



Education for sustainable development

**Draft guidance for UK
higher education providers**

For consultation

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About this publication

This guidance has been prepared by representatives of the higher education community with expertise in education and sustainable development. It has been produced in collaboration with the Quality Assurance Agency for Higher Education (QAA) and the Higher Education Academy (HEA).

The guidance is intended to be useful to higher education practitioners who plan to offer students the chance to think and learn about sustainable development as an element of their higher education experience. The guidance acknowledges that there are many ways in which this may be achieved and is not prescriptive about delivery. Instead it offers an outcomes-based framework, and general guidance on approaches to teaching, learning and assessment, which those with responsibility for designing and delivering programmes of study may find helpful. The guidance is intended to be relevant to educators in all disciplines wishing to embed or include learning about sustainable development across their curricula. It also includes signposts to additional information and resources.

This guidance is not part of the UK Quality Code for Higher Education (the Quality Code), but is intended to complement it. The Quality Code sets out the expectations that all providers of UK higher education are required to meet and is used explicitly as a part of QAA review processes. From time to time, QAA publishes guidance to complement the Quality Code, intended to be of practical use to educators who are concerned with particular themes or aspects of the educational experience.

Membership of the group that prepared this guidance is given in **Appendix 1**.

The guidance is intended to apply to all parts of the UK.

Introduction

This guidance is intended to serve as a reference point for educators working with students to foster their knowledge, understanding and skills in the area of sustainable development. It provides an outcomes-based framework for use in programme design, delivery and assessment across different disciplines. It relates primarily to undergraduate provision and assessment at level 6; however, it may also be helpful for those assessing at level 5 (including Foundation Degrees) and for supporting postgraduate provision.

There are two main strands to this guidance:

- the identification of **graduate outcomes** - what students will be able to know, do and understand after a period of learning covered by this guidance
- guidance on **teaching, learning and assessment** - the ways in which educators can enable students to achieve and demonstrate the graduate outcomes.

The guidance is not prescriptive about how education for sustainable development should be delivered, recognising that educators will be working within different local contexts, governed in some cases by broader institutional strategies. The guidance on teaching, learning and assessment includes indicative examples and educators are encouraged to use the 'Resources' section as a source of further information and advice.

Definitions

The term 'sustainable development' is subject to many different interpretations and definitions. For the purpose of this guidance, it is defined according to the definition used in the United Nations Brundtland Report (1987)¹:

Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

The United Nations World Summit (2005)² affirmed the concept of three 'pillars' of sustainability - the economic, social and environmental factors that need to be taken into consideration, and their cultural context. There is increasing recognition that these three factors are interconnected, overlapping and interdependent. Drawing on both the 1987 definition and its 2005 recalibration, the present guidance defines education for sustainable development as follows:

Education for sustainable development means enabling students to develop the knowledge and understanding, skills and attributes needed to work and live in a way that safeguards environmental, social and economic wellbeing, both in the present and for future generations.

¹ Brundtland Report (1987) *Our Common Future: Report of the World Commission on Environment and Development*, United Nations http://conspect.nl/pdf/Our_Common_Future-Brundtland_Report_1987.pdf

² United Nations World Summit (2005) www.un.org/summit2005/documents.html

Education for sustainable development encourages students to:

- consider the concept of **global citizenship** and what this might mean in the context of their own discipline
- consider the concept of **environmental stewardship** and what this might mean in the context of their own discipline
- think about issues of **social justice and equity**, and how these relate to ecological and economic factors
- develop a **future-facing** outlook, learning to think about **consequences of actions**, and how systems and societies can be adapted to ensure **sustainable futures**.

Meeting evolving expectations about higher education

As societies and economies change and develop, higher education providers face the challenge of ensuring that graduates are equipped to meet the demands of the twenty-first century. In some instances, this will mean fostering knowledge, skills and attributes not specific to one particular discipline.

Education for sustainable development considers the wider socioeconomic and environmental implications of students' learning. It encourages different disciplines and specialisms to enter into dialogue, make connections, share knowledge, and work together on emergent areas³. The intellectual stimulus that this provides is likely to contribute positively to a higher education experience that seeks to promote independent learning and discovery. Working between and across disciplines may prove rich territory for exploring and developing novel ideas and for discovering new approaches to social, environmental or economic issues.

