

THE ENVIRONMENTAL ELECTIVE: TEACHING EXPERIENCE OUT-OF-DOORS

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The Environmental Elective at Edgewood College of Education in Durban is described. The rationale for the course and its relationship to environmental education and to fieldwork are discussed and appropriate teaching strategies are considered.

A demanding extension of the practical teaching programme at Edgewood College of Education is offered by the Geography Department; this takes the form of an elective course offered to Senior Primary 4th year students majoring in geography. The Environmental Elective has the following features which distinguish it from most of the courses run at Edgewood:

1. The tutorial method is used rather than lecturing. The theory is covered by means of written assignments which form the basis of discussion in tutorial sessions.
2. There is considerable emphasis on a practical component. Students must organize and run a four day fieldwork excursion for primary school children. Much of the course is a preparation for this demanding field teaching.
3. A holistic view of education is adopted, rather than a compartmentalized approach based on traditional subject disciplines.

The course breaks new ground for the students, for, though they have been introduced to ecological principles and many man-environment issues in earlier courses, this is the first time that they consider the role of environmental education in the educational process. Furthermore, though all students in the College are involved in a practical teaching programme, very few have any experience of teaching in the field. A major objective of this course is to provide students with the very specific skills required by teachers if they are to conduct fieldwork excursions successfully. As fieldwork is an integral part of environmental education, the theoretical and the practical components are complementary.

As it is important that students have an adequate theoretical underpinning for any teaching in which they are engaged, the first part of the course involves the study of relevant literature and the writing of a series of essays. Tutorial periods provide the opportunity for the meeting of minds as opinions are tested, ideas clarified, teaching strategies evaluated, and guiding principles established. Experts, such as a member of the Natal Parks Board, have made invaluable contributions to these discussions. The ground covered is indicated by the titles of the tutorials:

- Establishing the need for environmental education in schools.
- Developing a philosophy for environmental education.
- Assessing teaching strategies for the achievement of the aims of environmental education.
- Evaluating locally available material for use in fieldwork and environmental education.
- Designing and producing modules, for children, based on a particular area.
- Environmental education in the school grounds and the child's home.
- Fieldwork in suburbia.
- Fieldwork in urban areas.

A HOLISTIC APPROACH TO EDUCATION

Many educationists see the holistic approach as being

particularly relevant to the primary school. This approach is not offered at the expense of subject specialisation, for each student is a subject specialist and each is aware of the unique nature of the subjects in which he has specialised. As Hilda Taba (1962) has pointed out:

"Each subject ... involves a specific mode of thinking. Each subject has its own logical language, its own canon of using facts and symbols, its own way of relating facts and principles to each other, its own way of dealing with causal relationships. Each discipline has: its own logic, its own way of viewing and organising events and phenomena with which it deals. Each subject ... offers a different type of mental training."

Students are expected to draw on the academic skills which they have acquired as specialists in particular subjects. They must also however, be alerted to the weaknesses inherent in a subject-based curriculum and the dangers it poses to the intellectual development of the primary school child.

A significant modern trend in education is the de-emphasising of the role of the subject disciplines. It is argued that the separation of the curriculum into subjects is artificial, consequently the child is denied insights into the interrelatedness of knowledge. Furthermore, as we are often more concerned about the subject than we are about the child, we have a subject-centric rather than a child-centric approach to the curriculum. Subject specialisation can become an arid exercise, something which the specialists enjoy, but which is irrelevant to the development of the child. Recognition of these weaknesses has led many educationists to advocate a move away from a subject-based curriculum to a more child-centred and problem-based approach. Considerable interest has been shown in Environmental Education because of its possible integrating role in the curriculum. It also appears to be addressing important problems and issues which have been largely neglected by the traditional disciplines. The students examine the tenets of environmental education and critically assess its role, particularly in the affective development of children.

THE ROLE OF ENVIRONMENTAL EDUCATION

The U.S. Environmental Act (1970) defined Environmental Education as

"an integrated process which deals with man's interrelationships with his natural and man-made surroundings, including the relation of population growth, pollution, resource allocation and depletion, conservation, technology, urban and rural planning, to the total human environment.

Environmental education is a study of the factors influencing ecosystems, mental and physical health, living and working conditions, decaying cities, and population pressures. Environmental education is intended to promote among citizens the awareness and understanding of the environment, our relationship to it, and the concern and responsible action necessary to assure our survival and to improve the quality of life."

This and other definitions contain a common core of three essential elements. These were identified in

a model proposed by Linke (1976) and are set out here in a summarized and modified form.

First, and of primary importance, is the awareness of the interrelationship between man and his total environment, and the understanding of both the nature and implications of human impact. Second, environmental education seeks to promote a concern for the quality of life. Third, environmental education should lead to a commitment to the principle of environmental conservation.

