# ENVIRONMENTAL EDUCATION & EVALUATION; AN ELEVENTH HOUR RECONCILIATION

## Rob O'Donoghue

This paper attempts to isolate and explore some central issues in environmental education and its evaluation. Initially it develops a background perspective on the origin of environmental education and highlights some of the factors which led to a growing concern for evaluation. Issues arising from this are then discussed before an emergent, context specific, research-based approach to evaluation is derived; an approach that could evolve from existing 'intuitive judgement' evaluation. This perspective on evaluation is based on the view that it is naïve to restrict our view of environmental education to any particular communications programmes, and also untenable to evaluate these by merely attempting to measure behaviour change.

"At the root of the failure of past educational movements there seem to be two linked weaknesses; an insistence of 'hearts not heads', and the lack of a public tradition of improvement by systematic self-criticism.

Unfortunately, good-will and the 'right' aspirations are not enough in education, yet when ideas - perhaps sound enough in themselves - are spread through a movement it is the aspiring good-will that seems to be catching. The ideas often seem more important for the personal and professional identity of the teacher than for his practice. And, partly because of a widespread and persistent lack of honesty about the difficult realities of teaching, success is reported publicly but problems, difficulties and failures are features for private rather than public experience. And in the improvement of practice there are narrow limits to what we can learn from success."

(Lawrence Stenhouse 1985 p.196)

INTRODUCTION

It is only when environmental education is viewed as a broad sensitising construct, which serves to initiate and sustain critical processes of change within society, that the central emergent and integrated functioning of evaluation becomes apparent. To date we have been slow to realise this and see beyond entrenched communications recipes for environmental education to a social process perspective. In evaluation we have also failed to make significant advances beyond a technocratic perception of science and a corresponding concept of empirical truth. Unless we can transcend both of these restrictions without rejecting their merits we may prove the validity of the following quasi-scientific fable as it relates to the environmental crisis and the growth of environmental education:

"... if you can get a frog to sit quietly in a saucepan of cold water, and if you then raise the temperature of the water very slowly and smoothly so that there is no moment marked to be the moment at which the frog should jump, he will never jump. He will get boiled."

(Bateson 1979 p.98)

THE GROWTH OF AN IDEA

The important question is, not could this fable be true, but, are we in a similar dilemma, changing our environment through slowly increasing over-exploitation and pollution? In all probability,

yes, we are, but unlike the frog in the story many environmentalists started to jump as the water got warm. Conservation agencies were established and land was set aside for nature reserves, but the heat increased. Some like-minded early jumpers had the idea of solving conservation problems through extension services and well planned development projects, but their idealised constructs often met with little success and the heat continued to rise. Out of the ashes of these, and other early responses, like conservation education, a new umbrella idea, 'environmental education', was developed by conservationists who identified 'awareness' as the factor that initiated their first jump. 'Awareness' became a central goal of the movement but tended to be represented as a vague psychological phenomenon. Environmental education thus became manifest as a goal-directed communications process where 'awareness of' leads to 'concern for' and then to responsible action. With this idealised construct in mind, environmentalists set out to educate others, for, unlike the frog, if we wake up to the heat we can't jump out of the saucepan, but have to work together at ways of turning it off from within.

AN IDEA GOES WRONG

It was, however, in these early stages that environmental education started to go wrong. Having given the idea its name, and since, to humans, a name is a symbol that represents a thing, the idea became a thing. Many early jumpers began to see this new thing, 'environmental education', as a transmissive communications process that causes awareness and changes in behaviour. This separatist transmissive outlook then tended to be uncritically absorbed in spirit. Environmental education soon became a movement with an identity crisis. There has, therefore, been considerable debate about what it is, and little agreement other than on broad statements that represent it as communications processes which will hopefully cause behaviour change, the solution to our environmental ills. There has also been a certain amount of fragmentation with some people rejecting the education tag and favouring the term 'environmental communications'. This is equally problematic however. 'Progressive Education' was a similar movement that exhibited many of the same identity problems. It soon reached a threshold of significantly less dramatic growth and lapsed into extinction.

