustainable development at KS3.

4. Share ideas as a whole group.

5. Plan to implement the action in a lesson that includes an aspect of sustainable development.

6. Follow up session: evaluate the success of action.

Further teaching ideas are provided below

Bibliography
Hicks, D. (2001) 'Envisioning a better world', Teaching Geography, 26, 2, pp. 57-60

**Links**

[ESD Toolkit](#) - an ESD teacher initiative in USA that provides ideas and activities.

**Further teaching ideas**

Unesco's [Teaching and Learning for a Sustainable Future](#) is a free multi-media teacher education programme that contains information and ideas for teacher educators and teachers.

The GA's [Teaching Geography](#) journal regularly provides teaching ideas for delivering ESD within geography, examples include:

- 2001: April - Special focus on 'Teaching and learning about citizenship and sustainable development', and October - 'Citizenship and sustainable development through geography' (Smyth) and 'The CLIMATE conservation project' (Murray)
- 2002: January 'Sustainable tourism in the Peruvian tropical forest' (Newman), April 'Putting your foot in it' (Heath), July 'Sustainable development and the curriculum 2000' (Wade) and 'Investigating sustainability while maximising student use of ICT' (Treonor)
- 2003: January - 'An environmental audit' (Bartlett) and 'Interpreting the Eden Project' (Ross), July - 'The Green Variety Show 2003' (Smith, Sugden and Walker), October - 'An environmental challenge for gifted and talented students' (Craven and Best), 'Empowering students with futures geography' (Johnston) and 'A greener future for farming' (Graham)
- 2004: January - 'Different but equal: global citizenship post 16' (Storey)
- 2006: Spring - 'Plastic bags: A sustainable change?' (S Waddington), 'Kangaroo: Sustainable meat and leather or cute tourist icon?' (C Rawding)
- 2007: Summer - 'Unsettling settlement' (A Willson)


Job, D. et al. (1999) as above (ideas for developing education for sustainable development through fieldwork).


**Journal Abstracts**


**Articles from other TDA support sites for ITE**


In this article John Huckle (ESD consultant, formally taught at de Montfort and South Bank Universities) explores the links between ESD and education for global citizenship in the context of citizenship education. He begins by setting the DfES Action Plan for ESD in the context of recent history and the reconfiguration of political power.