ENVIRONMENTAL EDUCATION "SHOULD GO FURTHER"

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SYNOPSIS

This paper examines the more proactive role which the revised guidelines in Environmental Studies 5-14 give to Education for Sustainable Development and identifies the practical implications for primary schools. In a case study context, it documents how a team of researchers worked with a school's teaching staff to help them interpret, plan and implement environmental learning more effectively. The experience of working with the staff has enabled useful conclusions to be drawn about practical and successful ways forward for the implementation of Education for Sustainable Development in Scottish primary classrooms.

INTRODUCTION

The consultation draft of the Environmental Studies 5 to 14 guidelines (SCCC, 1999) has the potential to effect an exciting and long-awaited cutting edge to environment programmes and sustainable practices in Scottish primary schools. While "Education for Sustainable Development" has replaced "Environmental Education" in recent documentation (e.g., Smyth, 1998), the key message is the same. The advice to teachers is to prioritise the "development of informed attitudes" in their pupils and to recognise that, while Environmental Studies provides an essential grounding in sufficient knowledge and skills to understand and interpret the environment, "it should go further" by providing opportunities to encourage young people to take "an informed position on topical and important issues" (SOED, 1993, p.2).

Although the SOED (1993) guidelines considered this to be a serious concern for schools and recognised that "confusion" did exist for many teachers as to the difference between Environmental Studies and Environmental Education, they did not provide clear and practical strategies to help teachers to "go further" and to develop progressively their pupils' values and attitudes towards environmental issues. This situation, of course, is not peculiar to Scotland. A review of the past three decades in a world wide context (Palmer, 1998) identified that Environmental Education has had two outstanding features:

a) the speed and evolution of its thinking and the documentation of its aims, principles and theories, especially at international levels, and

b) the lack of effect of such documentation in everyday practice.

Environmental Education presents to teachers a challenging and wide-ranging array of content. Added to this, teachers are expected to recognise what they must do to enable their pupils to consider their values and possible actions in relation to environmental issues. Consequently, with many curriculum pressures to attend to, most schools have concentrated upon the complex task of establishing progression in knowledge and skills, paying lip service to the promotion of personal values and attitudes. Some schools, such as the case study school described in the present article, sought support to introduce the development of informed attitudes into the curriculum and whole school practice. Nevertheless, some five years after the original guidelines were issued, the general result fell short of satisfactory. Barr and MacAndrew (1998) suggest that good practice abounds but wonder about the critical

mass of teachers being achieved in schools. The loneliness of the single enthusiast in school is still a phenomenon to be reckoned with.

EDUCATION FOR SUSTAINABLE DEVELOPMENT

The review process has produced a more explicit exemplification of what Education for Sustainable Development should entail and how it can enhance the quality of learning for primary pupils. Sustainability is a difficult concept to grasp and "sustainable development" may even be seen as a contradiction in terms. However, environmental concerns have become more prominent through the 1990s and the phrase is now much more in general usage. Education is being seen by politicians, economists and environmentalists alike as the key factor to encourage people to look at the consequences of their values and behaviours and consider the implications for future lifestyles.

The consultation document (SCCC, 1999) makes it plain that Environmental Education and Education for Sustainable Development are "no longer marginal interests… that struggle to find a toe-hold in the formal curriculum, but powerful considerations in all educational thinking" (Barr, 1998, p.26). A more explicit rationale (SCCC, 1999) reiterates how the Environmental Studies curriculum provides experiences to help pupils to think critically and take informed decisions so that they will be better able to act in ways that are sensitive to global and development issues and consistent with the idea of sustainable development. Aims for environment programmes retain the earlier focus on care and conservation, but are extended to provide understanding of "issues related to the use of resources and a sustainable global environment" and the "importance of active citizenship in a democratic society" (SCCC, 1999, pp. 10-11). While most guidelines have limited scope for theorising, this document at least spells out the "central ideas" which should be promoted in environment programmes.