EVALUATION TO THE RESCUE

'Environmental education' and 'environmental communications' are currently experiencing troubled times in some regions. With declining interest and economic constraints established programmes are under increasing pressure to justify their existence. Many searching questions are already being raised, and this has resulted in the rapid growth of evaluation. These attempts to establish the validity and effectiveness of environmental education significantly increased, not so much owing to growing doubt and criticism, but mostly because of the economic squeeze and greater competition for funding (O'Hearn 1982). Uncertain-

ty about what evaluation is, led to it assuming an aura of context-free rationality for establishing measures of credibility and worth through proof of the programme having caused changes in behaviour. The next step was to concede that this could not be done by environmental educators without bias, and experts tended to be called in to do the evaluating.

In the eyes of many evaluators, evaluation has become a consultative process of conceiving, obtaining and producing empirical data for the guidance of decision making with regard to specific communications programmes. In the eyes of the programme developer it is any of a number of things, ranging from a threat to be feared, to measures of value or proof of effectiveness to be sought with conviction.

CURRENT PROBLEMS

These generalised and somewhat sketchy pictures of the origin of environmental education and of the growth of evaluation have been developed to highlight the need for us to examine the way we conceive environmental education. We also need to look at the relationship between this and various approaches to evaluation.

In part answer to these questions I would first like to suggest that, as a sensitising construct, environmental education should be both initiating processes of social change and sustaining these through critical evaluation. Both of these dimensions should therefore be found integrated within a particular community of shared meaning and be sustained by the communications structure that characterises the composition of that community. I would also suggest that it is a misrepresentation to consider any single programme 'environmental education' or 'environmental communications' unless it is viewed to exist within a wide range of equally valid approaches and is grounded in a participatory mould within a particular context. It is therefore potentially unproductive to assume that environmental education is a transmissive communications process between environmentalists and the 'unwashed public'. It is also naïve to assume that objective evaluation strategies of the type outlined in Figure 1 are appropriate for environmental education in any of its many forms.

EVALUATION AS TRANSMISSION AND MEASUREMENT

| ENVIRONMENTAL EDUCATION IS A GOAL DIRECTED PROCESS | SO | DEFINE SPECIFIC OBJECTIVES OR GOALS | AND THEN | MEASURE THE DEGREE TO WHICH THESE GOALS HAVE BEEN ACHIEVED |
|---|---|---|---|---|
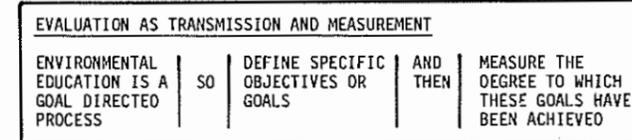
FIGURE 1  Evaluation as transmission and measurement

Environmental education might therefore best be conceived as a sensitising focus to initiate and sustain change within society through its institutions like schools, the business sector, government and conservation agencies. These institutions have a wide range of communications traditions (public relations, interpretation, schooling, extension services and development planning) which will all hopefully be mobilised and improved to initiate and facilitate critical processes of change towards the ideals of a sustainable society. Evaluation should be seen as the critical part of these processes of change both within the institutions and those aspects of

society they influence. One must therefore reject a limited conception of evaluation as mere outcomes measurement in favour of evaluation as an integrated critical element within a process of social change. (Refer to Figure 2).



EVALUATION AS AN INTEGRATED CRITICAL PROCESS IN ENVIRONMENTAL EDUCATION
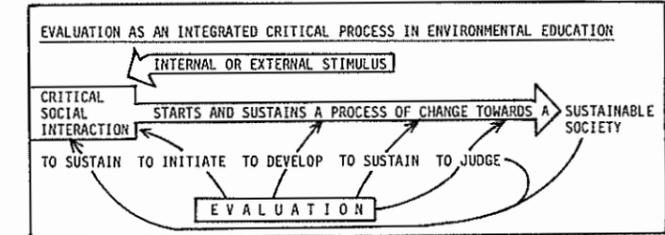
FIGURE 2  Evaluation as an integrated critical process in environmental education

This tentative graphic representation attempts to represent the complex functioning of evaluation within a community. The significant elements are:

● The need for evaluation to be conceived as a human characteristic of equal validity in its intuitive judgement form, emergent to a more rational critical appraisal process within a community of shared meaning.