The first of the aims, namely to deepen the pupils' understanding of the essential oneness of man and his environment is a pressing need, for the population explosion and rising standards of living are greatly increasing ecological demand. It is becoming increasingly apparent that "the two worlds of man - the biosphere of his inheritance, the technosphere of his creation - are out of balance, indeed potentially in deep conflict". (Ward & Dubos 1972). Consequently one of "the most critical problems facing humanity today is an ecological one of relating human societies harmoniously to their environments". (Ripley & Beuchner 1971). Education has a vital role to play in confronting people with these problems and their implications. Perrot (1975) considers that much of our scientific teaching (and research) should "consider science in relation to the affairs of mankind". By directing attention to real problems and manifestly important issues, education for environmental concern will not suffer, as does so much of our teaching from appearing to be irrelevant.

Gold (1972) emphasises the importance of the second part of Linke's model when he states that environmental education is a collaboration of disciplines to improve the quality of life. Linke argues that it is the application of the knowledge rather than the knowledge itself that characterizes environmental education. Environmental education stands apart from other integrative disciplines in that its central concern is environmental impact and the quality of life. Ward & Fyson (1972) point out that the pupil's concern for the quality of life must start with a sympathetic understanding of his home environment, which for most will be one of man's creation - a built environment.

The third fundamental aim of environmental education was emphasized at the European Working Conference on Environmental Conservation Education held in 1972, namely that environmental education should seek to "Create a responsible attitude among the entire population towards the use and care of natural resources, and the protection of the environment as a whole against damage from pollution and other dangers." (IUCN 1972).

O'Neill (1970) has similarly proposed that environmental education should "stimulate a sense of individual responsibility for the physical and aesthetic quality of the total environment".

Ward & Fyson, in their important work, *Streetwork: the Exploding School* (1973), state that this should logically lead to an issue-based approach. They urge the adoption of a conflict-centred curriculum oriented towards understanding community issues in an urban context, arguing that while the effects of man's activities on the land have long been considered proper material for study, the activities of man as the creator of other men's environments have been largely ignored. Such studies would be conducted in the district and community in which the pupil lives and learns, involving the pupil in the problems of his own locality. This 'streetwork' aims at making the pupil not only aware of 'how things are' in his environment, but also what he, as a citizen, could do about them.

Ward & Fyson (1973) claim that these studies form the bridge between 'school life' and 'real life' for which

teachers and parents are searching and that they provide important training in citizenship. Pupils would thus be prepared for their future roles as participants in environmental decision-making. Indeed, they see society moving from a formal democracy to a full, participatory democracy, one in which people cherish their environment because it is theirs to create and conserve.

Environmental education, then, is characterized more by the attitudes it seeks to develop than by cognitive skills; it aims at commitment to a philosophy. From this outline of its objectives it would seem that the claims of environmental education for a significant role in the education of primary school children should be given serious consideration. Furthermore it has been shown that much of the teaching should take place outside the classroom in the immediate environment of the child.

ENVIRONMENTAL EDUCATION AND FIELDWORK

The need for fieldwork to be an integral part of environmental education is recognized by many educationists (Linke 1976), for they argue that the objectives of environmental education are best achieved where learning is based on first-hand experience. Bird (1966) states that

"The best way of dealing with practical conservation problems is to study them in the field, where relevant environmental factors and ecological processes can be examined at first hand."

Some indication of the part fieldwork should play in environmental education is appropriate at this juncture. Lucas (1972) proposed a model which emphasizes the need for fieldwork in environmental education. This model accords well with Linke's model discussed above. It identifies three classes of environmental education - education *about* the environment, *for* the environment, and *in* the environment. Linke (1976) points out that

"Education *about* the environment could well define the cognitive domain, in the taxonomic sense of Bloom (1956), of interrelationships between man and environment. It includes both the provision of information on environmental issues and the teaching of appropriate technical and intellectual skills required for investigating environmental problems. Education *for* the environment covers the affective concern for the quality of life and commitment to environmental conservation."

Education *in* the environment refers to a particular pedagogical technique i.e. fieldwork. Thus acceptance of this as a valid model of environmental education involves the recognition of the vital role of fieldwork in this form of education.

Though many educators recognize the value of fieldwork, and despite the active encouragement given to teachers by the Natal Education Department to engage in fieldwork activities, the fact is that few schools have a well conceived fieldwork programme, and the rich resources that lie outside the classroom walls are all too often ignored. Unfortunately much fieldwork lacks a sense of purpose and cohesion because teachers have not identified clear objectives for their studies. These shortcomings are due, in no small part, to inadequacies in their training.

Many teachers feel insecure when taking pupils into the field. They are operating outside the familiar structured environment of the classroom, with its four walls shutting out the complexities of the real world, and they are without such crutches as textbooks and overhead transparencies. Furthermore they will often be placed in a situation where they do not have an answer to the many questions that arise as the children explore their surroundings; no matter how carefully teachers have planned and prepared they will always have to contend with the unexpected.