Schools are advised that careful planning will be needed to ensure that "opportunities arise for pupils to examine feelings and thoughts in relation to these important ideas." While appropriate learning can arise in both integrated or subject-focused contexts, the overarching framework for such opportunities is holistic, encouraging young people to develop "a commitment to learning… respect and care for self and others… social and environmental responsibility".

It is important for schools to address a progression in such learning opportunities, building upon the Pre-5 Curriculum framework which recognises that a key aspect of children's personal development and learning is environmental knowledge and understanding. In the revised Environmental Studies 5 to 14 curriculum, it is acknowledged that "each component offers opportunities…". In social subjects it designates pupils as "citizens and consumers" where experiences and reflection will enable them to make more informed choices and exercise their rights and responsibilities. Through enquiry in science, as "critical thinkers" they will be able to "act respectfully and responsibly" towards scientific issues. In technology contexts, they will acquire "technological capability" and appreciate the sensitive interaction between "meeting peoples needs and conserving and improving the quality of the natural environment" (SCCC, 1999, p.10).

Clearly, Education for Sustainable Development is no longer marginal to environment programmes. The development of informed attitudes is not just "associated" with outcomes but "underpins and permeates" all components and opportunities for developing specific attitudes is "an essential aspect of any programme of study". Moreover, sustainability contexts can profitably be pursued in Religious and Moral Education, Expressive Arts and Language to provide valuable cross-curricular opportunities for personal and social development, for coherent thinking and learning and to make the best use of scarce curriculum time.

This planning process which is asked of schools has implications not only for sophisticated timetabling and cross-curricular strategies, but for essential qualities and practices in a learning process which can effectively promote critical thinking, problem solving and a commitment to act responsibly. There is a substantial literature (Palmer, 1998) which argues that the most crucial factors in implementing Education for Sustainable Development are the ability and the willingness of the teacher to facilitate a learning process where pupils can genuinely "examine feelings and thoughts" on environmental and social concerns. The case study which follows provides a model to show how Education for Sustainable Development can effect some necessary changes, not just in the curriculum and school practices but in the thinking and methodology of teachers.

THE CASE STUDY SCHOOL

The primary school described here wished to create a policy, which identified the holistic nature of Environmental Education and which could be developed across the 5-14 curriculum. The staff wanted to interpret the ideas embedded in the guidelines and to identify their own strengths and developmental needs. The Head Teacher and management team enlisted the help of the researchers to enable the teachers to articulate their own understanding of Environmental Education and help them to take the planning, implementation and evaluation process further. The research team's function was to work with the staff as a whole and with groups of teachers and pupils to record and help to analyse how Environmental Education could be effectively implemented in the school.

THE AIMS OF THE PROJECT

The school sought to examine the current policy and practice in Environmental Education in the school. Specifically, it aimed to:

- enable staff to identify key concepts in Environmental Education.
- help all staff to clarify their values and use these values as a basis for establishing aims for an Environmental Education policy;
- provide structures for teachers to facilitate more pupil-centred learning about environmental issues;
- highlight strategies and techniques to develop pupils' knowledge and understanding of environment issues and to enable them to articulate their attitudes towards social and environmental concerns;
- produce a whole-school policy in which all staff had collaborated.

In essence, the school wished to find out what was in place already, what was missing and what the school and team could do to fill the gaps. In addition, the research team aimed to develop a model which would be a useful instrument for effective curriculum development in Environmental Education.

METHODOLOGY - THE APPROACH

The approach selected by the team was to treat this school initiative as a case study – "a systematic investigation of a specific instance" (Nisbet and Watt, 1978, p. 8). One of the main strengths of this approach is that it gives the researchers a strong picture of what "real life" is like within the specific situation. The focus was on a number of people who worked together but had different roles and different views of what a curriculum in Environmental Education should contain and how it should be developed in their school. It is recognised that a small-scale project in one school

may offer limited scope for generalisation. However, Miles and Huberman (1994) argue that data collected over a sustained period (here, two years) can provide richness, holism and powerful evidence for studying any process.

