

Teacher Education in Environmental Education – Does it Work?

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Introduction

Little research has been done in New Zealand on the effectiveness of the pre-service education of beginning teachers in any subject and none at all in environmental education. This is hardly surprising in view of the lack of commitment to environmental education at a national level. However, as Chidlow (1997, p. 95) reports, 'Despite the lack of formal recognition of environmental education within the curriculum some degree of environmental education is occurring in the majority of schools'. If this is the case, schools need a steady stream of enthusiastic beginning teachers who have been effectively trained to deliver environmental education.

The Christchurch College of Education offers secondary pre-service teacher education students an optional 20 hour course in environmental education. This course is popular and highly rated by students. However, to date, there has been no evaluation of the nature and extent of the learning about and commitment to environmental education that students gained from the course. Nor do we know if they become environmental educators when they start teaching. This situation raises a number of questions.

How effective can a 20hr pre-service teacher education course in environmental education be in promoting the aims of environmental education? Is it an exercise in futility? Is it better than nothing? Is it inspirational enough to really make a difference? Do its enthusiastic/committed graduates get lost/overwhelmed in the system? Is their voice lost in the fundamentally conservative reproductive schooling system? Can/do some of them become 'transformative intellectuals' (Aronowitz & Giroux 1985) and if so is this the measure of success of the course?

My study of the research literature indicated the following:-

1. The lack of teacher training in environmental education despite the significance given to it in the Belgrade Charter (UNESCO-UNEP 1975), The Tbilisi Declaration (UNESCO-UNEP 1977) and its designation as 'the priority of priorities' by the International Environmental Education Program (UNESCO - UNEP 1990). 'Teacher education remains more a policy recommendation than a practice' (Fien & Tilbury 1996).

A B S T R A C T

This paper summarises a research project carried out by the author on the effectiveness of pre-service teacher education in environmental education in New Zealand. Secondary pre-service teacher education students who had opted for a 20 hour course in environmental education expressed a high degree of satisfaction with the course but this begged the question of what would happen to them once they hit the reality of the classroom in a country which then had no policy or curriculum guidelines on environmental education. The author followed up eleven graduates from the 1996 course and six from 1997 to see if they were teaching, if they were teaching environmental education and how they now felt about their teacher training. The results were mixed – but some were teaching environmental education. They all continued to speak highly of their College training in environmental education and all but one would encourage others to do the course. However classroom management problems, staff cynicism and a lack of status for environmental education had created difficulties for them. Several had already given up on teaching as a career and others were considering leaving. Strategies to counter these disturbing trends are outlined as recommendations to the College and the wider education community.

The key to successful environmental education is the classroom teacher. If the teachers do not have the knowledge, skills and commitment to environmentalise their curriculum it is unlikely environmentally literate students will be produced (Wilke 1985, p. 1).

2. The paucity of educational research into the effectiveness of teacher training in environmental education.
3. The 'failure' of most teacher education programs that have been attempted in environmental education because of 'unrealistic expectations' (Oulton & Scott 1995).
4. The lack of understanding of the nature of environmental education. Most tertiary institutions and schools still teach **about** the environment. Their focus is not on the much riskier, more controversial teaching **for** the environment. Schools still perpetuate the status quo (Stevenson 1987).
5. The lack of follow-up of teachers once they enter the system - how effective has their pre service teacher training been? Are they environmental educators or have they given up? Has their enthusiasm been 'washed out' (Rust 1994).

The research question which emerged from these concerns was:-

To what extent has the environmental education course in secondary teacher education at Christchurch College of Education assisted graduates to teach and promote environmental education in schools?

This question gave rise to the following three research objectives:

- To find out if the graduates of the course are teaching environmental education at any level.
- To ascertain if any of them are agents for change who are trying to raise the profile of environmental education in their schools.
- To determine if they still see the course as useful.

The 1996 research - A starting point

This current research grew directly from my work with 28 students from the environmental education course at Christchurch College of Education in 1996.

