Research in Environmental Education: Some Thoughts on the Need for Conceptual Analysis

Bob Jickling
Arts & Sciences, Yukon College

Introduction

When considering a topic as broad as research in environmental education it seems worthwhile, at the outset, to make some basic distinctions. First, establishing research priorities is not simply an empirical question. While it is undoubtedly useful to try to establish perceived needs and interests, and to consider them when establishing research priorities, this can only describe part of the task at hand. There are surely some logical requirements as well.

Second, a much more challenging task, it seems to me, is to more clearly understand the nature of the questions to which we seek answers. We must seek to distinguish between those research techniques which are more or less consistent with the nature of our task. Unfortunately, research in education generally, and in environmental education, in particular, has been hindered by a failure on the part of the research community to recognize the need for a more complete range of research perspectives than those customarily found, and by a failure to recognize the occasional and inevitable misapplications of technique which can occur when appropriate methodologies do not seem available.

With some misgivings about the scope of research in environmental education in mind, I am led to my concern: How do we go about furthering our understanding of concepts central to our field of study? In exploring this question I propose that conceptual analysis is an important research area. Further, I also argue that it is not simply an option, but rather a logical necessity if we are to establish greater coherence within environmental education and avoid unnecessary confusion (see for example: Barrow & Milburn, 1986; Scheffler, 1960; Soltis, 1978; and Wilson, 1969). Further, it is in the nature of this question that we find appeal for this particular approach to research.

As environmental educators, we must understand that our field if full of inherently difficult concepts which exist as abstractions in the minds of men and women. They are not static, but may change in meaning over time and may have culturally specific meanings. Further, some words have never been used very precisely. What this means is that concepts central to environmental education are *not* amenable to standardisation or precise definition and they *are* subject to careless application and misuse.

Nevertheless, communication depends upon the presence of shared meaning, and conceptual analysis is concerned with seeking and understanding the basis for such meaning. Analysis of a particular word used in educational discourse frequently entails studying how it functions in

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common usage. While variations in usage occur, common linguistic and cultural backgrounds lead to much shared meaning and uniformity of conception. It is the task of analysis to identify pertinent conditions, or criteria, which appear to delineate a concept and give it meaning. This should not be confused with attempts to provide a single, or right, definition of the concept in question. Analysis should, however, enable the researcher to better understand the concept--to get a better look at it. In turn, such analysis should enable researchers to make their positions increasingly clear, enabling subsequent readers to more easily weigh the merits of the claims provided. Further, seeking to understand and clarify one's central concepts is logically prior to commitment to implementation of a particular educational prescription. Failure to effectively do so can lead to a conceptual muddle as we shall see.

In what follows, I talk about conceptual analysis and illustrate some of the difficulties that can occur when sufficient care is not given to this task. I use the closely related concepts of 'sustainable development education" and "education for sustainable development' to provide a context for this discussion. I also provide an example of technique mis-application whereby attempts have been made to resolve conceptual problems without the benefit of associated analysis. Alternatively, one might say that this example illustrates the consequences of not fully understanding the nature of the question at hand. Finally, I speak briefly about research needs which arise form these discussions and observations of the field of environmental education.

Conceptual analysis

While analysis can be a multi-faceted task, I introduce three strategies to illustrate its importance. The first analytical task is to identify criteria which seem to be central to the concepts in question. This involves carefully teasing out those conditions which appear necessarily a part of our shared understanding of the terms. Second, since some concepts appear to have more than one standard meaning it is often useful to find a basis for differentiating between them. This is particularly important when talking about education. The third task is to make explicit, and then to examine, the implications of a particular conceptualization. To illustrate these tasks, I talk about sustainable development and education then consider the implications of combining these terms into a single concept-- 'education for sustainable development'.

The terms 'education' and 'sustainable development' both describe concepts which frequently evoke much discussion and debate about meaning. Further, their coherence when juxtaposed depends, at least in part, on the clarity of meaning which can be discerned in each of them. Consider first 'sustainable development'. While the World Commission on Environment and Development has provided a definition of sustainable development

(development that 'meets the needs of the present without compromising the ability of future generations to meet their own needs', 1987, p.8) more probing analysis suggests that there is some doubt as to the adequacy of this definition or the existence of a common understanding of the term. For example, some researchers suggest that the term lacks precision while others continue to seek an 'adequate working definition' of the concept (see Slocombe & Van Bers, 1991; and, Rees, 1989). The continuing discussion about the meaning and merit of the term suggests that it lacks adequate conceptualisation and is elusive of shared, or commonly held, meaning.

