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CONCEPTS OF ENVIRONMENTAL EDUCATION

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In the last decade several conferences have produced recommendations on environmental education. Some of these were national meetings, other regional, such as I.U.C.N. meetings in Africa, South East Asia and Latin America, and others global, such as the UNESCO Biosphere Conference held in Paris in 1968. Not surprisingly, the recommendations show a remarkable similarity in their attitudes namely that environmental affairs are an important issue requiring the attention of educators of all kinds in all parts of the world. When environmental matters become the concern of educators, and when different facets of them become incorporated in teaching programmes, then it can be said that environmental education, in some form or other, is being promoted.

But an educator seeking to find his responsibilities in this field needs to ask, sooner or later, for a definition of environmental education. Many have been formulated, and several discarded. Of those that have come to my attention, I believe the definition endorsed by the 1970 UNESCO - IUCN - Foresta Institute International Working Meeting on "Environmental Education in the School Curriculum" is amongst the most appropriate as an expression of objectives in the present state of knowledge and opinion. It reads as follows: "Environmental education is the process of recognizing values and clarifying concepts in order to develop skills and attitudes necessary to understand and appreciate the inter-relatedness among man, his culture and his biophysical surroundings. Environmental education also entails practice in decision-making and self-formulation of a code of behaviour about issues concerning environmental quality"<sup>1</sup>.

Having referred to a definition, then obviously one cannot evade terminology. Earlier terms such as "conservation education" are regarded by many people as synonymous with "environmental education"; others would use "environmental conservation education" or "nature conservation education". The precise meaning in each case depends on which country the term is being used in, who in that country is using it, and to the period in the history of the movement to which its use refers. Besides, the breadth of studies in this field is a very significant criterion. Are the concepts in this paper, for example, sufficiently embracing to be regarded universally as "concepts of environmental education"? Probably not; for instance, in the U.S.A. they would likely be regarded as too restrictive with insufficient emphasis on the social and political sciences, and economics.

It is clearly important to strive for terminology and definitions which clarify the objectives and enhance communication between the wide spectrum of interests in this sphere of learning. However, I will not attempt in this paper to define the terms although it is hoped that some attention will be given to this task after the whole

field has been covered by this European Conference.

In developing concepts of environmental education I will dwell briefly on three major aspects namely:

- (i) contemporary and prospective environmental changes induced by our society and the significance of education in this context;
- (ii) the function of environmental education; and
- (iii) the components of environmental education.

### ENVIRONMENTAL CHANGE AND EDUCATIONAL PROBLEMS

Patterns of change in the human environment and the underlying sociological, economic, physical, and biological factors, have been the subject of substantial research effort during this century, and techniques for the design and management of the environment have been developed for a wide range of circumstances. Much of this effort has been aimed towards solving the problems of nations with a well-developed industrial-urban economy, but progress is also being made in the developing countries of Africa, Asia and Latin America.

Whilst it can be said that the professional experts concerned have, collectively, an impressive understanding of environmental problems and the means of dealing with them, the application of their knowledge on a widespread scale is conspicuously slow. Policies on environmental issues, even when they are forthcoming, are all too often unrelated to the knowledge available and to the advice that could be provided. The result is unimaginative land-use planning and landscape design, and the emergence of pollution and a host of other unsatisfactory, indeed sometimes dangerous, environmental factors, which stem from a failure to relate trends in the changing needs of humanity to the potential (and limitations) in the utilization of natural resources. Where imaginative policies and supporting legislation do exist, their implementation is frequently confused and fragmentary. Consequently, the quality of the environment is continuously impaired.

Ignoring this blockage in the application of accruing knowledge will, at worst, lead to much waste of effort and, at best, to delay in the appearance of sounder policies and practices. What, then, is the nature of this blockage? In some instances the problem is financial; in others it is political or administrative. However, there is little dispute that the basic problem is insufficient public awareness of the relationships between Man and his environment, arising from inadequacies in our education systems.

Mis-use of natural resources occurs largely because the present generation has been inadequately trained to realize the need for environmental care. Communities have been uncaring, and unprepared to demand high standards of environment. Their leaders have been unable, or unwilling, to recognize the problems; or they have been ill-equipped to secure expert advice towards finding appropriate solutions. Nevertheless, some communities have consistently demanded high standards, and, towards this end, assistance from trained environmentalists. Thus, there are examples of achievement to provide a basis for the extension of sound practices on a wider scale.