The case study was pursued in depth using a number of methods of data collection, namely, interviews, reviews of prior planning documentation, observations and field notes undertaken both by the researchers and by the teachers. This triangulation was undertaken not so much to validate results obtained by any single method, but to "further enrich and complete the knowledge" (Flick, 1998, p. 148) and to give a fuller account of the processes involved in developing Environmental Education in this particular primary school.

CHRONOLOGY OF THE STUDY

The team worked closely with the school over the course of the two year study. They spent a number of days in the school in a variety of situations - interviewing staff or children, working with individual teachers and their classes and delivering whole school in-service. In essence, the role of the research team was to observe, advise, record and analyse the implementation and development of the Environmental Education curriculum in the school.

PHASE 1

The initial stages of the project were undertaken in the spring and summer terms. The management team in the school was interviewed in order that an overview of the status of Environmental Education in the curriculum could be ascertained. Then the research team, in conjunction with the school management team, examined the whole-school yearly plans and existing policy documents to establish general impressions of the current status and provision of Environmental Education in the curriculum. Each teacher's forward plans for the previous year were scrutinised for evidence of Environmental Education content. During interviews, individual teachers were asked to elaborate on the possible issue-based content in their planning and to discuss their views on Environmental Education.

What Was In Place Already

This detailed audit of current practice provided evidence which showed that the school already met a number of criteria of good practice. It had a very obvious ethos of "caring" which extended to caring for the natural environment, the property and the perspectives of others and links with the local community. Steps had been taken to make the outside areas more interesting, and safer, for pupils and a series of small gardens growing a variety of plants and shrubs had been planted. Healthy eating was promoted and projects such as "Recycling Week" and an "Anti-litter Campaign" were undertaken. Some teachers explored local issues in the curriculum, especially in the upper primary school.

What Was Missing

Despite the school having initiated a range of projects and events to enhance their environment and demonstrate sustainable practices, scrutiny of plans suggested that not all classes in the school were equally involved in Environmental Education. While some pupils had interesting opportunities and memorable experiences of participating in projects and events, there was no overall planning for progression in learning. Opportunities were episodic and depended on the teacher's interests and preferences. Additionally, while some teachers, including the management, were enthusiastic and knowledgeable, others were only marginally involved and did not see Environmental Education as having particular priority in a busy curriculum.

In view of this audit, steps were planned with the research team to help to develop the teachers' understanding of the essential concepts, to introduce teaching strategies which would enhance the children's learning and to develop a whole-school policy which would ensure coherence and progression. It was important also that the effective practices already in place would continue to be encouraged and extended and would be shared with the rest of the staff.

PHASE 2

Over the course of the year, members of the team led three workshops for the staff on aspects of Environmental Education. The first provided the teachers with opportunities to discuss the project and to ask specific questions of the team. The teachers recognised that it was important for them to consider their aims for Environmental Education and to clarify how Environmental Education might help their pupils" to develop informed and responsible attitudes towards their natural and social environment. During this session, members of staff completed a survey and then participated in a ranking activity, in which they prioritised their own values for the education of their pupils in general terms and in relation to the environment in particular. As a group they produced a set of whole school aims for Environmental Education. These aims focused on positive behaviours and care and respect for others and for the environment.

The teachers wanted to be clear about the place of Environmental Education within the 5 -14 curriculum guidelines. As part of the workshop, they examined documents and identified aspects which, for them, would be central to their planning for Environmental Education. For example, in Environmental Studies 5-14 (SOED, 1993a) they highlighted promotion of informed attitudes to the environment such as conservation, stewardship, quality of design, and conflict resolution. In Personal and Social Development 5-14 (SOED, 1993b) values were identified especially in terms of the home, the school, the local community and the wider environment. The teachers also began to identify a range of generic skills which might be developed through Environmental Education. These included planning, collaborating, locating information, presenting information and reflecting critically on one's own ideas and the ideas of others.

The next stage in the process, undertaken in workshop two, was a presentation to all teaching staff to help them to identify appropriate and effective learning strategies which could take pupils "further" in Environmental Studies. Three models were introduced. Firstly, the teachers discussed ways to "generate action" as proposed in "Working across the Curriculum" (SCCC, 1996). In this model, teachers provide pupils with opportunities to develop and progress knowledge and understanding *about* the environment, to develop skills and gain experience working *in* the environment and to develop values and attitudes leading to action *for* the environment.