Learning for and about sustainable development issues offers students an opportunity to acquire a 'toolkit' for responding to existing and emergent sustainability challenges that they may face professionally, and in their lives more generally. Employers look to engage graduates who are able to understand and analyse problems, adapt or innovate practices, and devise workable solutions as the need arises.

Evidence suggests that students have a high level of awareness of sustainable development issues. A three-year longitudinal study carried out by the National Union of Students (NUS) and the Higher Education Academy (HEA) has shown consistently that over two thirds of students would like their programmes to cover sustainable development⁴. Gaining understanding and skills in this area may ease entry into new and evolving industries as well as having personal benefits for students who aspire to be more effective global citizens⁵.

³ European Commission High Level Group on the Modernisation of Higher Education (June 2013) *Improving the quality of teaching and learning in Europe's higher education institutions*, report to the European Commission

⁴ Drayson, R; Bone, E; Agombar, J; Kemp, S (2013) *Student attitudes towards and skills for sustainable development*, York: Higher Education Academy, third report in a longitudinal study of students' views (full 2013 report and executive summary)
www.heacademy.ac.uk/resources/detail/sustainability/2013_student_skills_final_report

⁵ Forum for the Future/UCAS (2008; last accessed 29 September 2013) *Future leaders survey* Online results of a survey of applicants to higher education
www.forumforthefuture.org/project/future-leaders-survey-200708/overview

Luna, H; Martin, S; Scott, W; Kemp, S; Robertson, A (2012) *Universities and the green economy: graduates for the future* York: Higher Education Academy

Graduates are more likely than other demographic groups to enter leadership roles⁶. Many other UK graduates will enter management positions and make decisions that have an impact on the environment, the economy and wider society. Graduates, irrespective of discipline, will also share responsibility for environmental stewardship - as employees, citizens and, in many cases, parents and mentors of the next generation. The important role that twenty-first century graduates will play in shaping the future is highlighted by these words from the European Commission's report on the *Modernisation of higher education*⁷.

...higher education institutions are the focal points for imparting what is known, interrogating what is not, producing new knowledge, shaping critical thinkers, problem solvers and doers so that we have the intellectual muscle needed to tackle societal challenges at every level necessary and advance European civilisation. Europe's graduates remain the most effective channels for transferring knowledge from universities and colleges into the broader society, enriching the individual, the family, the community, the workplace, the nation, the EU and the wider world.

Education for sustainable development helps to equip graduates for these responsibilities, wherever they decide to live and work.

The nature of education for sustainable development

Students are likely to have encountered elements of education for sustainable development in their primary and secondary education and thus may already be familiar with it. It is by no means novel or untested in higher education provision, being already successfully delivered in numerous programmes and settings. Research in relation to a wide range of disciplines has shown that educators who want to foster students' learning in this area can usually find the means of doing so⁸.

There is a distinction to be made between learning 'about' sustainable development (study of the issues), and learning 'for' sustainable development (learning how to do). Education for sustainable development comprises both elements. Students are encouraged to develop knowledge and understanding of relevant issues and to acquire the skills and attributes to be able to make a difference.

Acknowledging students as active participants in their own learning, education for sustainable development draws on their previous experience and higher level thinking skills, as well as ability to assimilate information from different sources. It develops their ability to understand and evaluate connections between such issues as inequality, public health, global consumption, biodiversity loss and the limits of natural systems. It is 'future-facing' in the sense that students are encouraged to think about not just current, but also emergent and future situations, relevant to their

⁶ Higher Education Statistics Agency (2013) *Destinations of Leavers from Higher Education Institutions 2010/11* www.hesa.ac.uk/content/view/2541/393/ - accessed 10 September 2013;

Matthews, David (2013) 'Alma mater index: global executives 2013', Times Higher Education, last accessed 23 September 2013 www.timeshighereducation.co.uk/news/alma-mater-index-global-executives-2013/2007032.article

⁷ European Commission High Level Group on the Modernisation of Higher Education (June 2013) *Improving the quality of teaching and learning in Europe's higher education institutions*, report to the European Commission

⁸ Cotton, D; Sterling, S; Neal, V; and Winter, J (2012) *Putting the 'S' into ED - Education for Sustainable Development in Educational Development* London: Staff and Educational Development Association (SEDA) www.seda.ac.uk/publications.html?p=5_2 (see SEDA special, number 31)

studies, thus gaining a wider socioeconomic and environmental perspective on the relevance and impact of their work.