● The need for change to be self-intitiating and self-maintaining facilitated by external communicative interaction.

● The idea that evaluation is the integrated critical part of a dynamic context-specific process of change.

The challenge is to develop a coherent mutually supportive framework for evaluation within the process of environmental education in each of its many forms. We cannot limit our vision of environmental education to the concocting of external stimuli in the form of communications packages and then measuring the change these may or may not have caused.

There is thus no simple answer to the relationship between environmental education and evaluation. There is, however, some doubt as to the validity of environemntal education as a transmissive communications model, and evaluation as a simplistic objective outcomes routine.

AN ELEVENTH HOUR APPRAISAL

There is, therefore, no single strategy for, nor simple approach to, the evaluation of environmental education, but there must be many appropriate approaches to evaluation within the wide range of programmes in the field. There is also no absolute measure of value but a range of equally valid value judgements that may be appropriate to particular social and environmental contexts.

One can only conclude that those involved in environmental education cannot expect to evaluate, with any validity or effectiveness, unless they identify with or create a framework for the growth and functioning of a community of meaning. In developing guidelines and operational recommendations for evaluating programmes, not only must we cater for the emergent nature of evaluation but we must also identify the community and context in which this takes place. This means programmes for school children should identify with formal edu-

cation and those for farmers with the community of extension, for example. It is problematic to reject identifying with a particular community to become the community of environmental educators or environmental communicators.

The entrenched evaluation traditions within most fields may be inappropriate for environmental education, but we cannot become separatist and go it alone without possibly inhibiting the process of change. This argument should not be seen to question the validity of the idea of environmental education nor to dispute the value of a community of environmental educators. It does, however, illuminate the need for environmental education to be viewed as an holistic co-ordinating and idea-exchange forum for a wide range of communications traditions, many of which must undergo conceptual and methodological changes to become more effective initiators of social change.

Many socio-economic development programmes have failed owing to the inability of planners to recognise that the 'underdeveloped' do not necessarily identify with, or value, their constructs. The accepted evaluation strategies of the community of developers tend to reinforce this, as they are often concerned with the measurement of the extent to which programme objectives are implanted within the community. Development planners are increasingly rejecting this implanting attitude by initiating participation approaches. Many are, however, reluctant to change their evaluation traditions to focus evaluation within the process among the participants. Many also tend to consider participation to be a subtle way of manipulating others to their way of thinking.

Evaluators of the somewhat irrational entrenchment of environmental education as that part of formal education conducted in field centres, have been trying out many of the objective recipes for evaluation that exist in schooling. The results have been far from encouraging (O'Hearn 1982; Chenery and Hammerman 1985). The problem of in-appropriate evaluation strategies is not peculiar to environmental education however. Most forms of 'potted' or 'one-off' evaluation that have attempted to get a tight experimental hold over a situation have met with very little success.

In the field of formal education, Stake (1977) ascribes that failure of objective recipes to both practical and methodological issues. He suggests that failure is common because evaluation programmes are likey to be:
● under funded
● under staffed
● initiated too late.
If these aspects are satisfactory then they are likely to fail because:
● Specific objectives understate educational purposes.
● Side effects get ignored.
● Other contextual factors like variable operating conditions and the complexity of learning trans-actions are likely to be poorly described.
● Test results seldom match objectives. They oversimplify and do not successfully measure transfer and are often poorly validated.
If sophisticated designs somehow managed to minimise these problems people either cannot read the reports or do not find them useful.

This growing disenchantment with statistically driven 'objective' modes of evaluation, which has also been apparent in many other fields, suggests that we consider the following issues in evalua-tion without necessarily rejecting the possibility that quantitative approaches may have a signifi-cant role to play in a more emergent and holistic approach to evaluation.