New policies and legislation, supported in some countries by very substantial financial and technical resources, together with important international efforts, such as by the Council of Europe in connection with European Conservation Year 1970 and related programmes, have led to remarkable improvements in environmental care in the last two years. But it is difficult to dispute that, in spite of this, the overall standard of caring for the environment continues to fall far short of what experts would regard as satisfactory. Pressures on the environment, arising from growth of population, industrial progress, and the pollution it creates, and from the intensification, and extension, of traditional and entirely new uses of land, water and other natural resources, are threatening to outstrip the palliatives currently being administered. Serious conflicts still occur between those in our society who have knowledge and foresight, and those who are intent solely on realising rapid, short-term gains with little regard for the immediate or ultimate results of their activities. The gulf between such opposing attitudes can, and must, be closed. Laws, regulations, charters and conventions, appear at frequent intervals and epitomize attempts to restrict the more disastrous practices. However, such an approach can, at best, be expected only to contain the situation. A more effective educational solution is, therefore, needed. Attempts to put forward a realistic educational solution have, however, met a variety of obstacles.

Until recently, few serious efforts were made to define environmental education or, indeed, to relate educational objectives to environmental matters. This was due partly to the difficulties encountered in locating the environmentally-related elements at various levels in the education systems, and partly to inadequate communication between educationalists and environmentalists.

In the last decade, much progress has been made in the analysis of the principal features of such education and its function in a modern society. One of the earliest attempts, dealing largely with the biological aspect of environmental education, was that of the interdisciplinary Study Group on Education and Field Biology which looked

at the problems in Great Britain (1963)<sup>2</sup>. Subsequently, there have been other important exercises, both nationally and internationally, such as workshops arranged by the Commission on Education of I.U.C.N.

The term 'environmental education', broadly embracing activities which are focussed on the study of man's environment, is now finding a place in the educational vocabularies; and educationalists are recognising the fundamental issues and their professional responsibilities in this field of education.

As Philip Oswald (1971)<sup>3</sup> indicates in a recent paper, the conservation movement has been much involved in the development of environmental education. The conservationists' contributions to kindle the interest of educators, or to provide them with concepts and specialist information, continues to be a reasonable, and in some situations, a very important, element in the development of environmental education.

The future, however, must depend upon the effectiveness of educational measures conceived, promoted and executed by educationalists. Jan Cerovsky (1971)<sup>4</sup> stresses that "environmental education needs educators" and elaborates on the recommendation of the UNESCO Biosphere Conference about the importance of an integrated as well as continuous and sustained programme of education and information about the environment.

#### THE FUNCTION OF ENVIRONMENTAL EDUCATION

The impetus for environmental education springs from a recognition of two important issues. First, young people seem to have a latent interest in their environment (especially in its natural features) which, if cultivated, can develop into an understanding of scientific phenomena and an appreciation of cultural and aesthetic values which will bring personal enjoyment and satisfaction in later life. Secondly, the utilization of natural resources is a central element in human behaviour, and conservation, although in practice entailing technical and scientific discipline, is essentially a wise attitude towards the human environment. Those guided towards such an attitude can be expected, individually and collectively, to use the resources of the earth to improve their living conditions in aesthetic and cultural, as well as material, terms. In other words, the concept of the use and care of the environment should become an integrated part of modern culture.

The function of environmental education can be more readily appreciated

if it is considered in the light of the role that young people will be expected to play when they enter adult society. The following groups will make an impact on the environment and may be in a position to take action, or formulate opinions, which affect environmental management:

First, there are those who will embark on a career in the earth and life sciences, including biologists, geographers, geologists, and agricultural and forest scientists, as well as farmers and foresters.

Secondly, there are those who, as planners, landscape designers, architects, civil engineers and the like, will deal with the design, construction, and control, of projects affecting the environment.

Thirdly, there are those destined to become physicists, chemists, and technologists, whose research and development work may severely affect the environment.

Fourthly, there will be the future statesmen, public servants, and other leaders who will - locally, nationally or internationally - formulate policies and authorize actions having far-reaching effects on the environment.

The fifth group, and probably the most important in the long term, will be those who, as the educationalists of the future, will have the task of interpreting knowledge to young people.

The last group includes those who, without any direct professional involvement, should have sufficient interest to form a collective voice which will influence those in the previous categories.