A three-stage model of "Environmental Citizenship" developed by Hungerford and Volk (1990) illustrated how Environmental Education could be progressed. At the "entry level" pupils are given experiences which help them to develop "environmental sensitivity" and enjoyment. The "ownership" stage builds a background knowledge of issues where initial values can be explored. In the final "empowerment" stage, the pupils acquire a range of strategies which help them to feel "willing and ready to act" for the environment. In discussion of this model the staff considered that what the school programme had focused on so far was environmental sensitivity. What it required to address was the teaching of informed issues and helping children to acquire strategies for action.

Finally, an "Action Competence" model (based on Jensen, 1995) provided the teachers with an illustration of a useful structure in which to develop issues-based learning. At the initial stage of the research, the teachers' own values had emphasised

that the goal of Environmental Education should be to turn out confident pupils, not just aware but interested in environmental issues, who could take action to change their own practice and persuade others to do likewise. In effect, they wanted them to be "action competent". This model develops action competence as a learning process which leads pupils to:

- become well informed and to gain insight into the origins, causes and effects of an issue;
- think through their ideas and articulate their visions for the future;
- work out their values and make some commitment to improving a situation or problem;
- feel empowered to take action, drawing upon the strategies and experiences facilitated by their teachers.

The teachers fleshed out this third model by adding some key questions which provided an essentially personal focus for the pupils. They evaluated the adapted model as a useful way to proceed, centred as it was on the development of values. They recognised, however, that for some children, becoming better informed was a more realistic objective than empowerment.

In the third workshop, the teachers were introduced to a number of teaching and learning strategies, such as ranking activities, analysing photographs, sorting and responding to press statements and role-play and role-reversal strategies. These were evaluated as useful in helping the pupils to explore issues and examine and clarify a range of values including their own. The teachers considered, too, how Environmental Education might be fitted into a classroom curriculum, especially given the pressures of time and the existing workload. The teachers and workshop leader examined the current school plans and devised a pattern whereby two complementary approaches could be incorporated; the integrated subject approach where an issue in Environmental Education is explored as part of a wider, broad-based topic, and the discrete approach, which focuses on the knowledge, understanding, skills and attitudes of one specific environmental issue through a project or series of activities.

PHASE 3

These structures introduced by the research team were negotiated into workable procedures with the staff. Then in the autumn and winter terms classes at various stages in the school engaged in action research. The purposes of this were to devise and pilot some learning strategies to explore a relevant issue and to analyse the types of skills required by pupils to help them to be well-informed, willing and competent to act. The participating teachers kept field notes and were interviewed at the beginning and the end of the topic. A sample of pupils from each class was also interviewed at the end of the topic as it was felt that it was important to gain direct insights into how the pupils perceived and felt about the issues. Specific examples of the pupils' work - stories, reports, art work and products of collaborative activities such as sequencing, sorting and caption writing - were evaluated by the teachers and team to establish evidence of understanding of the context and of personal responses. Activities deemed to be useful could then be incorporated into future plans.

Two Primary 7 teachers selected some of the workshop techniques to audit their pupils' perceptions of issues arising in their community. They then proceeded to develop a more intensive enquiry into two areas identified by the pupils as priority issues – air pollution and the polluted dumping ground of the local burn. Central concerns for both classes were: *"What information can we establish about this*

issue? Why is it important? What could things be like in five to ten years time? Does it ***have*** *to be like this? What can* ***we*** *do about it?"* In the following term, a study on "The Home Front" was extended to explore the related questions: "*Are we a wasteful society today – compared to 1940s?"* and *"What effects does war have on people and their environment? What do I/we feel about war? Who/what do we need to stop wars happening?"*

