

Education and Lifelong Learning Committee

Paper submitted by The Centre for Alternative Technology

At the Centre for Alternative Technology we have been involved with education in many and various ways for 26 years. We do a great deal of work with schools groups at all levels, with university groups, teachers, companies, local councils, gardening and other clubs, youth groups and pensioners. We have taught evening classes for the university extra mural department, we are running an MSc with a University and we have contributed to the development of new degree courses on renewable energy and sustainability. There is also an ever-expanding interest worldwide. For example, we have students coming from Japan for a long residential course each year. We have a wide-ranging programme of public courses, including courses for teachers. We also deliver education via our publications for the general public, specialists, pupils and teachers and, of course, via our site itself which is used by families, students and a variety of interested individuals.

We have sometimes been perceived as dealing mainly with renewable energy, but we have expertise in a very wide range of technologies and, whatever the subject that we are teaching about, we have always been talking about the big picture of sustainable development. We've always tried to make the links with global poverty and included in our perspective the 'natural world', the built environment and impacts on society as well as energy issues. I welcome greatly the public adoption of the term Education for Sustainable Development because this encompasses all these things.

What is Education for Sustainable Development?

It is extremely important that teachers come to an understanding of what education for sustainable development is. Many teachers are confused about what it means, many are daunted by a feeling that it is very complicated and many, I'm sure, are relieved to feel that it fits in some other curriculum area, not their own.

There have been lots of definitions produced, such as,

"ensuring a better quality of life for everyone, now and in the future. It involves the bringing together of social, environmental and economic issues into one over-arching objective"

"the interaction and interdependence of society, economy and environment, the needs of both present and future generations, the local and global implications of lifestyle choices"

I think refining such definitions is very important for people who are working in this field but I don't think this sort of definition is very useful for someone coming new to these ideas, particularly if they anticipate finding it complicated.

I think there are some quite simple fundamental questions to set people asking –

Does this increase or decrease poverty, in this country and elsewhere?

Does it increase or decrease the impact of climate change?

These will do for a start. One could move on to say "does this improve people's quality of life?" and "what can I do about it?" and so on.

I prefer some of the simpler definitions like,

"treating the Earth as though we intend to stay"

Any definition is only a starting point and we have to move on from that to look at what we need to change, what implications there are for our individual lives and for decisions making in the wider society.

For a couple of years I have been doing sessions on 'what is sustainability' with school groups, from 9 to 18 year-olds. This is one of the most interesting things I have ever done because pupils respond so well to it. They often show a remarkable ability to take a fresh view on things. I go through a process with a group whereby we construct a definition.

I get them to tell me what they think the really big problems in the world are. They quite quickly come up with hunger, starvation, war and pollution. They often say disease and lack of water and sometimes "no education". All responses provide the opportunity to talk about how this particular issue fits into sustainability.

We end up with a list of about five things that are wrong with the world and then turn that on its head to construct a definition which is something like:

In a sustainable world the whole of the world's population would:

have enough healthy food

have a clean water supply

have homes

be free from the threat of violence or discrimination

live in a clean, safe environment

have access to good health services and education

(the precise wording varies with the group and I then add "beauty and fun")

and this could continue indefinitely.

This leads into looking at what we do which makes this difficult and what we could do to move towards sustainability. Inevitably it leads you into talking about prioritising, into the relative significance of the actions we can take to improve the environment.

Trying to move towards sustainability certainly means reducing the fossil fuels we burn. The Intergovernmental Panel on Climate Change and the Royal Commission on Environmental Pollution have both very clearly said that the evidence of the link between burning fossil fuels and climate change is overwhelming. Climate change will affect all of us eventually but it will affect the poorest in the world first and most seriously. The global links to our behaviour are easy to convey to pupils. This then leads on inevitably to exploring ways of saving energy and using renewable sources.

Other very important aspects of sustainability relate to the sort of food we eat, how it is grown and where it comes from and it seems, from what WWF have told me of the results of their footprint study of Wales, that the whole area of waste production is also a big issue here.

Prioritising issues and creating active citizens

For everyone in education there has to be a link between ideas, information and action. This is what producing active citizens is all about. It is vital that pupils are able to have their voices heard and that they can make some changes in the school environment and the community outside the school.

It would be possible to frighten and depress pupils because they feel the threats are overwhelming and unavoidable. Being able to do something themselves and to have a say in positive change happening around them mitigates the negative impact of presenting them with disaster scenarios. Giving them the opportunity to take positive action has to go with giving them accurate information. But the action has to be within an awareness of priorities because there is a danger of creating a false sense of complacency that, because they are picking up litter, developing a wildlife area or recycling their cans that this will make a significant difference to the future of the planet. They need to be able to act in a variety of ways, some of

which will be very visible, easily achievable, some will reduce the use of fossil fuels, some will make the school a nicer place to be in and some will do all of these things at the same time.