Thus, the function of environmental education can be considered as falling into two categories. First, it provides vocational and specialist training in environmental subjects for those in groups 1, 2 and 5 (above). Secondly, it can form part of the liberal education of all young people, serving as the basis of their understanding of the environment and appreciation of the importance of its conservation.

#### THE COMPONENTS OF ENVIRONMENTAL EDUCATION

Environmental education may take the form of urban or rural studies,

or a combination of both. In formal education, it may include studies within other subjects (such as biology, geology, geography, or social science), or it may be a principal study in its own right (such as nature study, junior science, rural studies, or conservation education). In institutions of higher education, it may take the form of advanced courses in conservation or resource management.

There is also a strong extra-curricular component offered by clubs and societies, both for young people and for adults. These activities have been customarily associated with the naturalist. Thus, very widely nowadays, people who would be surprised if they were regarded seriously as naturalists, are nevertheless obtaining experience of and insight into the natural environment as an integral part of their recreational and leisure activities. Young people are taken on organized expeditions for outdoor recreation, and adults enter the countryside in larger numbers than ever before. Nature trails and other interpretive techniques supported by popular television programmes about wildlife, are contributing greatly towards encouraging public interest in the environment. Increasing public awareness, by use of the mass media and by such methods as nature trails and other interpretative programmes on sites such as national parks, recreation areas and so on, raise the level of awareness amongst people who had no opportunity to be exposed to environmental affairs during their formal education earlier in life.

This is of importance for two reasons. First, it enables an enlarged proportion of the community to obtain greater satisfaction out of recreation and leisure activities that involve the environment, because they are better prepared to understand the components of the environment and their own relationships with them. Secondly, it equips the community to participate more effectively in discussions about town and country planning and other processes entailing environmental manipulation which directly affect their own lives. The importance of public participation, and of education to make it possible, are emphasised in the Council of Europe's report on "Regional Planning, a European Problem" (Council of Europe, 1968)<sup>5</sup>.

Comparative analyses of the current position in schools and institutions of higher education and of other aspects of environmental education in north-west Europe in the mid- to late Sixties are contained in "Environmental Education: the social relevance in North-West Europe", issued by the Council of Europe (1968)<sup>6</sup>; information about developments in other regions appears in IUCN publications 1965 - 71<sup>7</sup> and UNESCO publications 1969<sup>8</sup>. The following are among the issues that have been considered:

## Schools

In primary schools, environmental education comprises local studies of plants and animals and their habitats, with the aim of stimulating the child's interest in living organisms and in earth, air, and water. One opinion, widespread amongst progressive teachers, is that such studies should be treated as a gateway to scientific education. If imaginatively taught, they can embrace not only simple biology and earth science but also mathematics, chemistry, and physics, as well as history, art, and literature. Additionally, they offer opportunities for practical activities, such as mapping and the conducting of simple experiments. Several innovative teaching methods now being tested in different countries, are providing guidelines for widespread improvements along these lines in primary schools.

This unity of approach is more difficult to maintain at the secondary-school level. In practice, the main elements of environmental education are usually found in biology and geography (where they have to compete with a wide range of other studies). Thus, environmental education occupies a confused and unsatisfactory position. At the lower secondary-school levels it is part of both liberal and scientific education, but at the higher levels, it is usually only provided for those who aspire to professional or academic qualifications in the environmental sciences.

At the primary-school level, interest in environmental subjects is easily maintained. However, there are serious problems in sustaining this interest at the lower-secondary level, where the broad, environmentally-based studies of the primary school are rather abruptly replaced by circumscribed scientific disciplines, some of which are arbitrarily chosen and of a narrow and specialist kind. Biology, for example, which is an essential component of environmental education, frequently becomes separated into such compartments as morphology, anatomy, physiology, and genetics. Then there are organizational difficulties in providing time and facilities for studies out-of-doors, which are an essential ingredient of environmental education.

The average secondary-school child is not, therefore, placed in a position from which he or she can easily pursue the environmental approach. Such an unfortunate situation, however, is less widespread than it used to be; in some countries, rapid progress has been made towards strengthening the unity of scientific disciplines by maintaining the characteristics of the best primary-school studies, whilst achieving advanced and profitable educational standards.