The methodology was essentially interpretative and largely within the qualitative paradigm. My attempt was essentially to find out 'what's going on here' (Locke *et al.* 1993) or what had gone for these students in this course. To continue with the words of Locke 'In qualitative research the focus of attention is on the perception and experiences of the participants. What individuals say they believe, the feelings they express and explanations they give are treated as realities' (p. 99).

I sought their views on the 20 hour course by a pre- and post-course questionnaire and a small group interview. All members of the course completed the questionnaire and five volunteered to be part of the interview. The purpose of the interview was to triangulate the findings of the questionnaire. In the event the very positive feeling concerning knowledge and understanding of environmental education, confidence and competence to teach it and a commitment to its importance and to become environmental educators which emerged from the questionnaire were restated and reinforced in the group interview.

While I had used a questionnaire which is usually seen as a quantitative tool many of the questions were open ended and I encouraged the participants to describe their experiences of the course and used ethnographic methods to verify these with the group interview. As a social scientist my own bias is towards the descriptive, empowering and critical end of the continuum but I am comfortable using quantitative approaches if that will assist the process of finding out what is going on especially within the constraints of time and budget. 'Survey research is a quick and economical method of data gathering. The initial data from surveys is often processed into clear patterns and used as a starting point for follow-up interviews' (Elsay 1989, p. 5). This approach seemed to suit my situation.

The survey and group interview allowed a clear picture to emerge about student perception of the quality and usefulness of their pre-service training. A similar approach might be just as fruitful now that these students had entered the workforce.

Data collection methods

I decided on a postal survey questionnaire to find out if and where they were teaching, what they were teaching and if they were teaching 'environmentally'. I also wanted to hear from them about any problems they had encountered and how the College course might better prepare them to meet these.

I sought their views on the best methods of teaching environmental education and whether they had found the College course useful. I also asked them if they planned to stay in teaching. The survey concluded with a number of rating scale items closely linked to the post course questionnaire to see if their knowledge and confidence to teach environmental education had stood the test of time and to see if they still thought environmental education was important and could still see themselves as environmental educators.

The major difficulty that I now faced compared to 1996 was that of access to the course participants. After graduation they had scattered across the country and some overseas. Based on past experience it was also likely that some were not teaching - either they had not found jobs or had decided not to teach and indeed this proved to be the case. I obtained only eleven responses and so decided to extend the survey to the 1997 graduates seven of whom participated.

A summary of the responses of each group appears in Tables 1 and 2.

Since the group was scattered the possibility of a group or focus interview had now gone so I decided to seek volunteers for individual interviews and to select some of these bearing in mind the cautionary advice of Elsay (1989) 'one interview can take ages to arrange and a whole evening to conduct, let alone transcribe and write up' (p. 5). In the end I interviewed four graduates - two from each year.

To further extend the ethnographic dimension of my research I invited all the participants to tell their 'stories' of what had happened to them since they left College. I felt this would provide a valuable insight into their thinking and feelings and this certainly proved to be the case. Five of the 1996 graduates included their stories as did five of the 1997 group.

While qualitative research is not focused to the same degree as quantitative on 'validity' but rather on 'meaning' and 'understanding' (Bogdan & Biklen 1982, p. 50), I wanted to get as clear, accurate and valid a picture as possible of what was happening to our graduates and how we could better prepare them to teach environmental education. The ethnographic approach using interviews and personal stories should triangulate with the survey findings and check their validity. This did indeed prove to be the case.

Limitations, conclusions and recommendations

The conclusions that can be drawn from this research must remain tentative in view of the limitations which can be summarised as follows:

1. **Timing.** The respondents had been teaching from six months to just over one year. This is probably too little to draw firm conclusions about their ongoing commitment to teaching environmental education and the contribution of their pre-service training in environmental education. However it does provide us with a beginning point and it would certainly be interesting to follow the progress of these young teachers in future years.
2. **Sample Size.** Of a possible forty three students only seventeen responded to the survey, only ten sent in their stories and only four were interviewed. While this does not in any way discount the validity of their responses, it is difficult to make generalisations to cover the entire cohort. It could be argued that only the most committed or enthusiastic would bother to respond and that they are not a cross section of the environmental education class.