Learning about sustainable development issues encourages students to be open to the possibility of multidisciplinary and transdisciplinary approaches to complex, interconnected issues. They learn to relate their own discipline to a wide range of other areas of expertise and banks of knowledge, through both formal and informal learning environments.

Learning about sustainable development issues also encourages students to develop an exploratory attitude and take a wide-ranging and self-reflective approach, adapting their thinking and practice to novel situations that can arise from complexity. This may include the capability to anticipate and prepare for predictable outcomes and be ready to adapt to unexpected ones. Self-reflection helps them to develop a considered system of personal values, and is a habit that may be particularly useful for those entering professions with an ethical code of conduct. Discussion of their own and others' value systems enables students to develop more informed views about social norms and behaviours that have an impact on sustainability. It can also stimulate debate about complex issues such as what constitutes global citizenship or what methods can be used to determine ecological limits.

Education for sustainable development can be delivered in a variety of different ways, including as stand-alone academic programmes, as part of existing programmes, and through specialist delivery units. Students may also learn through extra-curricular activities, such as volunteering, participation in community projects, etc.

Graduate outcomes

This section identifies graduate learning outcomes: what graduates will know, understand and be able to do after a period of learning covered by this guidance⁹. The outcomes are not intended to be seen in strict isolation from one another, nor are they intended as a rigid checklist, since the context within each discipline will be different. It is anticipated that practitioners will use this section as a framework for programme design and delivery.

The graduate outcomes are grouped into the following categories:

- knowledge and understanding
- skills
- attributes

Knowledge and understanding

This subsection articulates the knowledge and understanding that students should be able to demonstrate after a period of learning covered by this guidance. The outcomes are grouped under three broad themes for ease of reference.

Contextual understanding

After a period of learning covered by this guidance, students should be able to:

- understand the relationships between environmental, social and economic systems and that complexity can lead to unexpected and novel outcomes
- understand root causes of unsustainable development, including environmental, social and economic actions, and the links to cultural considerations
- understand impacts and interconnections between the activities of different generations, demographic groups and cultures, recognising that there may be tensions and competing factors between them
- understand that both unsustainable and sustainable practices take place in an evolving context, necessitating adaptability in policy and planning responses.

Natural systems and their limits

After a period of learning covered by this guidance, students should be able to:

- recognise the importance of drawing upon scientific evidence and scholarly research in seeking to understand the environment and the various ways that human activity has an impact upon it
- recognise that policy and planning decisions have consequences for basic environmental cycles such as water, carbon, nitrogen, and phosphorous
- understand that natural systems have non-negotiable limits and may become unstable or collapse if subjected to excessive pressures or changes
- understand that the collective effect of actions is not necessarily just a simple sum of their individual effects but is likely to be more complex

⁹ This is sometimes also referred to as 'sustainability literacy'

- have a proportional view of environmental change, being able to relate rates of change during the twentieth and twenty-first centuries to those evidenced over human and geological timescales, and being able to suggest reasons for differing rates of change
- understand the rationale for encouraging behavioural change where existing practices are shown to have a negative impact on the human and natural environment
- be familiar with the concept of economic growth and be able to understand how this may lead to positive or negative environmental change
- understand that there are links between social inequity and unsustainable development
- address risks and uncertainties associated with the transformation of the natural environment
- understand the need for decisions about natural resources to involve judgements not just about economic viability but about risks to future ecological, social or cultural wellbeing.

Structures and societies

After a period of learning covered by this guidance, students should:

- understand how aspects of their own discipline or area of study fit within, have an impact on, or contribute to the development of economic and social systems
- understand how global power structures and political systems influence environmental, social and economic policy, and be aware of the main mechanisms by which these structures change
- recognise the significant role played by complex macroeconomic structures in shaping commercial and social activity, and be able to reflect on these structures and their consequences for sustainable development
- understand the interactions between human communities and ecological systems, and the potential impacts upon each
- promote the application of sustainable development principles in the production of solutions to failed structures or processes
- understand how societies and institutions can be changed by, and contribute to, sustainable development
- understand that decisions taken now are part of a chain of events that will determine whether development is sustainable, and that the people adversely affected by unsustainable actions may not be the same people (or generation) responsible for those actions
- be aware of the wide range of human cultures in existence, and understand both the benefits and the challenges that these cultures present in terms of sustainable development
- be aware of ways in which their discipline can make a contribution to sustainable development
- be aware of potential for their discipline to interconnect with other disciplines or areas of expertise and make creative leaps forward, leading to new and effective transdisciplinary contributions.