Reference has already been made to the social values of environmental education. If its value as a medium for creating a better society in the future is accepted, then much more attention should be paid to this subject at secondary-school levels. What kind of dividend could be expected? Can environmental studies contribute towards achieving universal scientific literacy, which is one of the major challenges of our time?

Educationalists are finding that these studies do provide opportunities, by virtue of their flexibility and breadth, for pupils of varying bent and ability to obtain a mental training to equip them to look at problems objectively. Can these studies also enable young people to obtain greater satisfaction out of their environment both now and later in life?

Youth, growing up in urban surroundings, and without easy access to open-air facilities for spontaneous recreation, is being faced with complicated emotional problems, and some young people are finding great difficulty in adapting themselves to existing social patterns. Sociologists might consider whether boredom may or may not be related to the inability of youth to obtain any mental or physical refreshment from the environment. They might also consider the potential for a joint study of the problems by sociologists, educationalists and environmentalists.

At senior secondary schools (gymnasium and equivalent) the biological sciences, taught as the basis for entering higher education courses in the environmental sciences, containing varying amounts of ecology. It may be argued that there should be a much larger ecological component; but this leads to controversy on the merits or otherwise of early specialization. The options emerging from educational development work, such as the US Biological Sciences Curriculum Study, the UK Nuffield Science Project, and curricular studies in Sweden and elsewhere, have provided opportunities for reform leading to a more effective secondary-school education in environmental subjects - both as an end in itself and as a basis for advanced studies and vocational training in environmental science (especially ecology).

#### Higher Education and Training

Universities and other institutions of higher education in many countries are becoming increasingly conscious of their responsibilities as centres which ultimately have a tremendous impact on the way in which the human environment is treated. They are the primary centres of fundamental and applied research, and they exert a dominating influence in educational circles because their entrance

requirements determine the pattern of teaching in secondary schools, quite apart from the fact that they train the majority of teachers for these schools.

The approach to education and training is greatly affected by the location of the institution concerned, its historical background, and the specialized interest of its professors and other staff. It is, therefore, exceptionally difficult to provide an over-all view. Environmental education normally comprises a range of subjects which are taught either separately as distinct disciplines or together as an integrated course. For undergraduates, such education usually takes the form of ecology taught as part of botany, zoology, or biology; or it may be taught as environmental studies, in the case of geography. Some courses for town and country planners, landscape designers, civil engineers, foresters and farmers, also incorporate ecology.

New courses on ecology, environmental studies, natural resources, and related subjects, have been appearing in many countries during the last few years. They are oriented towards conservation and the management of natural resources. An account of significant developments in Europe, the United States, and the Soviet Union (IUCN, 1967), contains comparisons between courses currently available to meet a variety of vocational requirements.

The growing demand for specialists with a scientific background to deal with environmental problems has undoubtedly affected the degree to which conservation philosophy is entering into current syllabuses. However, vocational considerations are unlikely to be the only reason for professors to include a larger component of environmental education in their teaching programmes. Probably of greater significance has been the recognition that the management of natural resources is an applied science in its own right. Greater emphasis on these subjects may, in some institutions, also have resulted from reassessment of the content of courses in biology and the earth sciences.

Ecology and related subjects have been drawn into a debate about the value of broader-based studies at undergraduate levels as opposed to early specialization. Further, it has been argued that ecology and other environmental studies are particularly important as a bridge between botany and zoology; and similarly, there are geographers and geologists who wish to see closer relationships, mainly through ecology, between their subjects and biology.

The information so far obtained by the Commission on Education of IUCN, although incomplete, indicates that there are educational

problems and teaching techniques which are common to many countries, but there are others which have hitherto been characteristic of certain places only, yet could profitably be adopted in a modified form to meet the needs of many other institutions. There is a need for greater efforts in educational research, particularly on the relationships of higher education and training to the patterns of vocational requirements that are emerging.

There is clearly a need for an appraisal to be made of the following situations:

(1) The present position, in higher education and training, in the environmental sciences in all parts of the world, with special emphasis on obtaining information about major types of courses and techniques of teaching, which are aimed at achieving distinct educational objectives and at meeting widely-varying vocational requirements.

(2) The existing, projected, and potential, demand for environmental scientists and other key personnel who would benefit from environmental education, especially in the developing countries. This appraisal should include an investigation into the extent to which different types of training may be related to existing and projected characteristics of vocational requirement, which in turn can be expected to respond to changing pressures on the environment.