The Primary 6 study of "The Highland Clearances" raised the issue of homelessness as a national and global issue, historically and in the present day. The pupils developed their understanding of modern homelessness though a number of activities such as asking questions about photographs of refugee families and considering things people say about homeless people, including *"What do I say?"* Discussions on *"What can we do about homelessness?"* produced a variety of responses: *"We can direct people to shelters - or to get a job. Sometimes it's not that easy. But we can buy the Big Issue and not call them names."*

Two primary four classes were undertaking a book-based topic. The story, a fantasy, involved a group of children who found themselves transported to another (dying) world and traced their quest to find a solution which would save that world and its inhabitants. Though very much a fiction and language-based topic, it was possible to identify some potential for Environmental Education. During the course of the project, the teachers spent time helping the children to reflect on, and to make connections between, the actions and choices made by the children in the story and their own actions and behaviour in real life. The children described collaborative activities they had undertaken. Comments such as, "*Sometimes it was hard if you didn't get what you wanted, ... if you had to do what someone else wanted...*" were discussed. This led to the children trying to define the qualities of effective collaborative behaviour. They reflected on the action taken by the children in the story: "*The land might die even if the children helped, but it definitely would die if they didn't." "They didn't do it for money or anything. They did it because they cared."*

Primary 2 were involved in a topic on "Winter Weather". A number of walks around the school grounds allowed the children to observe and comment on the effects that the cold had on the environment. The intention here was to raise the children's awareness of their immediate environment and to allow them to observe, describe and make suggestions and connections. They recorded their observations with the help of the teacher: *"We went out to look at the winter weather. We looked up and we saw the clouds. Some were grey and some were white. We didn't see any blue sky. We felt the rain on our hands and our faces. It was cold. We saw puddles with leaves in them. The birds were blowing about. They get hungry in winter. We should feed them."*

PHASE 4

In the summer and autumn terms of year two of the study, the research team, working with the school management team, reviewed and analysed the data collected at each of the previous stages of the study. Based on this, they compiled a school policy booklet. The booklet included: statements of the teachers' values; descriptions of the kinds of activities which could develop the pupils' values and competence to take action; examples of planning and of pupil's responses; details of the steps that would be taken in the infant, middle and upper stages of the school to ensure development and progression in learning in Environmental Education.

Figure 1 shows a summary of the structure for progression devised by the school as a result of the case study. The policy recommended that the focus of learning was to begin with the child's experience and enjoyment of his or her immediate surroundings and extend outwards to the local and global environment. Emphasis

was to be placed on the school as a community, with each member having both the rights and the responsibilities that involves. It was seen as important that the pupils develop a sense of "ownership" of their school environment. Care of the school and respect for the members of the school community were to be encouraged, with an emphasis on responsible behaviour.

Figure 1: A summary of the structure for progression devised by the case study school. "A Progression in Environmental Education in Our Primary School"

Primary 1–3	Primary 4–5	Primary 6–7
Sensitivity Stage Develop awareness and sensitivity towards the environment. Frequent exposure to outdoor experiences. Caring for school garden, birds, pets. Visiting other natural sites. Provide good role models, e.g. in healthy eating, recycling, anti-litter campaigns. Recognising local problems, e.g. pollution, traffic.	Continue to focus on campaigns for healthy eating, recycling, etc. Work on designing and improving the playground. Maintaining the garden. Visit natural sites.	Continue involvement in campaigns. Work in dance and drama, expressing ideas about the environmental issues. Develop a stewardship scheme in school and community.
Some key issues could be explored at a simple level.	**Ownership Stage** Identify issues which are significant, relevant and probably local. Acquire an informed background. Find out different viewpoints. Work out own stance.	Role-play causes and effects about local issues, from different perspectives. Continue to become informed about local and some national/global issues.
Some key issues could be explored and some "school" actions taken.	Take supported action (i.e. from the school) where an issue is very significant or immediate.	**Empowerment Stage** Learning about strategies which people can take to change things or make improvements. Acquiring skills to use some strategies. Working out how to "act". Being clear about what action to take. Coping with consequences.