Skills

This subsection articulates the types of skills that students should be able to demonstrate after a period of learning covered by this guidance. The outcomes are grouped under three subheadings for ease of reference.

Critical skills

After a period of learning covered by this guidance, students should be able to:

- use and apply established frameworks and methodologies for analysing the impact(s) of a behaviour or process, utilising the skills and expertise developed through their own area(s) of study
- interpret information about sustainable development from a range of different sources and perspectives that have been driven by different models, values and evidence bases
- critically assess and analyse sustainability issues that need to be addressed, including real-life examples, within the context of their own discipline or area of study
- critique assertions and challenge assumptions that may be used to justify unsustainable practice
- summarise complex sustainability issues in clear terms and communicate about them effectively, both orally and in writing
- generate and evaluate different models of sustainable development to assess their likely impact, within the context of their own discipline or area of study
- engage in interdisciplinary discussion to inform their thinking about sustainable futures and seek holistic, creative solutions to problems.

Putting theory into action

After a period of learning covered by this guidance, students should demonstrate the capacity to:

- actively implement or contribute to changes that promote sustainable development within the scope of their own learning experience and study environment
- engage with real-life problems and, within the capacity of their discipline or chosen area of study, synthesise, design or propose relevant, practical solutions
- use historical knowledge and an understanding of the consequences of past actions to envision how futures may be shaped
- use relevant theories and models to articulate and negotiate fit-for-purpose and well-timed approaches to sustainable development problems
- identify which key skills within their discipline or area of study are particularly relevant to sustainable development
- build on their own learning and experience, and develop interdisciplinary awareness, to develop or contribute to transformation strategies consistent with sustainable development
- engage with society by communicating knowledge and expertise that has been developed within their discipline
- communicate effectively with audiences who may need to apply the knowledge developed within their discipline

- act upon carefully considered strategies using available evidence and accept an element of uncertainty
- empower individuals and organisations to work together to create new knowledge.

Negotiation

After a period of learning covered by this guidance, students should be able to:

- demonstrate leadership by challenging assumptions and negotiating alternatives to unsustainable current practices, especially within their own discipline or area of study
- encourage others, both within the academic environment and in real-life communities, to engage in discussions about sustainable development, work together towards solutions and embrace innovation
- communicate engagingly and dynamically what they know about sustainable development
- demonstrate sustainable behaviours and act as a transformative influence upon others
- approach dilemmas and conflicts with an awareness of different perspectives and motivations, and develop strategies to help build consensus
- facilitate and mediate progressive discussions among interested parties (stakeholders) to help resolve dilemmas and conflicts
- take account, in negotiation, of environmental, social, and economic factors and achieve an appropriate balance between them
- foster a progressive culture that encourages citizens, professions and institutions to put learning into practice.

Attributes

Students are encouraged to reflect upon their own attitudes and behaviours, enabling them to consider alternatives that could contribute to more sustainable global societies.

After a period of learning covered by this guidance, students should be able to demonstrate:

- the capacity for independent, evidence-based integrated thinking as the foundation for developing their personal ethical code
- an awareness of their own values and how they influence their interpretation of and approach to addressing problems
- the ability to clarify their own views on ways that sustainability can be achieved in different local and global communities and circumstances and communicate them to a variety of audiences
- that they can reflect upon and analyse their own values, decisions and behaviours
- the ability to evaluate the consequences of their own actions, and of collective actions, and be able to use this information strategically to develop new social norms where appropriate
- the willingness to take responsibility for their own actions, reflect on them, and make transformational changes
- a proactive approach and a belief in their ability to take action

- the ability to engage listeners, convey complex concepts clearly and generate buy-in from audiences
- the capacity to be flexible and adapt their problem-solving mindset to fit changing or unforeseen circumstances
- the vision, motivation and resourcefulness to contribute towards developing a more sustainable society, both locally and globally
- a commitment to lifelong advancement in their education for sustainable development.

