Keynote Speech

I want to start by making clear the perspective from which I speak. My field is education, rather than environmental studies. Within education, my specialization is in curriculum, research and development. About schools.

I cannot define the scope of that area of specialization better than in the words of your own Curriculum Development Centre:

"A broad concept of curriculum includes the totality of experience which a child undergoes during his schooling. Curriculum development, under this definition, is concerned with developing materials, practices and organizations which effect this experience. The task of CDC is seen as being concerned with the development in such areas as resources, sequencing of learning activities, teacher-pupil interaction, organization of the learning situation, and the teacher's general approach to children and teaching."

To this Australian definition, I'll add an emphasis of my own — a two-fold emphasis. First, curriculum research and development is concerned with the difficult task of interpreting educational aspirations into practical school realities: it stands at the interface of theory and practice.

Second, curriculum research and development is not to be an attempt at teacher-proofing; it's about the communication about ideas among teachers. When educational ideas are translated into curricular proposals, they take a form which makes the teacher equal with the academic education
In translating ideas into the classroom the worker in curriculum research and development gives intellectual hostages to the teachers. Books belong to academics; curricula belong to classrooms and therefore to teachers.

Curriculum, then, is about educational ideas dissipated by practice and practice beamed by educational ideas.

It is from this standpoint that I look at environmental education.

I note first that there is a danger of an educational lobby in environmental education— as in education for world peace, for race relations, consumer education and health education.

I define a lobby as a pressure group seeking to influence the curriculum of schools in the light of a social, rather than an educational, concern. That is to say, a lobby does not consider the wider educational issues adequately; it overemphasizes some particular social concern. And too often it delegates to the schools social problems which should be settled by adults through ethical and political means.

So I do not want to start upon the topic of environmental education from the standpoint of social needs, but rather from the educational needs of children in school, and to do this I must briefly sketch an interpretation of those needs which will necessarily be personal and controversial.

Children have a right to demand that the school give them intellectual and emotional
confidence and competence by offering them progressive understanding of knowledge and progressive mastery of skills. This demands transferability of understandings and skills, the building of significant perspectives on the world — and also the right to experiment and hence to take risks and make errors.

Taken from this standpoint, which one might call the standpoint of general education, I think environmental education may have something to offer the schools if its ideas can be translated effectively into practice. That is, of course, something to be tested, but I can give some prima facie grounds for suggesting that it may be worthwhile to embark on testing.

The view of education I have put forward suggests to me that the school curriculum should, in addition to introducing pupils to the major disciplines of human knowledge, offer them opportunities to encounter a number of major ideas which cross many of the boundaries of those disciplines and which have man's intellectual history proved compelling to his imagination.

The ecological relationship of beings and environment, of action and context of action, appears to be such an idea. It expresses itself in built forms and religious ritual in many ways. Man's relationship to his environment is the subject of cultural and religious rituals. In the world of action it expresses itself in architecture, in town and landscape planning, in husbandry and conservation. In the world of understanding, it is the theme of much landscape pointing
both Constable and Canaletto, for example — and of literature — Dr Loize has quoted Wordsworth as a prominent example, but we must not forget the literature of the city — Smollet or James Joyce. Toynbee's study of history is centrally concerned with the theme. It is the stuff of human geography, as of urban and rural sociology. The theme came into the biological sciences comparatively late after a period of analysis and taxonomy, but is now central. And though the physical sciences are not centrally concerned with it, social responsibility has urged the physical scientist to a concern for the application of his findings to the modification of man's environment.

I need not go on. I am simply trying to hark back the idea of environmental education in its broader context and to argue that to some degree the educational scheme which can be made for environmental education rests upon that breadth. I am arguing that it is at least possible that the interaction of man and other living things with his environment might interest a teacher motivated by intellectual and educational concerns rather than simply by social mission or a desire to promote conservation. It may have force like the idea of man's relation to time or like concepts such as cause or like man's gift of language.