Further, conceptual analysis should indicate internal coherence between closely related terms. In this case, when the terms 'sustainable' and 'development' are united (sustainable development), the constituent parts must compliment each other such that they have collective meaning. There are some indicators, however, which suggest that this may be difficult to achieve. For example, Disinger (1990) reports that the term 'sustainable development' is considered an oxymoron by some, while for others, such as Taylor (1992), differing interpretations of meaning are rooted in competing and irreconcilable assumptions. Given such serious claims against internal coherence, providing a justifiable conceptual basis for sustainable development will surely be challenging. This in itself should make us wary of continued, and cavalier, use of the term.

'Education', too has proved a difficult concept to analyse. Part of the reason for this difficulty lies in the multiple meanings that we associate with this word. In some instances we use it to include all of one's life's experiences. For instance, we might say that a visit to the big city was a real education for a country boy/girl, or that a child really got an education on a playground or in the streets. Of course, meaning given to 'education' in this sense is less important for those concerned with schooling. Most obviously, much of what falls under this rubric is beyond the jurisdiction of schools. It is simply not part of what we consider to be education in the same sense as that which is intended to take place in schools.

At other times 'education' appears to be used synonymously with "schooling". We often talk about our education system when, in fact, we are referring to everything which schools do. Indeed, it is often the 'Department of Education' which is responsible for education in many jurisdictions. At yet other times 'education' refers to a more specific meaning which describes only part of what happens in schools. In order to be more easily understood, it can often be useful to differentiate between these various usages and make clear which of a possible range of meanings is intended.

When speaking about the more specialised meaning of 'education', that which happens as part of one's schooling, one can expect much discussion about the merits of various conceptions. Conceptual analysis is not a precise business. However, while some have argued about the details of the various analyses, we can find much general agreement about a few things central to

our understanding of 'education'. For example, it is not uncommon for such analyses to suggest that central criteria include the acquisition of some knowledge and understanding and the achievement of some degree of autonomous and critical thinking (see for example: Bailey, 1984; Barrow and Woods, 1988; Hamm, 1989; and Peters,1973). The analyst attempting to understand concepts such as education must, therefore, begin by recognising that a word may be used in a number of different ways, distinguish between these various usages, and then seek to find the commonalities in meaning which enable shared understanding.

To illustrate the third analytical task, the assessment of the implications which follow from analysis, consider the juxtaposition of 'education' and 'sustainable development' when used in the terms 'sustainable development education' or 'education for sustainable development'. To make the task easier, let us suspend earlier doubts about the coherence and clarity of 'sustainable development'; for the time being assume that an adequate conceptualisation can be found. We may, however, still have a problem.

When we talk about 'sustainable development education' or 'education for sustainable development', we sound suspiciously like promoters or implementers. There is the suggestion that education will provide the means for implementing sustainable development. This view presumes that sustainable development somehow constitutes a constellation of correct environmental views to which children must be conditioned to adhere. However, if, as suggested earlier, education is about the achievement of some degree of autonomous and critical thinking, it is difficult to reconcile the consequences following from these apparently divergent ideas. It is possible that an educated person may reject sustainable development as an inadequate or faulty prescription for resolving future environmental issues. In this case there may well be some doubt about the coherence of the term 'education for sustainable development' when the implications of its application are examined. Implied in the use of this term are the ideas that sustainable development is first, an uncontested concept and, second, that education is a tool to be used for its advancement. The first point is clearly untrue, there is considerable scepticism about the coherence and efficacy of the term. The second idea can also be rejected, to use education to advance a particular outlook or prescription is repugnant to the development of autonomous and critical thinking. Lack of adequate *a priori* conceptualisation, in this case, appears to have led to an educational dead end.

As an aside, I hasten to add that I am not suggesting for a minute that the term sustainable development be purged from the curriculum. However, a more educational activity would be to engage students in the kind of analysis that I am talking about. A useful exercise could be to examine terms such as 'sustainability' and 'development', and to consider the implications of their juxtaposition.