Teaching, learning and assessment

This section provides guidance on the types of teaching, learning and assessment that can help students to achieve, and demonstrate achievement of, the graduate outcomes identified in the previous section. Educators are encouraged to think about possibilities for delivery within their discipline. Educators may find that they are already using some of the teaching, learning and assessment methods set out in here, particularly where the focus is on encouraging students to see 'the bigger picture' and develop their own values.

The approaches outlined here are intended to be applicable to a wide range of disciplines and settings. Illustrative examples are given but these should not be taken to be prescriptive or to represent the full range of possibilities, rather to act as a stimulus for thinking and planning. Signposts to more detailed guidance on pedagogical approaches are included in the 'Resources' section.

Approaches to teaching and learning

Pedagogical approaches that are particularly effective in the context of learning for and about sustainable development issues tend to have an authentic aspect, enabling students to relate their learning to real-life problems and situations. There is likely to be a strong interdisciplinary, multidisciplinary or transdisciplinary element, reflecting the interconnected nature of many issues in sustainable development. Experiential and interactive approaches are also particularly well-suited, where they encourage students to develop and reflect on their own values (these are sometimes referred to as 'transformative pedagogies', though they have broad application and usage across more traditional discipline areas).

There are several teaching and learning methods that are likely to be particularly effective. These include:

- case studies
- stimulus activities
- simulation
- experiential project work
- place-based learning.

Case studies

Real-life examples of sustainable development issues and of how these have been, or might be, tackled or resolved introduce students to the concept of sustainability in practice. Case studies may be particularly useful in disciplines where the links with sustainable development are not immediately obvious.

Examples

- Using an article on recycling for textual criticism in a seminar (English language).
- Setting an article on warming of the oceans as text for a prose translation task (modern languages; joint honours in earth sciences plus a language).
- Using data on flower production and environmental change near Lake Victoria to inform a statistical analysis (mathematics, environmental science, sociology, economics).

- Looking at the health benefits of cycling compared with car travel in a project on cardiac health (nursing, sport science, psychiatry).
- Comparing data on carbon-intensive activities such as air travel for developed, and developing, societies (ethics, sociology, religious studies).

Stimulus activities

Providing a prompt (such as a poem, artwork, or newspaper article) can stimulate discussion on a sustainability topic. Stimulus activities are well suited to group work and can be open-ended, encouraging students to extend their thinking beyond the confines of their own discipline.

Examples

- Considering a painting of a natural scene to reflect on changes to the landscape (history, geography, history of art).
- Creating an 'image bank' from copyright-safe photographs and illustrations, to present a history of sustainability interest/activism (art, history, politics).
- Critiquing a newspaper column expressing scepticism about alleged climate change (media studies, politics, statistics).
- Using appropriate TED (technology, entertainment, design) talks and other online resources to stimulate debate about the relationship between wealth and health, and between poverty and poor health (sociology, public health, geography, economics, politics).
- Evaluating similar, but very differently priced, products to explore whether price may be linked to issues of corporate social responsibility or 'hidden' social/environmental costs (business studies, marketing).
- Setting a poem written by a tribal leader displaced by mining as lyrics for a musical composition or as the theme for a drama project (music, drama).

Simulation

Activities and projects that simulate real-life situations and encourage students to participate can help develop focused thinking around sustainable development issues, and can contribute to the formation of students' own attitudes and the social norms that they find acceptable. They can also help students explore the impact of a decision. Such activities include role plays, debating and gaming.

Examples

- Conducting a 'Sustainable Development Goals (SDGs) Summit' where students are grouped to represent different nation and trading blocs with contrasting economic, social and environmental drivers, and all groups must reach consensus on the final SDGs for the international community (politics, economics, environmental science, demography, psychology).
- Playing a game on carbon trading, where each student represents a prospective business and must make its activities attractive to investors within a limited budget and carbon ration (business studies, economics).
- Setting up a simulated community in a computer programme and adjusting parameters to make it sustainable over time (geography, sociology, mathematics, computing).
- Debating a motion on whether animal husbandry, bio fuels, GMOs, are harmful or beneficial to the environment (politics, agriculture, land economy, religious studies, geography).

