

Feature Article

TEACHER EDUCATION IN ENVIRONMENTAL EDUCATION: THE 'GRIP OF PRINT' & OTHER LESSONS FROM DISTANCE EDUCATION

Ian Robottom
School of Education
Deakin University

Introduction

This paper focuses on teacher education in environmental education. In seeking alternatives and improvements in EE teacher education, it is instructive to see what lessons might be learnt from efforts at *distance education* in this field. The paper will outline the structure and context of a teacher education course in environmental education -- a course that is part of an off-campus (distance education) Bachelor of Education program -- and then consider a number of curriculum issues that have arisen in the history of this course.

Course & Context

The course itself is located in a Bachelor of Education program at Deakin University and is available for practising teachers throughout Australia who are

interested in upgrading their education qualifications without having to travel physically to the host institution offering the degree. The B.Ed. program comprises a number of 'generic' curriculum courses in such areas as curriculum design and development, educational enquiry and action research, and a number of 'specialist' curriculum courses in such areas as mathematics education, language education and art and music education. The environmental education course takes its place among the 'specialist' curriculum courses.

About 100 practising teachers enrol each year in the course *Environmental Education*. In 1989, the enrolment was 106, with a state-by-state distribution as follows:

Australian Capital Territory:	3
New South Wales:	20
Northern Territory:	1
Queensland:	3
South Australia:	1
Tasmania:	0
Victoria:	76 (19 in Geelong)
Western Australia:	1

Of the 96 students in NSW and Victoria, only 36 reside in those states' capital cities; the remainder are spread around the country areas of the state. Of the 76 Victorian students enrolled in the course, only 19 reside in Geelong, the site of the university itself. That is, 66% of students enrolled in the course live in country areas, and less than 20% live within

commuting distance of the university and are able to gain ready contact time with the developers and teachers of the course. Thus the course has to "stand alone" -- to be independent of ready contact with its developers/teachers, and to be self-sufficient in terms of other forms of student support services. These student support services include distance

education textual and audio-visual course materials, regional tutorials in major population centres, assistance in setting up student self-support groups, courier-assisted library loans, telephone tutorials and telephone conferences.

The costs of developing and servicing distance education courses like *Environmental Education* are not insignificant. External consultancy costs in the preparation of course materials for a one-semester course are likely to run to \$7000; a course maintenance budget is likely to be in the vicinity of \$3000.

The preparation, organisation and maintenance of a distance education course in teacher education in environmental education is a learning experience in that it throws into sharper relief a number of teaching and curriculum issues that tend to remain at a more subtle level in conventional on-campus teacher education courses in environmental education. One obvious reason for this is that the communication or discourse between teacher and student is made concrete in the form of permanent learning materials; another reason is that the university supports an infrastructure designed to monitor and record the responses and concerns of students enrolled in the courses and to feed these back to the course team.

The Grip of Print & Other Issues

Issue 1: the "grip of print" and regulation of discourse

By definition, distance education courses depend on means other than direct face-to-face contact between teacher and student. As mentioned earlier, course development in distance education is expensive, and economic considerations require print runs in the order of five years. As a consequence, distance education courses tend to suffer from the "grip of print", where the curriculum of the course is locked into a textual form for a significant period of time. Text production and reproduction are central processes in distance education.

The dependence of distance education on text production has been the subject of critique. Evans and Nation refer to the process as "instructional industrialism" (Evans and Nation, 1989, p. 245). They quote Sewart who claims that "There is a beguiling temptation to assume that the problems of teaching at a distance can all

be solved by the production of an as yet merely hypothetical perfect package of material" (Sewart, 1983, p.48).

The essence of Evans and Nation's critique is that the "instructional industrialism" process is based on behaviourist assumptions about how students learn, and about the proper relationship between learners and teachers. They claim that approaches that depend on central learning materials development followed by dissemination of prepared materials to a learner at a distance serve to reinforce the view of learners as passive receivers of the knowledge of others:

Distance teachers use their temporal and spatial autonomy from their students to select and shape the knowledge which the students must learn for success. Through their use of 'industrial' teaching practices, distance teachers regulate the forms of discourse in which the students can engage (Evans & Nation, 1989, p.246).

If it is accepted that professional development courses ought to aim at improving the capacity of (often isolated) practitioners to deal autonomously with the teaching and curriculum issues of their profession, then it is of concern if the very medium of distance education can serve as a device for establishing and maintaining a form of intellectual control over the distant student.

Issue 2: the loneliness of the long-distance learner

As can be seen from the distribution figures for the course *Environmental Education*, distance education students are spread thinly on the ground. Only in the large population centres is it likely that other students can be found within reasonable proximity. Consequently, many distance education students are forced to engage in individual studies. There is little opportunity for students to gather together and form a "critical community" capable of assessing, critiquing and reinterpreting the texts of the distance education courses. Distance learning can reinforce individualism.