Table 1: The 1996 Group - Summary of Responses to the Survey Questionnaire

Respondent Code	Teaching							School Type							6 Point Rating Scale where 6 is high						
	Gender	More than 1yr	Less than 1yr	Partial	Current	State	Private	Single Sex	Cn-Ed	Subjects Taught	Taught Ed/Ed.	Plan to Stay Teaching	Knowledge of EE	Confident to teach EE	Immersion of EE	Environmental Educator of the future	College Contribution	Should Others Do the Course?	Story Included		
A6	M	✓			✓	✓			✓	PE, Maths, OE	Yes	Yes	3	4	6	5	5	Yes			
B6	M		✓	✓	No					Science, Biology	Some	No	4	4	6	3	NA	Yes			
C6	F	✓			✓	✓		✓		PE, Health	No	Yes	4	3	3	3	2	No			
D6	M	✓			✓	✓		✓		Science, Biology	Yes	Yes?	5	5	6	6	4	Yes			
E6	F	✓			✓	✓		✓	✓	Music	No	Yes	3	3	6	5	6	Yes			
F6	M	✓			✓	✓		✓		Science, Biology, PE, OE	Yes	Yes?	4	3	5	5	3	Yes			
G6	M		✓	✓	No					Wood/Metal, Graphics, OE	No	No	3	6	4	4	4	Yes			
H6	M	✓			✓	✓		✓		PE, Maths and many more	Some	Yes?	3	3	5	5	4	Yes			
J6	M	✓			✓	✓		✓		OE, PE, Maths, Science, Eng, Soc Studies	Yes	No	5	6	4	4	4	Yes			
K6	M	✓			✓	✓		✓		PE, OE, Maths	Yes	No	4	3	4	4	4	Yes			
L6	M		✓	✓	No					OE	Some	No	5	4	5	4	4	NR			

NB. A noticeable feature here is the preponderance of male respondents (9 out of 11). This was not a reflection of the class make up which was 16M and 13F.

Table 2: The 1997 Group - Summary of Responses to the Survey Questionnaire

Respondent Code	Teaching							School Type							6 Point Rating Scale where 6 is high						
	Gender	More than 1yr	Less than 1yr	Partial	Current	State	Private	Single Sex	Cn-Ed	Subjects Taught	Taught Ed/Ed.	Plan to Stay Teaching	Knowledge of EE	Confident to teach EE	Immersion of EE	Environmental Educator of the future	College Contribution	Should Others Do the Course?	Story Included		
M7	F		✓		✓	✓			✓	PE	Yes	Yes?	3	3	6	5	6	Yes			
N7	F		✓		✓	✓			✓	PE, Maths, Liberal Studies	Yes	Yes	4	3	5	4	3	Yes			
O7	M		✓		✓	✓			✓	Geography, Social Studies	Yes	Yes	4	5	6	6	5	Yes			
P7	F		✓		✓	✓			✓	Japanese, Info. Technology	Yes?	Yes	2	2	5	4	2	Yes			
R7	M		✓		✓				Museum Education	Science, Social Studies	Yes	Yes	3	6	6	3	6	Yes			
S7	F		✓		✓	✓			✓	Biology, Science, Maths	Yes	Yes	4	5	5	4	5	Yes			

3. Research bias. While I do not currently teach the environmental education course at College, yet I have been involved in its development and have a certain 'ownership' of it. This will have influenced the questions I asked and my analysis of the responses despite my best efforts to remain neutral.
4. Time pressure. If time had permitted it would have been helpful to interview all ten former students who volunteered. Forced to choose, I selected four who were currently teaching but the perspectives of the other six would have painted a more detailed and 'richer' picture.