- Staging a role play where one group of students takes the role of a community wanting to improve their livelihood through rainforest clearance, and the others are environmental campaigners (drama, economics, ethics).
- Conducting either of the above debating or role-play activities in a foreign language (modern languages).
- Debate the pros and cons of tourism as a development pathway or as a means to protect heritage resources (economics, geography)
- Exploring the benefits and problems to using IT including social media to communicate sustainable development issues (computing, media studies)

Experiential project work

Experiential, interactive, or participatory activities enable students to engage with sustainability issues at a number of levels, not only in relation to their discipline, but also in terms of reflecting on their own values, attitudes and accepted social norms. Working through issues in an authentic setting is also valuable for identifying potential interdisciplinary or transdisciplinary links.

Examples

- Collaboratively developing a 'wiki' for open education resources that support learning for and about sustainability (general relevance, with potential links to particular disciplines).
- Preparing a funding bid for a scientific environmental research project in a way that will appeal to public or commercial sponsors (sciences; multidisciplinary links with English language, communication/media studies).
- Working with a focus group in the local community to find out about travel choices and the motivations for them (geography, sociology, psychology).
- Comparing a quadrat analysis of botanical species in an area of the university campus with a similar analysis conducted in a chalk grassland environment (botany, biological sciences, urban planning).
- Conducting a review of products marketed as 'green' to evaluate the claims they make, comparing how appealing they are at first glance with how convincing they are on closer analysis (business studies, ethics, chemistry).

Place-based learning

Students work in collaboration with local communities, businesses and stakeholders to define a problem together, using local knowledge, and jointly devising and implementing solutions that will be locally and culturally acceptable.

Examples

- Producing Environmental Management Systems (EMS) manuals for local businesses, schools and community groups, increasing university engagement with the community, decreasing the environmental impact of organisations, and enhancing the sustainability skills and employability profiles of students (management, economics, environmental science, law).
- Analysis of contrasting sustainable and 'normal' buildings (houses, university buildings and so on), to determine how the buildings might be used and the impact of their design upon likely user behaviours (civil engineering, architecture, psychology).

- Conducting a SWOT analysis (strengths, weaknesses, opportunities, threats) of the sustainability strategy of the students' own institution (business, economics).
- Working with a community group to assess biodiversity loss in a pond and re-establish it as a self-sustaining biodiverse environment (animal and plant biology, environmental science).
- Engaging with staff in a hospitality setting to find reasons for inefficient energy use and how this might be addressed (tourism, business studies, sociology).
- Engaging with office workers to explore perceptions about corporate versus personal responsibility on issues such as ethical supply chains and the living wage (ethics, psychology, sociology, economics, business).
- Placement in an agricultural business, learning about how land is managed and the extent to which a value is placed on environmental stewardship (agriculture, land economy, business studies).
- Exploring the impact of mass tourism on the local culture of the tourist destination (geography, tourism, cultural studies)

More 'traditional' pedagogies

While educators are encouraged to think creatively about including the approaches outlined above in delivery, it is recognised that more traditional pedagogies such as lectures, seminars, laboratory work, self-directed study and essay writing, are likely to feature in many programmes. Some examples that may be helpful in these contexts are given below.

Examples

- Using TED talks to explore the for future directions in sustainable technologies (informative for all students).
- Exploring one or more of the 'big issues' in sustainability (for example food, waste) in different cultural contexts, and producing a SWOT analysis that assesses the impact of culture upon sustainability (sociology, archaeology, history).
- Reading extensively to prepare for an extended essay assignment on global links between gender and poverty (sociology, geography, religious studies).
- In-depth textbook-based study to understand complex economic models or mathematical projections relating to sustainable futures (economics, mathematics, statistics, actuarial science).

Approaches to assessment

There are a number of ways in which students can be assessed for achievement of the graduate outcomes identified in the previous section, and it is likely that a variety of methods will be used. Some general guidance is presented here which may be helpful regardless of whether assessment is taking place at a modular or programme level.

Assessments that aim to test **knowledge, understanding and skills** in the context of how they might be applied in real life can be used to good effect in the context of education for sustainable development. The following examples should not be taken as prescriptive or as representative of the full range of possibilities.