I must stress at this point, that what I have presented does not constitute a complete analysis of any of the terms discussed. I am simply using this opportunity to very briefly illustrate some of the questions to which this technique might be applied. I hope, however, that I have provided sufficient detail to illustrate why the worth, or appropriateness, of a concept such as 'sustainable development education' is not related to its popularity.

Misapplication of technique

One might expect that the first task of environmental educators ought to be to clarify their understanding of the concept of environmental education, particularly with reference to the broader concept of education. However, until recently educators have been pre-occupied with defining this field of study through statements of aims, goals, or programmatic definitions (see Schefler, 1960; and, Hamm, 1989). For example, the paper, 'The Challenges of K-12 Environmental Education' by Hungerford and Volk (1984) has represented mainstream views in the field of environmental education and is billed as a definitional paper in a monograph published by the North American Association for Environmental Education. In it Hungerford and Volk describe, amongst other things, what they consider to be the ultimate goal (superordinate goal) of environmental education[1].

To consider the authority of Hungerford and Volk's (1984) ultimate goal of environmental education, one must begin by reviewing its origins. The work of an earlier researcher, Harvey (1976), provided the basis for their ultimate goal. His work was essentially an assimilation of the most prolific elements of existing definitions which are, in turn, based largely on assertions and prescriptions by an assortment of environmental educators (See, for example, Stapp, 1969; Swan, 1969; Roth 1970; and critique by Hendee, 1972). While Harvey may have established some measure of what environmental education had come to mean, he did little to advance understanding about what it ought to be. His survey of the literature was no more that a distillation of the most abundant words of existing writers. Questions about which of the surveyed definitions made the most sense, or which were most adequately justified were not given prominence.

Claims about validation are also suspect. Hungerford and Volk (1984), and Hungerford, Peyton, and Wilke (1980) reported that their goal statements compared favourable with the Tbilisi Declaration and opinions of a distinguished environmental educators. Notably, this panel was asked to assume that the superordinate goal was correct. Apparently they did not, and a question was asked of this ultimate goal. However, the revised and validated goals presented in the 1984 paper remain essentially the same. Aside from trying to sidestep scrutiny of the superordinate goal, other difficulties arise.

First, since the Harvey (1976) goal was developed from the work of the environmental education community, it should not be a surprise for

Hungerford and his associates to find members of the same community in agreement with their adaptation. Second, in light of the unmistakable similarity between the Tbilisi aims and the Stapp (1969) definition[2], we can see that the Harvey work and the Tbilisi Declaration are not independent in origin or tradition. It appears that having one body of work compared with its historical cousins, Hungerford and his associates have used a process that might be likened to intellectual incest.

Interestingly, Hungerford and Volk (1984) begin their 'definitional paper' by observing that environmental education is 'neither pervasive nor very persuasive' (p.5). They later claim that the ultimate goal of environmental education, their interpretation of Harvey's (1976) work, 'is either being ignored by practitioners or perceived as something that can be met through awareness education' (p.6). The explanation given for the latter claim is that educators most likely lack understanding about what is required to achieve environmental literacy. The alternatives, that their ultimate goal does not make sense to practitioners, that it may not be conceptually sound, or that it is not consistent with broader views about education, are not entertained. (I have, in fact, argued elsewhere that these alternative explanations have considerable merit. See Jickling, 1991b.) It is not at all clear that producing an 'environmentally affirmative citizenship' dedicated toward 'achieving and/or maintaining a dynamic equilibrium between quality of life and quality of the environment' (Hungerford and Volk 1984, p.6) is consistent with the nature of education, especially the achievement of autonomous and critical thinking.

In reviewing the environmental education literature, I have been struck by the dearth of work concerned with the concept of education. It is not surprising, therefore, questions should arise about the relationship between definitions and goals for environmental education and this broader concept. Further, as we attempt to understand this relationship, we must recognise that many important questions are largely conceptual in nature. What do we mean by the concept of education? How might this concept be related to environmental education? Failure to acknowledge these questions has led to mis-application of technique as researchers have attempted to resolve so called 'definitional problems'. While empirical techniques such as those described can be descriptively useful, they cannot enable us to determine how concepts such as 'environmental education' ought to be understood. We must recognise that polling a rather small, self-selected group such as environmental educators, will not resolve concerns about coherence. Problems of consistency and logic will persist and cannot be forced, defined, or polled out of existence.