1. Does an outside 'evaluator' have anything more than a facilitating role, and can he effective-ly play any role if he is an outsider?
2. Are we not irrational to place such value on behavioural outcomes when we don't have satis-factory empirical instruments to match this enthusiasm for objectivity?
3. Is there such a thing as a 'one-off recipe'?

## POSSIBLE NEW DIRECTIONS

Robottom (1985) proposes the rejection of object-ive models in favour of process approaches to planning and evaluation. He classifies these as 'action research', yet somewhat irrationally im-plants the old clichés 'formative' and 'summative'

Odendaal (1986) proposes a fairly deterministic, 'integrated holistic approach', having responsive restricted his conception of environmental educa-tion to that of a goal orientated activity associated with nature conservation agencies. He tends to favour a fairly tight prestructured qualitative approach, possibly owing to his clinical psychology background, but creates the illusion of an emergent open-ended philosophy. The goal of a flexible recipe of content, structur approach and evaluation for environmental educatio by nature conservation agencies is rather tenuous and somewhat naïve. His contributions to qualita-tive methodology may be useful, however, provided the results are not conceived as the evaluation, but are represented as useful data for decision making.

Stenhouse (1975, p.122) rejects evaluation recipes and the concept of 'evaluator' unless both are grounded in a particular context as part of a developmental critical process. He suggests that the interplay of the designer and evaluator roles in participatory evaluation are synonymous with the process of scientific enquiry where conjectures and refutations are woven into a single logic. He concludes,
"We know enough now to shun the offer of ready solutions. Curriculum research must be con-cerned with the painstaking examination of possibilities and problems. Evaluation should, as it were, lead development and be integrated with it. Then the conceptual distinction between programme development and evaluation is destroyed and the two merge as research. Curriculum research must itself be illuminative rather than recommendatory as in the earlier tradition of curriculum development."

'Action Research', a recently adopted innovation in environmental education, is a useful idea but it suffers from the same disease as environmental education for it is not a simple thing but a broad umbrella concept for action-grounded research within which a wide variety of qualitative and quantitative strategies may be used when appropri-ate. One of the advantages of the idea is that results are readily brought to bear to influence the development of the programme. This broad style of research, although loosely defined, does however have the potential of solving many of the problem of evaluation as it is context-specific, partici-patory and emergent.

If environmental education is considered as a sensitising construct to initiate and facilitate social change we need evaluation strategies that exhibit the following characteristics:
1. Context-specific, grounded in action.
2. Participatory and collaborative without necessarily being directed by an outside researcher or evaluator.
3. Emergent as a continuous process wherein new constructs illuminate and stimulate further inquiry.

4. Simple evolving towards increased sophistica-tion.
5. 'Theory-driven' seeking to illuminate and understand rather than merely to provide evidence of worth and success.

Novak and Gowin (1984) have developed a number of strategies that have the potential of satisfying these criteria. Miles and Huberman (1984) have also produced a useful recipe book of discussion and ideas on qualitative research. Other books on this field offer similar strategies with the same emergent characteristics.

## CONCLUSION

Evaluation and environmental education are, to say the least, problematic. We cannot afford to reject the complexities of theoretical and methodological issues by accepting convincing simple solutions. The challenge is to intensify debate and to conceiv evaluation no longer as an afterthought or merely as a means of establishing merit, attracting clients, justifying expenditure and earning kudos. It should not simply be done to, or for, programme designers by experts, and is not the accumulation of trivial data to justify behavioural statements of intent. It should be viewed as an emergent process of growing consciousness that seeks to be intelligent and penetrating, initiating and sus-taining the process of change.

Just as there are no 'one-off' solutions to the issues of evaluation, so there are no 'one-off' solutions to environmental education. A wide range of communications traditions, ranging from formal education to development planning and agricultural extension are all involved, each bringing to bear its own expertise, problems, conceptual structures and methodological traditions. With our saucepan just off the boil we must strive for diversity with wide-ranging critical processes of change being initiated and sustained through evaluation until the sensitising construct 'environmental

education' can fall from use, having served its purpose.