Despite the limitations described above it is possible to draw some tentative conclusions relating to the problem outlined at the start of this research. ie. How effective can a 20hr pre-service course in environmental education be in promoting environmental education in schools?

Measured by the responses of the seventeen who had done the course in 1996 or 1997 I concluded that the course was effective for the following reasons which linked to the research question and objectives:

- Thirteen of the seventeen respondents claimed to have taught some environmental education despite its lack of status or visibility in the school curriculum.
- Some of these young teachers were really committed to environmental education and were trying to make a difference in their school despite the difficulties they had encountered in an essentially reproductive school system.
- All respondents continued to rate the College course highly and all except one would recommend it to others.

However we must not over look the fact that three of the seventeen who responded to the survey are no longer teaching and two others do not plan to stay teaching and a further three are dubious about their long term future as teachers.

While most of them claim to have taught some environmental education many have not found it easy because of the lack 'status' of environmental education in schools, the lack of support from colleagues and the unco-operative and unmotivated response of many pupils.

Recommendations to the Christchurch College of Education

- The College environmental education course needs to put greater emphasis on appropriate management strategies for the introduction of environmental education to avoid the 'riot control', the failures and disillusionment described by several of the respondents.
- The issue of staffroom politics needs also to be addressed - how to win over reluctant or cynical colleagues and how to advocate for change without alienating the decision makers.
- There needs to be a greater focus on ways to inject more environmental education into existing curricula in all

subject areas since it is most unlikely that environmental education will gain the status of a separate subject in the New Zealand curriculum.

- Placing the course earlier in the year so that more of the trainees could trial some of the ideas and approaches on teaching practicum needs further investigation. This might help to overcome some of the management problems mentioned above.
- Dealing with controversial issues especially in conservative rural communities was seen as an issue by one respondent.
- Establishing networks among graduates for mutual support and sharing of ideas and resources needs to be further investigated.
- Serious consideration needs to be given to lengthening the course to thirty hours if the recommendations listed above are to be implemented.
- Finally the College needs to encourage and resource ongoing research into the career paths of our graduates not only in environmental education but across the board if we are to evaluate the success of our teacher training.

Recommendations to the wider educational community


- If environmental education is to have any status in schools the Ministry of Education must release the Environmental Education Guidelines for schools.¹
- The government through the Ministry of Education need to provide the resources and the direction to teacher education institutions to include environmental education as part of their pre service teacher training.
- The government through the Ministry of Education needs to provide for the in-service training of teachers if they are to incorporate environmental education into their teaching programs.
- The Ministry of Education and the Ministry for the Environment need to co-operate on the production of environmental education resources for schools to support teachers trying to implement environmental guidelines.
- The New Zealand Association for Environmental Education (NZAEE) needs to actively lobby the government if the initiatives listed above are to happen.

Final thoughts

Pre-service teacher education is a 'hit and miss' affair. Institutions put together courses which they believe will prepare young graduates for the teaching profession. The Christchurch College of Education environmental education course is one of many on offer to students. It is a popular and very well received course with excellent evaluations but does it prepare students to teach environmental education in an educational system where it has little status? In my view the answer is a qualified 'yes' which could become a resounding 'yes' if two things happened.

Firstly if the College made some minor but significant changes to the environmental education course and lengthened it to thirty hours.

Secondly, but more importantly, a major change to the political climate which would see the recognition of environmental education as a vital part of the education of young people and essential for the future health of New Zealand and of planet earth.

We have the skilled teacher educators, we have enthusiastic and committed graduates. If we have the political will New Zealand could live up to its 'clean green' image and become a world leader in education for the environment. In the words of Chidlow (1997) 'The millennium is upon us - the environment will not wait forever'. 

Note

- 1 *Curriculum Guidelines for Environmental Education in New Zealand Schools* were issued by the Ministry of Education in August 1999.

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