

Teacher training using wetlands

Max Maddock

Abstract

Environmental Education for student teachers requires careful design and operation to achieve desired ends. Initiatives taken in the Newcastle region have culminated in a teacher training program utilising local field studies centres with a variety of teaching experiences in mind. This article describes these experiences and notes the condition effecting the viability and vitality of such an approach to teacher training in environmental education.

Co-inciding with world-wide emphasis on wetlands, the University of Newcastle's teacher education Diploma in Education offered environmental education specialization for the first time in 1986, with the provision for a practice teaching component at a wetland field studies centre. The program embraces a "total curriculum" philosophy in a Belgrade Charter (1975) framework of education in the environment for the environment.

The term "total curriculum", rather than "interdisciplinary" or "cross-disciplinary" has been chosen because the latter usually imply linking traditional academic disciplines such as English, History or Science. The concept is broader than the discipline of special subjects, and embraces formal, non formal and informal aspects of what goes on in a teaching-learning situation.

Attitude to environmental conservation

One assumption underlying environmental education, is that provision of the "right information" will result in "right attitudes", and ultimately in "right behaviour". Evaluation studies by the author have shown that the relationship between science and environmental information received and attitudes to conservation are slender (Maddock and McDonald, 1981), although marked increase in awareness of environmental issues occurs during secondary schooling. A study by Eyres (1978) showed that little environmental information is gained from school sources.

Other studies have shown that field studies experiences may not be achieving their objectives, for example Burton (1984), who found that effects had faded after two years and sounded a warning in placing faith in one-shot interventions. Falk, Martin and Balling (1978) found that visiting a Field Studies Centre, if not carried out by environmentally sympathetic teachers, may even prove counter productive.

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The role of the teacher

A study by Webb (1980) using the Awabakal Field Studies Centre at Dudley, (Newcastle), suggested that a higher degree of environmental awareness is developed where the program is drawn up in co-operation between the centre and the school, and that teacher characteristics are important.

Close involvement with schools through teacher training since 1974 and membership of the Hunter Region Science Curriculum, Total Curriculum and Secondary Curriculum Committees has resulted in a conclusion by the author that little attempt to implement any "total-curriculum" environmental education occurs. In traditional subjects like science or geography or sometimes in teaching units labelled "environmental studies", the emphasis is usually on learning academic syllabus content, such as definitions of such concepts as food chains or plant associations or being able to draw a diagram of the "water cycle". Using both concepts in a way which develops a consciousness of environment as part of life in the real world, including its aesthetics, is frequently neglected. In other teaching areas use of environmental concepts is often overlooked, even when opportunities arise such as in using a novel like "Storm Boy" in English lessons.

The author believes there is a need for a teacher education approach with an environmental emphasis which transcends the typical subject boundaries and is carried out beyond classrooms, as well as within them, in the hope of developing an environmentally aware teaching force capable of successful implementation of "total curriculum" programs.

The establishment of the Shortland Wetlands Centre by the Hunter Wetlands Trust in 1985, the staffing of the Centre by the Teacher in Charge of the N.S.W. Education Department's Awabakal Field Studies Centre and the provision of an additional teacher at Awabakal enabled the pioneering of a teacher education program in environmental education at the University of Newcastle, to test this belief.

The program aims to develop the basic teaching skills required of any pre-service teacher training program to provide students with a licence to teach. However, emphasis is placed on practical work in the environment, with continued stress on using it as a resource across all aspects of the curriculum and with carry over into the classroom in a well defined school-wide program. Field work can be thought of much more broadly than as the prerogative of science or geography classes. Excursions can be "school excursions", with lead up and follow-up work for all subject areas and even "extra-curricula" activities.

Language work, mathematics, arts and crafts, music and dance can all draw inspiration from the environment and contribute towards developing positive attitudes.

