Environmental Literacy & Nature Conservation: Enacting the Future

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Australia is among the most ancient lands in the world, and our isolation and our climate are the principal reasons why our landscape, soils, plants and animals are unique. Australia is also the location of some of the largest segments of undisturbed wilderness remaining on the planet. In fact, there is more designated wilderness in Australia than there is in all of the African continent.

As a fairly recent arrival in this country, it is my impression that Australians are proud of the vastness of this land and are accustomed to thinking of their country as a treasure house of natural resources. School children in the 50's, 60's and 70's were regularly treated to lessons which extolled the vastness of the country and the richness of its resources. Grasslands covered with sheep and cattle extended to the far horizon, a rich range of agricultural products to help feed the rest of the world were grown, the coastline teemed with fish, and untapped mineral riches lay beneath the surface of the land at every turn.

As we close in on the 21st century, this vision seems far removed. Exotic species of plants, animals and diseases threaten our biological diversity. The environmental problems of soil and water salinisation, soil erosion, atmospheric pollution, siltation and marine pollution have become widely recognized across Australia.

CLOSE TO HOME

Sports anglers, once accustomed to unrestricted limits on their recreational catch, are now faced with stringent quotas while many commercial fishermen begrudge them even those in the growing competition for fewer and fewer fish.

Long time residents of Perth who grew up with red-tailed phascogales in their backyards or neighbourhood bush now only see the neighbour's cat.

Even the sun's warming rays have taken on a menacing aspect as concern continues to grow about reduction of the earth's ozone layer with an accompanying danger of skin cancer.

And, as speakers earlier in the week have pointed out, we continue to lose topsoil at an alarming rate, which is a recipe for the creation of agricultural slums.

To the children of the 90's, the Australian landscape, while it is in far better shape than that in many parts of the world, seems neither so limitless, nor so pristine. Will their children marvel at flights of black cockatoos or thrill to being able to stand alone on an unpolluted, white sandy beach with only their thoughts and the rhythm of the waves?

TURNING TO EDUCATION

As concern grows for the future of all elements of the Australian landscape, from inner cities to the Top End, it becomes only reasonable for governments, business, and parents to turn to educational solutions for those difficult problems. Surely, if we have been guilty of mismanagement of our resources and of polluting our environment we can then educate a new generation of young Australians so that these errors will not only not be repeated, they will be repaired.

In a sense, Environmental Education and Heath Education derive from a similar awareness: an ounce of prevention is worth a pound of cure. Just as the medical profession has belatedly begun to pay attention to the incredible costs of "fixing" sick people after they have devastated their health through faulty life styles, so too have we begun to realize the enormous costs of restoring a spoiled landscape or a polluted river. We have begun to see the costs that for so long were hidden by the apparent vastness, and hence "cheapness", of our resources. But awareness is growing slowly, and unevenly. Many people still prefer to see environmental problems as being somewhere else, on someone else's doorstep, and therefore not as their own responsibility.

But the atmosphere and the oceans, the air we breathe and the water we drink are really universal commons, not only of our species, but of all the life forms on this planet. Humans and fish alike die of tumours or from living in polluted environments. So, as the problems of the environment come home to roost on our collective doorsteps, we are forced to ask how we might extricate ourselves from this mess. We become concerned about the health of our children and grandchildren. We lament the subtle deterioration in the quality of our lives. And we turn to education - in and out of schools - to address the problems.

In our search for a sound basis for nature conservation and for communicating and educating successfully about nature, it may be helpful to ask some organizing questions. Of those that might be asked, I suggest that the following may be most useful:

- What constitutes effective nature-based education as we head for the 21st century? What may be just wasted good intentions?

- What knowledge, skills and abilities does an environmentally responsible citizen have to possess?

- And, what should be the goals we strive to accomplish with our various environmental education programs ... not with some, or with a handful of the academically talented or the socially elite, but with everyone in Australia?

TECHNIQUES GALORE, BUT ...

All through this conference, various people have presented exciting and important workshops and papers that deal with the various techniques for communication and education: the effect and use of television, interactive displays, role playing and the like. Various ways to link and involve the wider community have also been discussed and demonstrated.

Much of this work is at the pointy-end of the stick: it is the "doing" part. Of more interest to me this morning is that which is the basis for any of our communication and education programs, the "why" part: the reasons we have for heading in one direction over another. For me, that basis is the development of environmental literacy, of the capacity for environmental good citizenship at a local, national, and global level. Otherwise, we will continue to lurch from one environmental "crisis" to another in a seemingly never ending series. True environmental education needs to be founded in a clear conception of what constitutes such literacy.