The teachers were positive about the learning experiences they had facilitated. The strategies they devised to enable their pupils to explore issues and develop their understanding of different viewpoints and alternative solutions and their growing awareness of their own preferences and values were, they said, "enjoyable, vigorous and absorbing" leading to a marked improvement in the quality of classroom discussion and debate.

An analysis of the planned activities and pupil responses contributed to an elaboration of the pupil skills required in learning to become "action competent". Action Competence is described by Jensen (1995) as being when learners have "knowledge and insight" of an issue, have "commitment and vision" about an issue and can "take action" on an issue. This model was developed during the project to enable the teachers to identify the range of teacher roles and strategies that could be used to help pupils to develop the skills necessary to be able to take action (see Figure 2, column 3). The teachers considered that the skills required to tease out an issue, arrive at and communicate a personal value stance and take decisions about some realistic action "go further" than the attainment targets of the the 5-14 skill strands. The "Pupil Skills" dimension of Figure 2 (column 2) is a summary of their conclusions about what pupils need to be able to do to feel empowered to take action. Some pupils obviously could go only so far in acquiring this repertoire of skills. However, all pupils should be supported by their teachers, in terms of time and appropriate strategies, so that they may begin to realise where they stand and to think about actions that could be taken.

In addition to lively teaching and enhanced learning, the action research group identified some problems faced by both the pupils and their teachers. Some pupils lacked confidence and experience to organise themselves to collaborate effectively and obviously had expectations that their teacher would "take over" eventually, supplying other viewpoints and solutions. The teachers recognised that there were very considerable difficulties facing pupils in a more open, flexible and unfamiliar situation where their teacher might be acting in a less proactive way than usual, employing different strategies to facilitate the individual's response. Some pupils needed convincing that their views were as good as those of anyone else and doubted their ability to change things for the better. But there was also evidence that, once started, most pupils became excited by the challenge and responded very positively.

The "action competence" process also presented a very real challenge to the teachers. Research has shown (Huckle, 1996; Sterling, 1996; Palmer, 1998) that teachers have a strong priority to maintain order and control in their classrooms. The more fluid, constructivist nature of this learning process, however, involves taking "risks" with control. The action research analysis identified the teachers' key roles and strategies to be:

- structuring a variety of ways through which knowledge and insight of an issue could be gained;
- using appropriate techniques to probe points of view, priorities, alternatives, visions;
- providing not only experiences but time and opportunities for pupils to clarify their values;
- both challenging and supporting any decisions taken or action suggested.

The action research group said that it could be disconcerting to have to cope with the diversity of pupils' views, some of which could clash, and to recognise their own limitations when faced with strong reactions based on personal experiences.

Figure 2. The Action Competence Model
"Pupil Skills and Teacher Roles in Learning to be "Action Competent"

	Pupil Skills	**Teachers' Roles/ Strategies**
Knowledge/Insight	• identify the issue as a conflict of values • analyse issue and recognise "players" in the conflict • identify research questions • use research sources • detect bias/opinion • learn to sample, survey and record data • share information with others • analyse alternative solutions to issue • evaluate "completeness" of evidence	• clarify, by most appropriate means, the context of the issue • provide/evaluate experiences for co-operative working • ensure ability in 5-14 skills so that pupils can select and justify the best mode of enquiry • provide sources of information • be provocative, challenging views, solutions, strategies • be an active "heckler" in the audience
Commitment and Vision	• use evidence • draw conclusions • listen, compare a range of solutions • make inferences • formulate recommendations • communicate personal position/view • state and justify personal decision	• pose the challenge of "making up your own mind" about – • provide appropriate techniques to probe perceptions/values, to justify, predict, explore "what if…" alternatives • consider how best to participate • facilitate discussion, debate, decision-making and decision-taking • reassure • challenge
Taking Action	• analyse effective action to make a change • evaluate the feasibility of success (consider failure) • persuade others about chosen solution(s) • decide on best way forward • act alone and in a group • facilitate reflection on	action plan, i.e. ask awkward questions, ask to check, etc. • cause to think ahead and predict • ask to evaluate "right" and "wrong" • challenge "ideas/ strategies" • evaluate strategy

They debated the willingness and ability of some teachers to go beyond the "safe ground" of transmitting knowledge into encouraging pupils to explore their feelings and thoughts on lively issues, perhaps into sharing their own values and feelings. It was their view that, in any school staff, there would be some teachers who would be "uncomfortable" with this learning process and resistant to what might be a somewhat fundamental change in their teaching style. They considered, however, that analysis of the strategies provided and the focus given in planning formats for issues-based learning could ease the situation for more reluctant teachers.