The Newcastle program

Newcastle's Diploma in Education students specialize in either one or two methods for high school students or in Primary General Method. A compulsory unit "School and Society" looks at the teacher's role and responsibility in society, campus based "Teaching Practices" covers general and specific method teaching techniques, while a school-based "Problems in Teaching" and eight weeks of "Practicum" cover practical teaching. Two electives from a selection of units called "Further Curriculum Studies" are also taken.

Within this context, all students are introduced to environmental education concepts, and one "Further Curriculum Studies" elective is called "Environmental Education". Students from any method can take one of their two four-week practice teaching blocks jointly at the Shortland Wetlands Centre and the Awabakal Field Studies Centre at Dudley, and thirteen students chose this option, drawn from Science, Social Science and Primary methods.

Introductory phase

During the first week, all students, embracing all methods, were given an introductory, illustrated presentation on using the environment and environmental issues as a resource for teaching at all grade levels. In the second week, they visited the Shortland Wetlands Centre where the Teacher in Charge, Brian Gilligan conducted a workshop on communicative skills needed for facilitating environmental awareness. A short excursion in small groups followed to explore opportunities available for the various method units.

The Further Curriculum Studies Elective

The students taking this unit came from all methods, including Modern Languages. The Belgrade Charter, state and federal government departments' environmental education policies, natural and man-made environments, environmental legislation and how it works, environmental impact statements, case studies of important environmental impacts and current controversies, and non-formal avenues such as Workers Education Association, Gould League and World Environment day provide the content basis. These are examined as resources for a range of teaching situations and subjects.

In early first term, groundwork was developed through class sessions and a reading assignment. Then followed group-researched, group-organised presentations on the implications of the Belgrade Charter and government education policy. Excursions were organized and conducted by the students — an urban walk through an old coal mining suburb, a visit to the Awabakal Field Studies Centre to try out the "Senses Trail", and to the Shortland Wetlands Centre to test activities in a wetland setting.

A local high school was conducting a writing project linking English and Geography for grade 8 students. The theme was wetlands, involving an excursion to the Wetlands Centre during Term 1. A number of the students acted as resource people. This involved preliminary visits to the school, responsibility for a group of pupils during the excursion, and subsequent school visits to supervise writing a follow-up guide to the Wetlands Centre, providing first-hand experience in face to face situations involving pupils using wetlands

as a resource. Examples of the pupils' work formed part of the display set up for the International Symposium on Wetlands held at the Centre on June 5th-8th.

Third term work concentrates on case studies of environmental issues and environmental impact statement methodology as a potential teaching resource.

School-based problems in teaching

In this unit, method groups go to schools for observation, discussion and teaching exercises on problems in the school situation. Those who elected for practice teaching in environmental education attended two of these sessions at the Wetlands Centre.

In the first one, Brian Gilligan stressed that a Field Studies Centre is a resource, with the teacher's role being to translate specific objectives into practical field work and classroom activities which are manageable and productive. Four components exist in this process: The site and what it has to offer; and the kinds of activities feasible under certain constraints, to be matched with pupil capacities and needs; and the school program.

The philosophy is that the total program is the prime responsibility of the school and its staff. The Centre should not be seen as a dumping ground for bus-loads of children, with Centre staff as experts in all things, responsible entirely for the field work. They provide a resource for helping a school to develop and conduct a viable program, as Webb (1980) suggested.

Practical factors such as group organisation, field techniques, development and use of worksheets, and the need for safety factors were dealt with. The students were sent into the field with a brief to come up with a specific activity and their suggested matching of the factors.

For the second session, the students attended an inservice workshop at the Wetlands Centre attended by Infant, Primary and Secondary teachers from the Hunter Region, embracing different subject areas, who were asked to develop resources and techniques for using wetlands. The students were able to identify and negotiate with teachers and schools with which they could work in class and excursion work on environmental themes. Preliminary plans were opposed for school visits for the Centre during practice teaching.

Practice teaching

In the interim since the inservice course, the schools involved, as well as others, had booked for visits to Shortland or Awabakal. Two modes of practicum evolved.