But we have been flying a little. If these ideas are to become curriculum, we had better land and take stock of practical.

Let's look at three proposals for environmental education in the schools. The first is that the schools as they are pull forward to the Australian documents sent us.
There appear to be three major approaches to environmental education open to the schools, though there are minor variants on these. One is to treat environmental education as a topic in general or liberal studies course. A second is to locate the heart of environmental education in the teaching of the sciences. The third is to regard environmental education as an emphasis which might express itself throughout the curriculum.

Now, so soon as I turn to the practical I suffer from the fact that I know very little about Australian education. So I can only interpret these three lines of policy against the British background and ask you to consider whether our experience has any relevance to yours. And I'll concentrate initially on the secondary school because that is where the institutional pressure on curriculum are most acute.

The first approach in which “environment” is a topic in a general studies course would appeal to teachers who, for example, have worked within the traditions fed by the Keele Integrated Humanities Project, the Humanities Curriculum Project and the Yavat General Studies Project. I believe most teachers in the general studies/liberal studies field would look with favour on a unit on environmental education if it served their educational objectives and avoided a propaganda stance.

In Britain the difficulty with such an approach is that it tends to reach only two categories of pupils from the age of 14 onwards: the less academic and the sixth-form in a school which takes minority time seriously. All the same, I wish we had tackled environmental education through the Humanities Project, and would welcome the chance to do so now.
The second line of development, that of environmental science, is also attractive and at first sight. An environmental emphasis has some force as a principle of integration of the biological and earth sciences. It seems to me that it is strained somewhat if the physical sciences are brought in, but I have with me an English scheme, used in technical education which achieves this integration. And at the least an integration of biological and earth sciences links naturally across to the physical sciences.

The difficulties with this line— at least when the aim is wide from integration— lie in the threat it poses for teachers who have themselves been educated in the individual sciences, both in terms of their own knowledge and in terms of the political structure of the school— people whose position, power and status in the school depends upon their subject competence— do not easily take up integrated approaches. When they do, they often almost unwittingly undermine the integration— see David Hamilton’s Geographical Edinburgh and there, now repotted in summary in Case Study of Curriculum Change, which describes this process in respect to Scottish Integrated Science.

At the same time, the growth of environmental science at tertiary level does offer prospects of a slow integration. My own university has a school of environmental sciences and it is not alone in this. I’m all sure of the situation here though I feel that the Dept of Natural Resources at Amundale, at present basically a professional school, may well develop in that direction under the pressure of undergraduate courses.

Certainly I feel that the environmental idea is a forceful and important one in this science context.
And a last: A lot of the barriers is it his the teacher's sense of his own competence and knowledge. If they are weak, then environmental science would seem to have a promising future, precisely because it is the environmental principle is so integral to the content.

On the other hand, a large number of students reject science at school. In Britain, at any rate, science enrollments at tertiary level are falling compared to the humanities and social sciences. Thus, in so far as environmental science is seen as a vehicle of changing people's consciousness it has severe limitations. One could argue that it will influence the world picture only of those who make science choice in their course.

The third alternative—of which I have seen no examples at secondary school level—is to attempt to influence a range of subjects without integrating them. For example, a teacher may in his environment might well be a theme in the teaching of literature and of art; it could clearly be a theme in religious studies for it figures in religion; it is obviously of central potential for social studies and for geography. In have economics it seems to me is have great potential, both in terms of thinking about the kind of environment we want to create for ourselves—and to make making one's own room satisfying—and in terms of the possible study of a household as a system in the light of systems theory. And the science applications, already disarmed, would stand.

The condition of an impact expression of the environmental idea across subjects is that an appeal is made to teachers in a subject area, not an environmental base. They have got to see that
a consciousness of the relationship between man and the environment will improve teaching of their subject in the terms that they value it.

So I'd be inclined to advocate a broad-front attack which seeks to explore the power of the environmental conceptual framework across the subjects of the curriculum. Such an approach would mean that we should address efforts in research and development to teachers of general or human studies and to teachers of science among other teachers, treating these as two areas of study among many which are relevant.