Indeed, one of the hallmarks of good teaching in the field is the ability to take advantage of the 'teaching moment' when a child's attention is drawn to something which arouses his curiosity. While it is true that in the field the stimulus material cannot be regulated in the same way as in the classroom, this does not absolve the teacher from imaginative planning and meticulous preparation. If the excursion is not to degenerate into a happy picnic, the teacher must be clear about his objectives, and he will have to design the programme carefully if these objectives are to be achieved. Add to this the responsibility of taking a group of lively youngsters out of doors, and the many administrative details and organizational chores that seem to be an inevitable part of a fieldwork excursion, and it becomes apparent why so many teachers opt to remain cloistered in their classrooms.

The Edgewood course introduces the students to the rigours of fieldwork in as realistic a way as possible. Having gained a theoretical background they run an extended fieldwork excursion for a group of senior primary children. A school is approached and arrangements are made to take a group of children into the field for 3 or 4 days. The students are responsible for all the administrative work: booking buses, liaising with the appropriate authorities and parents. They must prepare menus, cook, and cost the excursion. Considerable time and effort is spent devising suitable activities and preparing materials for use by children in the field. Furthermore the pupils must be suitably prepared for the excursion, and follow-up activities and evaluation strategies should not be overlooked.

APPROPRIATE TEACHING STRATEGIES

The most fundamental question which the students must consider in this course is: 'How should environmental education be taught?' i.e. 'What teaching strategies should be adopted?' The final year in the training of teachers is an opportune time for them to take what they have learnt in terms of didactics and to apply it to a particular situation.

If the subject disciplines such as biology, geography and history are considered to be merely compendiums of knowledge, then teaching becomes a relatively simple process of producing relevant information, sorting out the more important from the less significant facts and ensuring that appropriate amounts are committed to memory. Dewey (1929) described this traditional approach to education as the 'acquisition of what is already incorporated in books and in the heads of elders'. Books are the focal point of this system of teaching and the teacher the agent who interprets the material for, and imposes standards upon the pupil. A child's attitude must be one of docility and receptivity, active participation by the learner is minimized; creativity, initiative and lateral thinking are discouraged. A further problem is the fact that though the pupils may be able to reproduce the words they have learnt, there is no guarantee that this verbal learning represents a real understanding of the concepts behind those words. Educationists argue that this traditional transmission-reception model of teaching is ill-suited to the demands of a world characterised by rapid change and constant evolution.

To students who have been studying the more progressive approaches to education, it becomes apparent that good teaching practices are encouraged as they work with children in the field. The teacher's role is seen to be changing to that of a manager guiding the pupil along the pathway of discovery learning. In the field the student often finds himself confronted with a question which he is unable to answer, he then has to set out with his pupils to discover the answer, and in the process demonstrates to them where and how the appropriate information can be acquired. Learning has been shown to be more effective when based upon direct

experience and when it is supported by physical activity; these are integral to fieldwork.

The part that fieldwork can play in the educational process was emphasized by Her Majesty's Inspectors in Great Britain.

"Direct experience by the children of their own environment, enquiry into questions raised by themselves as well as those suggested by the teacher, opportunities to talk about what they have seen and heard, and personal records of their impressions rather than class exercises, provide a surer foundation for advance than set lessons with predetermined beginning, middle and end."
(HMSO 1972).

Clearly these enlightened educationists were insisting that fieldwork has an important contribution to make to the education of the child. If this be true then training in fieldwork methods should receive high priority.

THE ENVIRONMENTAL ELECTIVE - A POSSIBLE MODEL FOR FOURTH YEAR COURSES

The Environmental Elective has a number of features which, it has been argued, make it a particularly appropriate course for students in their final year of training.

1. There is a good balance between theory and practice. Not only will students have to draw upon what they have learnt during their training in order to solve particular problems that confront them, but the theoretical part of this particular course has a clearly identifiable purpose in view; its relevance is apparent because the practical application is constantly borne in mind.
2. Teaching in the field is a very important extension of the practical teaching programme. Hitherto students have had experience of teaching only in the classroom, this course prepares them for the even more demanding task of teaching in the field. Many of the teaching skills and strategies which have been developed throughout the students' training are utilized when teaching in the field but, it can be argued, good field teaching places more stringent demands upon the student and requires greater resourcefulness. Observation of students participating in this course has convinced me that the four days spent with the pupils in the field is a highly concentrated learning experience for the students, during which their teaching skills develop rapidly.
3. The course forms a useful bridge between the College and school. Students undertake a complex and demanding task, but this is done under close supervision, and with groups of children which are small enough to be manageable. Students are confronted with real pupils and with the real problems which a teacher must face, but there is appropriate back-up should this be needed.
4. The fact that there is immediate evaluation and feedback enhances the learning process. Essays are marked promptly so that they can form the basis of discussion during tutorials. The students are observed and their performance assessed while they operate with the children in the field. After the children have been put to bed, the events of the day are reviewed around the camp fire. Experiences are shared, successes and failures analysed.
5. In the final analysis, it becomes apparent that the principles and practices of effective pedagogy hold good wherever teaching is taking place, whether it be in the classroom or in the