The individualising influence of distance education can express itself in two ways in environmental education. Students who have difficulties with the implicit "environmentalism" of the course tend to

blame themselves for not being able to control their interactions with the environment; little recognition is given to the situational (social, political) influences that shape human relationships with environments and over which have little control. And secondly, difficulties and failures in coming to grips with the assessment tasks built into the learning materials are often internalised in the absence of opportunities to communicate with the developers of the materials. Thus both the substantive messages and the learning processes built into distance education courses can act to subordinate the learner:

Teachers have varying degrees of autonomy and power over what they teach (curriculum) and how they teach (pedagogy). The distance teacher's autonomy and power are both circumscribed and enhanced by the context of distance education. In effect, both curriculum and pedagogy are structurally prefigured by the institution. However, the nature of the prefiguration is such that students are structurally confined to dominated and alienated positions within the teaching-learning relationship ... (Evans & Nation, 1989, p.246).

In the case of environmental education, distance educators engaging in course development participate in selecting, labelling, ordering, packaging and disseminating knowledge. Typically, students are insulated from the course team's assumptions about "environment", "education", "environmental education", "social and political life" and so on. Yet in distance education these invisible assumptions may be crucial in reproducing existing interactions between humans and environments, with all their inadequacies. For example, consider the knowledge prepared in two different distance education courses in environmental education by distance educators with different ideological positions such as "education about or in the environment" and "education for the environment" (see Fensham, 1979; Greenall, 1981; and Lucas, 1979). The former course may emphasise the importance of nature trails and basic ecological principles and engage in activities that aim at appreciation and appraisal of the environment as it is; the latter may emphasise the need for a socially- and environmentally-critical

perspective and engage in activities which aim at critiquing current human-environment interactions and creating the conditions for environmentally-positive changes in these relationships. Both courses will probably carry the label of "environmental education", yet only one has the capacity of reconstructing human-environment interactions. Such a "slogan system" (see Popkewitz, 1983, p.16), in which a range of practices take for themselves the catchcry name of a curriculum initiative like "environmental education" and thus create the conditions for reform in name only, can be a powerful factor in social and curriculum reproduction. The disempowering relationships inherent in distance education, which tend to deny the learner the opportunity to communicate with teachers and other learners about such issues, exacerbate the situation.

Distance education uses its textual, curricular and pedagogical processes to marginalize and dissolve the self-directedness of people's learning, and confines them to a system of learning which reflects and aids the reproduction of the ideological and structural conditions of society (Evans & Nation, 1989, p.249).

Given that one of the aims of environmental education is to change and improve the relationship between humans and their environments, the capacity of distance education/teacher education courses to contribute to the reproduction of social/environmental conditions is another serious concern.

Issue 3: the fit of environmental education in the curriculum.

Perhaps more so than any other subject matter in the school curriculum, environmental education is manifold in its expression, and in the "homes" it finds in the curriculum. A recent research project in environmental education demonstrates this manifold expression and location.

In a project in the state of Victoria, seven schools are exploring the role that a computer conference can play in enhancing their environmental education program, which is based on the testing of bacteria levels in the swimming beaches along the country's premier surfing coast. The following profile

indicates the subject or course in which the project activities are conducted:

- * School 1: year 11 marine studies; year 12 Biology; year 11 & 12 science club (an elective lunchtime activity);
- * School 2: year 11 & 12 STC (Schools/Tertiary Entrance Certificate);
- * School 3: year 11 Biology;
- * School 4: year 12 Chemistry option;
- * School 5: middle secondary "science enrichment";
- * School 6: year 9 & 10 science electives (10 week blocks);
- * School 7: year 11 & 12 STC; year 10 General Science.

The point to note about this is that despite a very narrow substantive focus in each environmental education program -- which in all schools was based around the systematic testing of levels of bacteria in the seawater of popular swimming beaches and therefore did not involve many degrees of freedom -- the programs took place in four different year levels and in several different courses, none of which carried the same name. There is evidence that in order to gain a foothold in the curriculum, environmental education has to engage in "solicitous surrender" -- to voluntarily give up something of its identity (its very name) and to associate with established discipline-based subjects in order to gain the necessary resources (curriculum time and space).

It is difficult to foreshadow how environmental education curriculum will be expressed in schools: the nature and extent of solicitous surrender necessary to secure a position for environmental education in particular curriculum settings can only be determined practically by participants through their efforts at such consolidation. Environmental education problems are doubly idiosyncratic (Robottom, 1987a, p.297):

... the *environmental* issues that form the substance of environmental education work are usually specific in time and space (this is simply to say that

environmental conditions in different parts of the world are different); and *educational* problems are rarely susceptible to universal solutions (this is to say that the ecology of classrooms differs from classroom to classroom).