## REFERENCES

BATESON G. 1979: *Mind and Nature: A Necessary Unity*. Wildwood House. London.

CHENERY M.F. & HAMMERMAN W. 1985: 'Current Practice in the Evaluation of Resident Outdoor Education Programmes: Report of a National Survey.' *The Journal of Environmental Educat-ion*. Vol.16 No.2 pp.35-42.

HAMILTON O., MACDONALD B., KING C., JENKINS D. & PARLETT M. (eds) 1977: *Beyond the Numbers Game: A reader in Educational Evaluation*. McCutchan. Berkeley, California.

MILES M.B. & HUBERMAN A.M. 1984: *Qualitative Data Analysis. A Sourcebook of New Methods*. Sage Publications. London.

NOVAK J.D. & GOWIN D.B. 1984: *Learning How to Learn*. Cambridge University Press, New York.

ODENDAAL A. 1986: *Goal management as an attempt to evaluate nature conservation campaigns*. Un-published paper, Bloemfontein Communications Conference.

D'HEARN G.T. 1982: 'What is the Purpose of Evaluation?' *The Journal of Environmental Education*. Vol.13 No.4 pp.1-3.

RDBOTTOM I. 1985: 'Evaluation in Environmental Education: Time for a change in Perspective?' *The Journal of Environmental Education*. Vol.17 No.1 pp.31-36.

STAKE R. 1977: In Hamilton *et al. op.cit.*

STENHOUSE L. 1975: *An Introduction to Curriculum Research and Development*. Heineman. London.

# OOR DIE LOOP VAN 'N GEWEER         Cornelia Hougaard

Hierdie paar voorbeelde wat volg is 'n klein bietjie van die kennis wat opgedoen word tydens oessessies van oortollige wild in 'n natuurreservaat:

● Rooibokke was maklik om te verblind met twee soekligte met sterk ligstraal en 'n klein ligkol. Die rooibokke steek gewoonlik vas in die ligkol en begin dan te spring. Die oomblik wanneer 'n rooibok uit die ligkol gespring het en donkerte bereik het was daar geen keer nie, al het jy die ligstraal op hom gehou.

● Njalas is heelwat moeiliker om te oes. Nie all-een die feit dat hulle skuil gehou het in die be-boste klowe nie, maar ook hulle gedrag maak van hierdie wildsoort 'n moeilike teiken. Die njala is ook uitstekend gekamoefleer. Ons het onder-vind dat wanneer die njala skrik, hardloop dit slegs 'n entjie en staan dan botstil. Soveel so dat die jagter vyf meter van hulle afstaan sonder om hulle te sien. Sodra die jagter dan omdraai en wegstap, hardloop die njalas weg in die ruie bos. Die njalabulle is geneig om nie sommer weg te hardloop nie. Hy draai gewoonlik sy rug op jou, rys die hare op sy rug en laat sak eenvoud-ig sy kop - tot die frustrasie van die jagter.

● Die koedoes was ook redelik moeilik, maar met eksperimentasie en inagneming van die maan, het ons die oestye aangepas by die koedoes se ge-dragspatrone: waneer hulle uit die berge en klowe kom om water te drink is hulle met redelike gemak teen die owere van die dam vasgekeer.

Ons het ondervind dat die koedoes se eerste oor-weging is om te maak vir die bosse. As ons daar-in kon slaag om hulle af te keer van die ruigtes, is dit asof hulle verboureerd raak en vassteek. Party koedoes het egter terug gespring na die water, maar hulle het gou-gou weer probeer maak vir die bosse. As hulle afgesny word, het hulle weer verboureerd vasgesteek - lank genoeg om die jagter kan te gee om te skiet.

Dit blyk ook asof ooptes koedoes verboureerd laat vassteek. Kamoeflering onder hulle is puik, soveel so dat ons 10m van 'n groot koedoebul (sy horings was in die vyfde draai) was en hom nie gesien het, totdat die beweging van sy ore hom verraai het.