There are two other points I should like to stress, particularly because I believe they are somewhat underemphasized in the Australian documents I have seen.

First, the human and existential aspect of environmental education is crucial. Any study which is to see the imagination of young people needs to be man-centred and experience-centred. We need to be asking how people feel about things and not simply dealing in a pattern of causes and effects.

Second, I think it would be a mistake if
an urban emphasis were neglected. Of course, we must
conserve the natural environment, especially perhaps in
Australia for I already grasp that the apparent beauty
of the land is not deeply rooted, but highly vulnerable.
But we must also bear in mind the need as we
conserve nature to create urban environments which
favour gracious styles of living, environments where
our patterns and scales of building create spaces
congenial to man. hence can续续 us lessons
as can Edinburgh. And again I may perhaps say
that this is especially important in Australia for
not only is Australia an urban nation but she is engaged
in recreating her cities, in deciding what is conserve
and what to make.

So much, then, for the outlines of an approach.
But how to go about all this?

Let me set in the centre of the stage the
problem of dissemination. All our experience has suggested
that in education good ideas do not make their own
way. Indeed, much of our investment in curriculum
has run into the ground precisely because we thought
these ideas which would nurture a pattern such as
we have here would necessarily both command themselves
to teachers and be within their reach in the practical
world of the classroom. Not so. Secondary curricula
can spread like bushfire if they are well organized for
demonstration. Brilliant ideas can just as readily founder.

Now, demonstration is intimately involved with understanding of the educational system
and the teachers who work in it, and I lack this knowledge in Australia. So I must rely on what
I know and ask you to interpret what I can say in the light of your experience.

Our experience is that demonstration must be
founded upon a care for the autonomy of teachers.
No curriculum while claims to be right because it has
been tested wide-spread in the end because the tendency
of that claim is to overrule teacher judgment.
And classrooms are unique. Even from year to year.
The teacher who attempts to produce last year's success
with this year's pupils is apt to be disappointed. So
curriculum offerings must be volatile, not static.
Demonstration is not offering curriculum as curriculum,
but offering ideas through curricula to working groups.
Sell yeast, not May Baker ready-mix.

I also believe that no investment
in curriculum materials is justified if the materials
are not imaginative and minimally. I have bended
rise in the materials of the American Earth Science
project, just such materials. But I honestly doubt the capacity of teachers to use them if they simply fall into their hands. For innovating materials demand a change of attitude and method. As my colleague, Tony MacDonald has said, they ask the experienced teacher to change his role and approach in the classroom so he finds himself taking on the burden of incompetence. So learning from these experiences is needed. Curriculum development of significance rests upon teacher development.

In the face of this problem, curriculum researchers (I prefer the term to developers) have no direct line to God which will give them wisdom. You cannot devise new methods and approaches from outside the classroom; this is only possible through the close cooperation of curriculum researchers and practicing teachers. Successful curriculum initiatives are rooted in the close study of classrooms and schools. The curriculum researcher needs to cast himself in the role of learner and the schools are his teachers. Curriculum is the subject of experiment rather than of trial.

It follows from this view that what is to be disseminated is not a bundle of materials but the experience of experimental teachers who have worked with those materials.
And note that their experience is not simply classroom experience. It is also experience of relations with other teachers in the political situation of the school. How do you form a mutually supportive group of teachers to embark on a difficult curriculum enterprise? How do you prevent other members of staff from being threatened by such a group?

If there is anything in such an analysis, then curriculum research and development should keep in the centre of its attention the needs of teacher education workshops. And I think those needs are: training materials, teaching materials and staff.

Training materials seem to fall into two categories: materials in the content area and materials about the possibilities, problems and effects of teaching in that content area. Materials in the content area can for the most part be written by scholars if they are properly briefed. They might include basic material from the discipline, explanations of concepts, an introduction to systems theory to support the home economics teacher who is trying to analyse the household as a system.