My understanding of this is far from complete. However, I believe that what goes into developing environmental literacy depends on the nature of environmental problems and on the operation of ecosystems, on the nature of the social and political issues concerning the environment, and on the requirements for knowledge, skills, and action that environmental concerns appear to demand.

The first element is the ability to think about how nature works.

It has been noted, with some measure of truth, that for many of today's urban children meat is produced in the supermarket and milk comes from vats in the basement.

Our modern world is very complex. Technology makes our lives easy, but it also insulates us from the consequences of many of our actions. Many people don't know where how our electrical power is produced, or where our wastes really go when they disappear down the drain. Many don't understand how our foods are produced, our clothing manufactured, or how various resources are used.

The type of understanding required is best described as the ability to think eco-systematically. The central message of modern ecology is that everything is in fact connected ultimately to everything else. It may be convenient, and even necessary, to separate or reduce a system into components so that we can analyse and understand it, but it is also necessary that we think things back together again.

So, the first challenge to developing environmental literacy is to reconnect ourselves to the planet, to understand where things come from, where they go to, and how much energy and material is used along the way.

THINKING ABOUT TIME

The second element of environmental literacy is that, along with systems thinking, we also need to introduce the concept of time.

We need to work at extending people's capacity to think beyond the here and now. What seems to be a quick and convenient "fix" today has often turned out to be the genesis of serious environmental problems in years to come.

Have you ever noticed how many people today seem to have genuine difficulty thinking beyond the term of their own life span? In fact, many seem to have difficulty thinking beyond this year. Most environmental problems will not be solved quickly. Australia's problems with feral animals and land degradation, for example, will require extended effort over many, many years. Results will be slow. It seems that people living in an age of instant electronic miracles are impatient with the idea that something might only have results in many years, if in their lifetimes. We need new modern fables and creative activities to foster the capacity to think beyond the tyranny of the urgent.

THINKING ABOUT VALUE

The third element of environmental literacy is the ability to think critically about value issues.

Almost all modern problems, environmental or otherwise, are linked with human value systems. But contemporary Australian society is pluralistic and multicultural. We do not have a common, culturally agreed set of values. Let me give you an example. Many environmental educators are people who value the outdoors in natural settings, if not real wilderness. Yet is has been estimated that Australians now spend less that 8% of their total lives actually out of doors. For many people today a glamorous shopping plaza offers more attractions than the forest or the seashore. What we value is reflected in our actions.

BIGGER NOT ALWAYS BEST

A fourth element of environmental literacy is the ability to find true value.

Many people assume that bigger or faster or more expensive is better. We confuse the possession of many material possessions or money with higher moral authority. We have difficulty distinguishing between the medium and the message. We assume that if a lot of people do something, or believe something, then it must be right or true. We assign numbers to things that can really only be assigned qualities, and we assume that because we have enumerated them we have also addressed their value.

Why do we need to plant trees on cleared farmland? What's the value of a clear, flowing stream? What difference does it make whether starlings replace willy wagtails in our front yards? Isn't the number of our possessions an indicator of our success and the quality of our lives?

Such questions are at the core of many environmental decisions. In the structure of modern life it is often apparently easier to pollute or waste than it is to conserve. Only the capacity to think about number, quality, quantity and value issues can enable us to challenge these assumptions.

A fifth element of environmental literacy is what can be called the ability to distinguish between the map and the territory.

We are surrounded by high quality representations of the world. We have video in full colour, wrap-around stereo, simulations, models and now, something called virtual reality. While these representations can be very useful in helping us to understand components of the environment, do they cloud the way things actually are?

We often become so fond of our maps that we forget that they may not be entirely faithful representations. Let me give you an example.

HOW BIG IS MY COUNTRY?

Before I came to Australia from Canada in 1989, the National Geographic Society published a new world map, one based on newer projections, and not on the common Mercator version that so many of us were raised with. Many people in Canada, myself included, found the new map to be a little disturbing: it seemed as if Canada, and in fact most of the northern hemisphere nations, had shrunk dramatically. The old Mercator projection had made countries that were farther away from the equator seem much larger that they actually were. Such a map was comfortable for a world dominated by northern hemisphere powers. Now, as the world moves to new alignments of power and resource allocation, the people of the northern hemisphere will have to learn new maps that more closely represent the actual distribution of land and resources on the planet.