They confirmed how difficult it was for teachers, busy with a crowded curriculum, to stand back and "give the floor" to the pupils while they tried to facilitate an essentially sophisticated and complex process. They emphasised that this type of learning is not incidental but requires an investment in time and resources and a genuine recognition by management that pressure to prioritise on "the basics" should not pre-empt such quality learning which takes pupils "further" in a holistic sense. At the same time, while they analysed that this learning process requires careful initiation and development and reflective evaluation, they also acknowledged that it was grounded in good pupil-centred practice which was not unfamiliar to them in, say, health education or drama.

It has been well demonstrated by Hungerford and Volk (1990) that the responsibilities of active citizenship can be developed through Environmental Education: "The strategies are known. The tools are available. The real challenge lies in a willingness to do things differently than in the past" (Hungerford and Volk, 1990). The teachers in the case study school considered that the research model used to initiate, develop and implement their school policy not only gave them ownership of the policy but provided a sound structure of "strategies" and "tools" which they could use and monitor. Their own action research had contributed significantly to teasing out and formulating some essential roles, skills and strategies. Their verdict on their experiences certainly endorsed the view that Environmental Education challenges both pupils and teachers to think and do things "differently… than in the past".

INTO THE MILLENNIUM

This pragmatic model was founded on a school staff's values regarding the type of pupils they wished the school to turn out. It could be usefully replicated in other primary schools to meet the demands of Education for Sustainable Development heralded in the consultative guidelines. Its central focus on values and attitudes could help school staffs to work out what, in their own circumstances, they need to do to inform their pupils to become active and responsible citizens, consumers, critical thinkers and stewards of their environment. The model provides insight into planning opportunities which provide coherent and cross-curricular learning and it identifies a progression from "environmental sensitivity", through issues-based enquiry to "action competence". In particular, however, it tackles the crucial issue of teachers' roles, going beyond the guidelines to demonstrate why and how "conventional forms of education may need to be recast in fundamentally different forms" (Barr, 1998, p. 26) for Education for Sustainable Development to be successfully implemented in the classroom.

The timing of the revision of Environmental Studies 5-14 is opportune. It coincides with significant directives which have emerged on the Scottish scene which promise an optimistic future for Education for Sustainable Development in Scottish schools. The guidelines for Initial Teacher Education Courses (Scottish Office, 1998) now require all potential primary teachers to demonstrate.

a) in relation to Subject/Content of teaching, "a knowledge of, and ability to play a part in… Education for Sustainable Development".

b) in relation to Professional Values, "that he or she knows about and is able to contribute to Education for Sustainable Development in the school and wider community".

Consequently, all new primary teachers will in future, be conversant with some of the concepts of and solutions to sustainability and appropriate pedagogical strategies.

Then, in March 1999, the Advisory Group on Education for Sustainable Development presented their action plan detailing "a leadership strategy" for an integrated programme of sustainable development and education. There are already indications that the political agenda has changed and the new Scottish parliament has heightened its national and local initiatives in the area of sustainability. The report of the Advisory Group projects the vision of a "new education" which must be holistic, focused on learning rather than teaching, facilitating "joined-up thinking" by encouraging "joined-up learning" and based on "active citizenship collectively and individually" (Advisory Group on Education for Sustainable Development, 1999).

It certainly seems to augur well that the revised Environmental Studies 5-14 guidelines will be consistent with the expert advice offered to government. The encouraging conclusion to be drawn from the present study is that teachers, both new and established in post, with the necessary commitment, will be competent to put the revised guidelines into practice in their classrooms.

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