### Future prospects

The experience gained in the last decade should now form a valuable basis for widespread development of environmental education. One of the major tasks ahead is infusing concepts amongst those who are in a position to take decisive action for its promotion. There will be a need to identify existing achievements and weaknesses, and questions such as the following could usefully be explored:-

- (i) What are the major environmental problems facing rural and urban societies?
- (ii) Which of these problems present a direct challenge to educationalists?
- (iii) What measures are educationalists taking (or should be taking) to relate education to the task of preparing society to obtain the maximum cultural, aesthetic and material benefit from its environment?
- (iv) How should such measures be developed in educational terms at school, in the universities, teacher training colleges and technical colleges, and outside formal education?

- (v) What long-term benefits can be expected, in terms of
  - (a) improvements in the educational process, and
  - (b) a better environment, by adopting a more positive environmental approach in teaching?

Widespread and radical changes are taking place in education systems - in organizational structures, syllabuses and teaching methods. Unless the environmental element is properly assessed in the context of these changes, then it may soon be too late to ensure that it becomes effectively incorporated in the new educational patterns that are now emerging. In these respects, it is hoped that the present Conference and the forthcoming U.N. Conference on the Human Environment in Stockholm, 1972, will assist governments to ascribe appropriate priority to environmental education.

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## RESUME

### TOM PRITCHARD : LE CONCEPT D'ÉDUCATION EN MATIÈRE DE CONSERVATION DE L'ENVIRONNEMENT

Les méthodes de conservation et de gestion des ressources naturelles élaborées grâce aux recherches et à l'expérience acquise n'ont souvent pu être mises en pratique en raison d'une absence totale d'éducation en matière de conservation de la nature. Dans ce contexte, les responsabilités de l'éducateur sont examinées. La notion et la fonction de l'éducation pour la conservation de l'environnement sont ensuite définies.

Les caractéristiques essentielles de l'éducation pour la promotion de l'environnement sont dégagées et les tendances les plus récentes dans les écoles et les établissements d'enseignement supérieur et de formation sont exposées. L'auteur souligne la nécessité de développer la recherche pédagogique, notamment en ce qui concerne les rapports entre les objectifs de l'éducation et les impératifs changeants de la société. La nécessité de former des spécialistes compétents est également rappelée.

L'auteur conclut par une brève description des perspectives d'avenir.

## ZUSAMMENFASSUNG

Tom Pritchard: Auffassungen der Umweltschutzerziehung

Die durch Forschung und praktische Erfahrung entwickelte Methoden zur Erhaltung und Erschliessung natürlicher Hilfsquellen sind in manchen Fällen in der ganzen Welt nicht angewandt geworden, zum Teil der Unzulänglichkeiten in der Umweltschutzerziehung wegen. In diesem Zusammenhang wird die Verantwortung des Erziehers betrachtet und die Definition und Funktion der Umweltschutzerziehung erörtert.

Die Hauptkennzeichen der Umweltschutzerziehung werden dargestellt und die zeitgenössische Richtungen in den Schulen und dem Hochschulwesen erwähnt. Auf der Grundlage der Beziehungen zwischen Zielsetzungen der Erziehung und wechselnden Beziehungen zwischen Zielsetzungen der Erziehung und wechselnden Bedürfnissen der Gesellschaft wird die Bedeutung der geförderten pädagogischen Forschung betont. Auf die Wichtigkeit ausgebildete Fachleute zu verschaffen wird ebenfalls hingewiesen.

Zum Schluss werden die künftige Aussichten kurz geschildert.

## РЕЗЮМЕ

### ТОМ ПРИТЧАРД : ОСНОВЫ ПРИРОДООХРАННОГО ПРОСВЕЩЕНИЯ

Методы охраны природы и рационального использования природных ресурсов развитые в результате научных исследований и практического опыта остались непримененными в некоторых случаях во всем мире, частично из-за неравенства в просвещении по вопросам окружающей человека среды. В этой связи обсуждается ответственность педагога и рассматривается определение и функция природоохранного просвещения.

Изложены основные черты природоохранного просвещения и отмечены настоящие направления в школах и высших учебных заведениях. Именно на основе отношений между воспитательными целями и изменяющимися нуждами общества подчеркивается значение развития педагогических исследований. Также намечается значение подготовки квалифицированных специалистов.

В заключении наброшены будущие перспективы.