Children should certainly pick up litter. It gets them into habits of care and it improves the local environment but, in itself, it will not make a difference to the sustainability of the planet.

Young people often suffer from the tendency of people to present these issues to them from the impact on one species or habitat. So, for example, they may see the loss of habitat for Polar bears as a major consequence of climate change but have missed the fact that rising sea levels will lead to the deaths of thousands, if not millions, of people in low-lying areas in the tropics. It is possible to have interesting discussions with pupils of any age about the importance of these impacts, what we feel about them and the moral issues involved as well as the scientific ones.

One of my most enduring impressions is of the mature thinking that young people are capable of. When ideas are presented to them in a way that makes sense to them, they can be extremely logical, very good at incorporating a number of different factors and very generous in their judgements.

We have been using the footprint as a teaching tool, very effectively. The footprint technique is a way of measuring all the land that is used up to provide the resources that we consume and the pollution produced by our lifestyles. It has been calculated that we would need the area of three planets to provide for the lifestyle that people currently aspire to. It is a powerful way of leading into looking at how different communities on the planet use different shares of the resources available, moving on to looking at what our own footprint is made up of and then to discuss how we can reduce it. I am looking forward to seeing the results of the work that WWF has done for the Assembly, producing a footprint for Wales, and to be able to use that data to inform more accurately the work we do. It would be very useful if this led on to producing a commonly agreed footprinting software programme.

We've also started developing a technique that uses a large map as the focus of discussion about what a sustainable Wales could look like. People have discussions, research issues, interrogate information, make models and write labels, all on and around the map.

Young people's view of a sustainable Wales and taking their voice to Johannesburg

This year we are running a project for the Assembly, working with Techniquet, focussing on Y12 students and youth groups. We will be running sessions introducing the issue of sustainable development, then supplying resources to work with in school or groups on their vision of a sustainable Wales in a global context, using the map as a focus, and then getting them to produce their demands to go to the World Summit on Sustainable Development in 2002 in Johannesburg. We will run conferences for the young people before and after the

summit and we are hoping to send some young people to Johannesburg. One end product of this project will be resources which can be used in a variety of ways in education.

The impact of the A/S level exams, though, may make it difficult for schools to make the time to be actively involved. This is one example of a broader problem caused by the constraints of the National Curriculum and the exam framework. Most teachers find it very difficult to make time to cover things which are not given a significant place in the curriculum.

What do we need?

The role of the curriculum

Various developments are needed in order to raise the profile of sustainable development in schools. Its role needs to be strengthened in the curriculum. It is certainly not something that can be adequately covered by having one or even several little pigeon holes it is tucked away into. At the moment there are references to sustainability in various subjects, which can be built on by teachers who are enthusiastic about it and more or less ignored by ones who are not.

I think that sustainable development should have a central place in the curriculum and could be a stimulating starting point for learning in many different areas. If your starting point is to explore how to develop a sustainable school, community and world then you have to understand the science and geography underlying it, analyse the history of how we got where we are now, express opinions and feelings articulately, and be creative in designing solutions. Putting it into a central place that teachers fully understand will take time but there are many ways that its role could be gradually strengthened.

It would be quite easy to specify a stronger role for sustainable development in Science, Design and Technology, Geography and a variety of other subjects but, of its essence, it is cross-curricular and there also needs to be support for work to enable that to happen, which means that teachers need the time to liaise and co-ordinate their work.

One of the worrying things about a very specific and full curriculum is that it is very difficult to see how we will be able to get innovation into curriculum in schools in the future. In the past teachers had the opportunity to develop new ways of teaching, and the work of teachers being creative in the classroom, lab or workshop produced the best elements of the current curriculum. They were able to try out new ideas on a small scale, then advisors could spread them throughout a local authority, then they could end up in a publication and reach everyone. But now there is not the space for that creativity. However good our current curriculum is, it will need to develop as the World changes.

Making the PSE framework statutory would have a considerable impact on the opportunities

for Education for Sustainable Development, and producing resources that showed people how they could work on it in other aspects as well as the "environmental" would be useful. I have seen young people growing rapidly in their role as active citizens when they are engaged in discussing sustainable development and are enabled to control the process of discussion, take action themselves and be listened to.