Materials about the possibilities, problems, and effects of teaching in a particular curriculum area are for me the crucial product of curriculum research.
and development. These are the materials which attempt
to portray the experience of the classroom and
of the school. They will include measurement reports,
audio- and video-tapes, protocol accounts of teacher
experience, case-study and interview data, and
measurement results where these are relevant. When
curriculum development and evaluation are carried
separately — a situation I should wish to avoid—
these materials are the products of the evaluation.
They are crucial for transmitting understanding
and making the curriculum initiative accessible and
understandable to teachers. They feed teacher judgment.

It is worth noting that in our experience the
major area of
great problem is escaping from authority. Teachers too
frequently expect solutions to their problems when they can
only be offered a strengthening of their hand in
dealing with them. We have found it important
to avoid any lecture situation — situations like
this— and to avoid presenting video-tapes as models.
For example our video will be called 'problems of
Teaching through discussion', not 'how to teach
through discussion'.

Teaching materials are needed for two reasons,
I think. One is rather matter-of-fact. Teachers
are hard pressed for time and can do with any
help that takes burdens off their shoulders.

The other lies at the heart of curriculum as a
field. No one in curriculum should present ideas
to teachers without facing the problem of translating
these ideas into classroom realities. And for the
most part this involves the design of materials which
exemplify the ideas at stake. Certainly, when materials
are involved in classroom practice, it seems
absolutely necessary to produce them for discussion
by teachers, even if they are not published. Hence
the idea of exemplary materials, state packs and
so forth. Hence a problem in training teachers and
staffing.

It is, however, probably fair to say that
the extensive curriculum failures in the United
States and Europe have become due to an overemphasis
on materials — especially where the claim is made
that the materials are tested — and an underemphasis
on dissemination and teacher development.
This raises the issue of staffing. If we are to mount teacher workshops, then we cannot rely on a small research group who developed the curriculum to staff them. Out of the necessity of a programme of curriculum research and development, participant teachers must be prepared for staff roles; in short, we must be concerned with the training of trainers. We have interviews with teachers who have been involved in ACTIVEMAT which suggest that the demands of the role can be very difficult to meet.

There is also the problem of influencing training institutions such as colleges and universities. We have found this most difficult of all. Curriculum research and development presents great problems to trainers of teachers. It is extraordinarily difficult to master a curriculum without teaching it, yet it is not easy to get the opportunity to teach, and there are so many curricular offerings that trainers may well despair of covering the field.

In the face of all these problems, what is the problem of evaluating the effects of a curriculum? I think I can predict probably effects in the effective and attitudinal areas. My hypothesis is that in any representative sample of schools some will move mean scores in one direction, some in the other. That is, there is
not likely to be any teaching of environmental education which does not at some schools make mean scores in attitude to the environment deteriorate. These are cases where pupils, for one reason or another, reject the value system of the school or the teacher.

If there is any credibility in this hypothesis, now you must in any evaluative attempt to account for the variability of effects between schools. Statistical procedures are expected as probabilities and probabilities are of little use to the teacher. He must be able to predict by judgement, not trust in the odds.

This means, I think, measuring dimensions which may correlate with those which are at the centre of attention, usually such dimensions as personality traits, attitudes to school and teacher, self-concept, academic motivation and performance in reading.

I said at the beginning of this talk that I must speak as one involved in curriculum research and development rather than as an expert in environmental education. And I have gradually moved, nearer and nearer to curriculum theory. I hope that will not have been too tedious for those who are mainly interested in environmental issues. I think it is a matter
Curriculum theory is produced out of people making sense of their failures and mistakes. It provides navigational charts which may prevent you running on the shoals.

Perhaps I could end by attempting to define what I think a curriculum should offer to teachers, suggesting this as a starting point for design.

I do not believe that a curriculum specification of this sort can be reached except through the empirical study of classrooms in action.