Examples of possible assessment tasks include the following:

- students may be asked to undertake an environmental impact assessment to demonstrate the knowledge and skills that they might need as an environmental engineering consultant (engineering)
- students could undertake a social impact assessment for a proposed or theoretical new development (sociology, demography or economics)
- students could be briefed to design practical solutions to sustainability challenges, for example to reduce waste or improve energy performance (design and engineering)
- students could be asked to propose community engagement campaigns (social sciences and humanities).

Assessment of student **attributes** can be complex. Methods that are well adapted to this include reflective logs to evaluate development (which may be undertaken early on and then late in the programme of study), portfolios that include accounts of sustainability activities beyond the formal curriculum, and assessment on the basis of project reports. Self-assessment tasks may also be a feature, as in the following example:

- students may be asked to analyse, assess and develop action plans to address the sustainability of their own behaviours using established methods and frameworks including online tools.

Strategic assessment themes

Strategic assessment of students' learning in relation to education for sustainable development is likely to involve seeking evidence that they:

- understand the relevance of their knowledge and how to apply it to difficult decisions or dilemmas
- are self-reflective and able to integrate their learning with their values
- are able to take a broad perspective, considering the relative weight of different factors
- value the wisdom of the past and have a vision for the future.

The learning environment

The learning environment and the support available for staff and students have an important role to play in education for sustainable development. Facilitating students' learning in this context relates not only to the formal curriculum but also to the campus environment, the local community and the culture of the institution. Links between these different areas should be encouraged.

As part of continuing professional development, staff may benefit from support in overcoming barriers to participatory and interactive forms of learning, as well as in implementing new approaches to teaching, learning and assessment. Enabling student involvement in the development of curricula is another area where staff might benefit from training and support.

Educators may also benefit from an awareness of institutional policies, activities and initiatives that have a bearing on sustainability. It may be beneficial if the curriculum and teaching and learning strategies align with other institutional strategies, for

example those on employability, internationalisation, research, and operational sustainability.

Questions that educators may ask

Educators may find it useful to ask themselves certain questions in order to generate ideas and reflect on their practice. They may also find it useful to think about some of the questions that students may want to ask. Some examples of questions educators may ask include the following.

- How does education for sustainable development relate to my subject area or discipline?
- To what extent am I already covering sustainable development issues referred to in this guidance? How can I make those features more explicit?
- How can I help students develop interdisciplinary thinking and encourage them to take a holistic approach?
- If many of my students perceive sustainable development as solely or primarily an environmental issue, how can I ensure they understand the balance between society, economy and environment?
- How can I engage my colleagues and teaching team in this?
- How can I provide learning opportunities that have authenticity, enabling students to relate their knowledge and skills to real-life problems, both locally and globally?
- What types of sustainable development case studies exist within, and are applicable to, my discipline?
- The words 'sustainability' and 'sustainable development' do not resonate with the vocabulary commonly used in my discipline. What alternative words and concepts could I use to engage my students?
- What vocabulary might need to be shared in order for us to engage in multi-disciplinary discussion?
- How can I make best use of students' prior learning about sustainable development to enhance the curriculum?
- How can I encourage students to understand a range of cultural perspectives on problems relating to sustainable development?
- Where knowledge is contested, or values are involved, what position will I take in a presentation or discussion? Should I state my views at the outset?
- How do I create a learning environment in which the personal views of individual students about sustainable development can be safely shared and evaluated?
- To what extent is cultural diversity reflected in the student body? How can I adapt for similarities and differences?
- Are there ways in which it would be appropriate for me and/or my students to explore and evaluate sustainability practices within our own institution?
- How will I handle the provisional and ever changing nature of knowledge about sustainable development?
- How can I involve students in the development of the education process?

Resources

This section brings together a number of sources that may be useful to those who are new to education for sustainable development.

Cotton, D; Sterling, S; Neal, V; and Winter, J (2012) *Putting the 'S' into ED - Education for Sustainable Development in Educational Development*
London: Staff and Educational Development Association (SEDA)
www.seda.ac.uk/publications.html?p=5_2 (see SEDA special, number 31)

Dawe, G; Jucker, R; and Martin, S (2005) *Sustainable development in higher education: current practice and future developments*
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Appendix 1: Development Group

Details of the Development Group that produced this guidance are given below.

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Appendix 2: Acknowledgements

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