In one, a Primary student, linked with a rural primary school. This student conducted an early excursion to Shortland and then spent the rest of the four weeks at the school, where an excursion was also conducted to the local wetland. An environmental theme was woven through language comprehension, mathematics, science, social science, art and craft.

The other students remained based at the Centre. The team was involved with special school, infant, primary, lower secondary and upper secondary groups. Planning meetings between Brian Gilligan, school staff and the students were held at the Centre, and visits made by the students to the schools for lead-up class work. They conducted field-work at the Shortland Wetlands, the Awabakal (Dudley) site, and at a rock platform, and then visited schools for follow-up. The smallest group consisted of 6 pupils from a senior biology class, while

the largest was 150 from a south coast high school.

Organisational and planning responsibilities for each school's program were usually delegated out to two students with the most appropriate expertise, while the remainder acted as assistants under their direction, helping with such tasks as preparing equipment and as group leaders at field stations. Each student had major responsibility for 4 to 6 school programs during the block. One Science and one Social Science - History student visited a high school to take a classroom lesson using stuffed waterbirds as an aid for an English class which had been studying "Storm Boy".

Brian Gilligan and Graeme Rolston carried out supervision at the Centres while the author visited the students at their field work and at the various schools. Excursions with 6 groups operating at widely scattered field stations at Shortland often involved several kilometres of walking to see each one in action.

Teaching practice reports, prepared both by the supervising teachers and the author, added to reports from teachers in the school-based block, formed the basis of the final Practicum assessment. Assessment looked at the usual teaching skills such as preparation, implementation, language, pupil management, and teaching techniques. An evidence of their capacity to extend course aims into planning each student was also required to produce a folio of resource material during the four week period which incorporated the match of site, activity, pupil, and the program of the school requesting the excursion.

Although the context was often different from that in a fixed school timetable, basic problems such as maintaining interest, establishing communication and rapport, maintaining surveillance and establishing classroom management were the same. On one day when 110 students from two schools were on site, wet conditions created difficult problems of having to call on alternative plans to maintain discipline and to manage large quantities of personal belongings such as clothes and schoolbags in a confined space. The fieldwork, however, provided a set of unique problems, such as one encountered on a Grade 12 biology canoe trip along Ironbark Creek to observe man's impact on a wetland environment. The students had to use the safety boat, with its outboard motor, to tow one canoe because they were unable to teach its occupants canoe management quickly enough for the time constraints.

Evaluation

It is too early yet to assess the success of the venture, but feedback to date has been most encouraging. The students have found working across the range from infant grades to year 12 a learning experience which has considerably broadened their outlook. There is evidence that narrow thinking about their own subjects has begun to soften, especially through contact with language and art work. Their presence has enabled the two field centres to broaden the scope of excursions available, feedback from the teachers of the school parties they have worked with has been most favourable, and booking rate is increasing. The venture has enabled the Shortland Wetland Centre to evaluate and revise the design of its facilities for environmental education programs.

In the long term, the questions that need to be asked are whether the graduates can operate in a normal school situation at least as successfully as trainees graduating from a more traditional program, whether

they are able to apply the "total curriculum" concept of environmental emphasis within their own teaching areas in these situations, but more importantly, whether they will be able to stimulate the introduction of a broader environmental program in total school programs.

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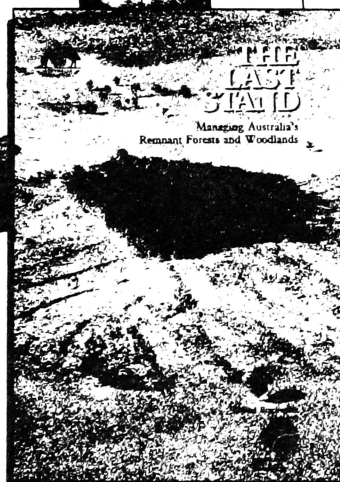
Across-grades, across curriculum: A secondary social science method student with a primary school science group.



A teacher education student briefs a school party before starting field work.



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