Research needs

Having provided a thumb-nail sketch of conceptual analysis, I would like to suggest that our field is brimming with conceptual difficulties requiring

attention. For example I have, at past conferences, begun the task of looking at concepts like 'advocacy' and 'problem solving', and examining the implications of their association with the concept of 'education' (Jicking, 1991a & b). Recently a roundtable session titled 'Current Educational Research Issues in EE' was held in October 1992 at the Eco-Ed conference in Toronto. Discussions there pointed to another conceptual issue requiring attention.

At the Eco-Ed roundtable Gerry Saunders presented the results of a survey of North American Association for Environmental Education members designed to identify the most critical research topics in the field of environmental education. While questions about determining research priorities through the polling of a self-selected group persist, some interesting observations were revealed and discussed. Notably, 'A national level cross-sectional study of the status of environmental literacy among K-12 students' (Saunders, 1992) ranked highly among research priorities. Interestingly, one delegate attending the roundtable indicated that he had, in fact, been instructed to begin evaluating the environmental literacy of students in his jurisdiction. Not surprisingly, this will provide conceptual challenges.

Before attempting to evaluate the status of environmental literacy it is clear that researchers will need to engage in the *a priori* task of understanding what 'environmental literacy' is. It is also imperative for the work to have credence outside of the field of environmental education (and inside for that matter), that reliance is not placed on some narrowly conceived programmatic definition derived from surveys or other descriptive methodologies. Literacy, and its derivative environmental literacy, are inherently difficult concepts about which there is considerable debate. One would hope that any attempt to evaluate environmental literacy (if such a thing is indeed possible) will be presented only after careful conceptual analysis of the terms. Further, such an analysis will need to attend to the broad debates about the nature of literacy and appropriate educational responses to it as well as discussions about the nature of environmental or ecological literacy (see for example Orr, 1992).

Literacy is, of course, only one more concept in our field which requires more analysis. Others such as 'holistic', 'integration', and 'multi-disciplinary' are often accepted uncritically and without comprehensive consideration of their implications. These should be examined. 'Nature', and 'wilderness', remain difficult concepts wanting further understanding. And, relationships between 'education' and words like 'experience' and 'action', are important to understand more fully.

Perhaps the most important, yet most difficult, challenge for analysis will be epistemological. If we are committed to the idea that education is concerned, amongst other things, with knowing and understanding, then analysis of concepts such as 'knowing' and questions such as: 'What counts as worthwhile knowledge?' and 'Whose knowledge counts?' are of paramount

importance. Given the interest in these questions by scholars from a variety of other fields of study, it is surprising that environmental education has not been more involved in this sort of research.

In the field of environmental education concerns have frequently been raised about our struggle with definitional problems. However, it might also be that these struggles have more to do with the type of questions that we have been asking. Given the abstract and shifting nature of the concepts discussed, perhaps our task is not to forcibly define these concepts but, rather, to understand them, to tentatively identify their central features, and to consider the implications of their use in various contexts. Much can be achieved through this approach.

Notes

1 Seeking to bring order to the field of environmental education Hungerford, Peyton, and Wilke (1980) developed goals for curriculum development based on Harvey's (1976) definition. These were affirmed by Hungerford and Volk (1984). Their ultimate, or 'superordinate', goal is to provide an education which results in environmentally affirmative citizenship, or:

> ... to aid citizens in becoming environmentally knowledgeable and, above all, skilled and dedicated citizens who are willing to work, individually and collectively, toward achieving and/or maintaining a dynamic equilibrium between quality of life and quality of the environment. (p.6)

2 In 1969 Bill Stapp defined environmental education in the following way:

> *Environmental Education* is aimed at producing a citizenry that is *knowledgeable* concerning the biophysical environment and its associated problems, aware of *how* to help solve these problems, and *motivated* to work toward their solution. (p.31)

While the activities leading to the writing of the Tbilisi Declaration (UNESCO, 1978), may have been different from those which preceded Stapp's definition, it is instructive for the purposes of the argument presented in this paper, to consider the similarities. According to the Declaration:

> A basic aim of environmental education is to succeed in making individuals and communities understand the complex nature of the natural and the built environments resulting from the interaction of their biological, physical, social, economic, and cultural aspects, and acquire the knowledge, values, attitudes and practical skills to participate in a responsible and effective way in anticipating and solving environmental problems, and in the management of the quality of the environment. (p.2)

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