Given the manifold expressions of environmental education and the variety of "homes" it finds in the formal secondary curriculum as a result of curriculum trade-offs, it seems inappropriate for distance education courses to attempt to structurally prefigure (shape and constrain) curriculum content for environmental education students. To do so denies the reality of the struggles that teachers of environmental education have to join in order to make a place for environmental education in the curriculum.

Issue 4: appraising the success of EE

There are strong claims that environmental education ought to be an interdisciplinary influence rather than self-sufficient disciplinary subject (UNESCO, 1972). Also, there is an argument that epistemologically at least, science is an inappropriate vehicle for environmental education in the school curriculum (Robottom, 1983). Yet it is true to say that much of the environment-related study that takes place in schools remains associated with General Science, Chemistry, Biology and Geography: science tends to be regarded as the disciplinary base of environmental education (Robottom, 1987b).

It is important, given the interdisciplinary aspirations of environmental education, not to allow the apparent science-relatedness of much environmental education curriculum to tempt us to apply conventional disciplinary criteria when appraising the success of environmental education. Such criteria as individual discreteness, university approval as matriculation subjects, and professorships in university departments may well be inadequate measures of the success of environmental education, and lead to a devaluing of the achievements of environmental education over the last decade or so. In short, there is a need to wear the right glasses when appraising the success of the impact that environmental education has had on the curriculum.

"Open Text" in EE Teacher Education

In recognition of the kind of issues outlined above, Evans and Nation describe a way of working with text that may obviate some of the dangers of "instructional industrialism". They cite Wexler in pointing to the possibility of "open texts":

The open text invites participation. It refuses the assumption of a reproduction of fixed forms as the basis of expression and communication. The open text ... is a process of activity rather than a dead object ... Texts can be open to the continuing work of transformation, which is a form that teaches activity rather than passive consumption as its message ... The presentation of ambiguity, of a text which remains unexhausted even after systematic interpretation grids are placed over it, 'structurally prefigures' a world of indeterminacy, of possibility (Wexler, 1981, p.289).

How can we actually do this in distance education in EE teacher education? Perhaps the only way to answer this question is to examine the practical experiences of courses actually designed with the issues in mind. While in no sense presented here as a universal solution to the issues cited above (in fact it may itself be a part of the problem), the Deakin University environmental education course has attempted to grapple with these issues. A brief account of the structure and some of the assumptions of the course is given below.

Physically, the course comprises a course guide (which outlines the assessment requirements of the course), a monograph and a ringbinder of task statements and course-related readings, most of which are recent journal articles. The monograph has a print run of five years; the course guide and ringbinder are renewable annually.

The monograph includes a number of essays aimed at presenting a politicised view of environmental education at the levels of theory, organisation and practice. The task statements outline contemporary research issues that the students are invited to address through participatory environmental, community and classroom research; the statements are supported by the sample of relevant

readings that the students are required to critique in the light of their own research. Thus the course is research-based (the "knowledge" of the course is generated by the students' own enquiries), community-based (students are required to engage environmental problems in their own communities) and practice-based (the students are required to engage contemporary environmental education issues through research into their own teaching practices). The course is interested in *improved environmental and educational theorising*, and attempts to align itself with an "information critique" paradigm of professional development in environmental education (Robottom, 1987a).

It may be too early to say whether a course that is research-, community- and practice-based can achieve the idea of Wexler's "open text", but an encouraging sign is the diversity of insights evident in the work of the students as they engage environmental, teaching and curriculum issues of interest and concern to them in their particular environmental education contexts.

Conclusion

This article has attempted to present some lessons from distance education for the field of environmental education teacher education. The points raised are:

- * the very medium of distance education can serve as a device for establishing and maintaining a form of control over the distant student -- a form of control that is at odds with the idea of professional development.
- * distance education/teacher education courses have the capacity to contribute to reproduction (rather than reformation) of social/environmental conditions and relationships.
- * there is a tension between the tendency for distance education/teacher education courses to structurally prefigure (shape and constrain) curriculum content for environmental education students, and the unpredictability of the outcomes of the struggles that teachers of environmental education have to join in order to make a place for environmental education in the curriculum.

- * the inappropriateness of conventional criteria for appraising the success of the impact that environmental education has had in the school curriculum.
- * the need to continue to explore alternative ways of working with text that may obviate some of these dangers of "instructional industrialism".

This paper has nominally been about distance education, however the messages are only less obvious in other kinds of professional development of teachers of environmental education. An important research question is whether there is adequate recognition of the role that "the grip of print" and "instructional industrialism" can play in creating and maintaining counter-productive power relationships in teacher education in environmental education.

Note

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