Likewise, many of our notions of the environment are in fact elaborate deceptions. We have learned ideas about animals from the cartoon creatures of our childhood. As enjoyable as these were, they are less than reliable representations of how animals actually behave. We also have similar myths about wilderness and about the beauties of nature. Not all natural environments are obviously beautiful in the calendar art sense of the term.

Few Australians have ever seen the desert heart of Australia - away from some of the tourist attractions - and few are likely to. Some would find this ecosystem uncomfortable and forbidding, if not frightening, at least at first. But this would hardly be an argument against its conservation.

Natural environments seldom measure up to the manicured pleasure gardens some of us have been taught to expect.

The sixth element of environmental literacy is the capacity to move from awareness to knowledge to action.

TAKING PERSONAL ACTION

The need to have people take personal actions that contribute to the solutions of environmental problems has been widely recognized by many. CALM's very successful program of volunteers, and some of the other community action programs outlined during this conference, are testimony to this.

The slogan THINK GLOBALLY, ACT LOCALLY is very popular. In actual fact, however, I think that the link

between awareness, knowledge and action is poorly understood by many communicators and educators. It is important to understand that knowledge, and certainly information, carries no automatic set of instructions converting them into appropriate action. Many a young scientist learns the hard way that no matter how much data you gather, the data itself makes no decisions.

Furthermore, there are things to be learned that can be learned only through action itself. Thus, a school class may learn about the effect that clearing native vegetation for agriculture has and how to test for various aspects of soil quality. They may become aware of problems in their local community. But if they actually decide to act upon the problem they move into new territory, territory where they will confront the need for new tools, to be able to interact with various community groups. Even the most elaborate simulation often cannot replicate situations which arise in practice. Moreover, many important skills simply are not developed to high levels except through action. If we disconnect the cycle of learning from action we remove from schooling some of the most important resources for educational development.

UNLEARNING OLD CONCEPTS

A seventh element of environmental literacy is that there are new concepts and facts to be learned and old ones to be unlearned. Ecological principles and concepts are important organizers for experience in the environment and provide insights to be applied to critical thinking about environmental issues. All of us need to better understand biological and geological cycles, bioenergetics, food and energy relationships, and concepts such as adaptation and diversity. But equally as important, there is a need to become expert in learning how to assess information and how to evaluate its quality.

Environmental citizenship often requires the ability to use up-to-date, accurate information. Learning how to find this data is an important aspect of environmental literacy. At the same time, those seeking to understand nature must also learn to expect that many of the things they learn today, especially specific facts and figures, may prove to be wrong tomorrow. Life long learning is as essential to environmental education as it is to any other field.

WORKING COOPERATIVELY

The eighth element of environmental literacy is the ability to work cooperatively with other people.

There is scarcely any modern environmental problem that we can expect to be solved by a single person. We all know that many environmental issues are complex. They require international cooperation as well as cooperation among neighbours in local communities. Effective skills in group processes and communication will become increasingly important. Many specialists will have to work in interdisciplinary teams. These teams will have to learn to solicit and use citizen participation. Experts alone cannot solve environmental problems.

Thus, cooperative learning becomes as critically important here as it is in many other fields of endeavour today.

And finally, the ninth element in environmental literacy is understanding the problem with human nature.

It sometimes seems to me that many of the people who become involved in concern for the environment, especially at the level of the community or single-issue action group, become pretty disaffected from humankind. I suppose that it is understandable that those who, for example, protest and feel passionate about, the clearing of urban bushland for housing, might become cynical, if not bitter about the works of human beings. There is a tendency at times to regard all the works of humans as "unnatural" and as inferior to natural things. This dichotomy can lead to some unfortunate attitudes and behaviours which block effective communication about environmental problems and solutions.

THE JURY IS STILL OUT

Humankind has a short history on this planet. Whether or not we will prove to be a biological success story still remains to be seen. But we are what we are. If sharks are streamlined ocean predators superbly adapted to their biological role, then we are also deploying our powers as well. Humans are a generalized species and our intelligence has enabled us to exploit a wide range of habitats. But our works are as natural to us as is the replacement of teeth to sharks.

The point of all of this is that it is not necessary to make humankind seem hateful in order to respect, conserve and learn from natural systems. We need to understand our relationship to those systems and to reintegrate ourselves with them. To do that will require a highly developed, but human, intelligence.

Thank you.

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