Having engaged pupils in this process of becoming active citizens, it is vital that schools are able to implement what they suggest and there is a role for the Assembly in providing resources to enable schools to implement changes in energy saving, purchasing local food, dealing with waste etc. The financial costs incurred need to be set against long term savings and the creation of local jobs.

Building it into the inspection criteria would also have a great impact.

In October 2000 we contributed to the Assembly's consultation exercise on sustainability indicators for schools. We submitted a rather comprehensive list of indicators. In compiling it I had decided not to restrict it to actions where the outputs could be proved, but to include things where the feedback would depend on honest reporting by pupils and staff and might be qualitative. I also included action taken by pupils at home and in the local community. This broadened the scope to include many things, from action taken to save energy at home to improving safety for pupils by reducing racism and bullying.

Support for teachers

Support for teachers in the form of training, resources and time to think is enormously important.

There is a need for teachers to have access to in-service training to equip them to deliver Education for Sustainable Development. We sometimes meet groups of Y6 pupils who understand pretty clearly about the greenhouse effect, the ozone layer etc. because their teachers understand it themselves. Research work, done by a department at Oxford University looking at primary science teaching, has shown that, with a bit of well designed training, teachers can be much better equipped to teach "complex" issues.

We hope to set up a Sustainable Design Award for AS and A level Design and Technology students which can be incorporated into the work they will be submitting for their existing exams. We are seeking funding for this at the moment, working with the Intermediate Technology Development Group, who are based in Rugby and specialise in appropriate technologies for developing countries. CAT would be running this scheme in Wales. Even though this will be built into the existing structure as much as possible, it still involves getting teachers to come out of school for a certain amount of training and this will be a problem.

We recently tried to run meetings in Powys supported by the Energy Saving Trust to inform schools of the opportunities for energy saving on their premises. Despite having the support of Powys County Council and the fact that this could save the schools money, we got a very low response and could not run the sessions. Heads are just too busy to absorb and deal with everything that comes to them, even when it is from their own local authority. This is exacerbated when they are teaching heads, which is common around here.

Embedding Education for Sustainable Development into all teacher-training courses is vital.

It is often difficult for teachers to get information and in a form that they can easily use. There are some very useful resources around that teachers do not get to know about. There is a need for some sort of resource information service on sustainable development issues for teachers in Wales so that they can ring or email and ask someone what is available on a particular subject at a specific level. There are difficulties about setting up resource information systems for teachers. How do you select the resources and evaluate them? If you do not evaluate them then there is a limit to how useful the service is. If you do evaluate them you can get into a minefield. Evaluation systems often measure whether the resource gives you curriculum links, is appropriate for the key stage it says it is for, etc. A resource could score highly on all these aspects but be inaccurate, biased or very partial in the information it provides or it could just fail to raise the important issues. Sometimes, what resources leave out is often as important as what they include.

There is an additional problem about providing the same range of resources in Welsh as in English. As an independent publisher who has to cover all our costs and operates on low margins, we cannot afford to publish all our materials in print form in Welsh, given the likely level of sales. In order to do that we would have to look for financial support from elsewhere and that, in itself, is time consuming. The world wide web does provide the opportunity to make Welsh versions available and save on the cost of printing, but funds would still be needed for translation and to ensure that any future editions were updated online and there is certainly a need for paper based resources now, as only a minority of teachers use their potential access to the web.

What do the organisations supporting and delivering education need?

As well as changes within the schools and the curriculum, there is a need for some sort of network for organisations who are active in education across the whole spectrum which is now brought together under ESD. I've been involved with the Council for Environmental Education for some time (I'm on their Executive Committee) and I've observed the benefits of having an organisation like that which is very clear about its functions and provides a network, a very good information service, a newsletter and a forum for people to meet and discuss issues. There is a greater need for this than ever in order to make the most of the exciting opportunities to draw together people working in Development Education, traditional

environmental education and energy education. There are proposals to develop an email-based network but we need more than that.

Twelve years ago we built the Eco-cabins here at CAT, where educational groups can live with sustainable technologies. They have their own renewable energy system using wood, wind, water and solar power. They measure and manage all the energy that they use while they are here. They also have their own compost toilet and reed bed sewage system. Our main problem with the Eco-cabins is that they are so popular with schools that we need some more.

At CAT, we are getting increasing demands on our time and physical resources. There is a rapidly growing demand for courses, training, meetings and conferences. We need more accommodation, more teaching spaces and a larger space to hold conferences.

Education for Sustainable Development offers enormous and exciting opportunities for education and for young people. If we do not take those opportunities then their future is threatened.

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