

Curriculum and Professional Development in Environmental Education: A Case Study

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Introduction

This particular case study looks at the problem of curriculum and professional development in environmental education at a small semi rural primary school in south western Victoria. In this paper the 'study' refers to the case study research at Elliminyt Primary School and the 'project' refers to a wider OECD-CERI ENSI project¹ which included many other case studies other than the one described here.

Background

Elliminyt primary school was established some 115 years ago. Originally most of its students came from rural properties with one third of students coming from an Anglican children's home nearby. The school has had enrolments of over 300 students in the past but this has currently fallen to 200 children and 15 staff. As the school is now located on the outskirts of suburban development the student profile of the school has changed. Approximately 30% of the children now come from rural backgrounds and 70% from urban backgrounds. Dairying continues to be the major rural activity of the region with the once flourishing timber industry declining in importance.

The main focus of the school is stated by staff as providing an opportunity for all students and encouraging all students to achieve to the best of their ability. The school has also made a conscious effort to make use of their unique natural environment, the Otways Ranges, and late in 1991 formed the 'Otways Education Committee'. The charter of this committee is to investigate ways of working with the natural environment in which the school is located.

Finding a way of working

One of the main reasons many staff at Elliminyt Primary School give for their involvement in developing an environmental education curriculum is their proximity to and appreciation of the Otway Ranges. Some staff have lived in the area most of their lives and have nurtured and developed an affinity with the area over the years. One staff member has been part owner of a family farm in the Otways since a child and claims he always tried to encourage his parents to leave areas of uncleared land on their property. Other teachers have moved into the area more recently. When Neil, the Principal was asked his views on environmental education he

began:

It goes back, ... I'd taught all my life in Melbourne and then I went to Ouyen in the Mallee. That was my first country experience. It took six months to come to grips with what the Mallee is and actually a year before you really appreciate the subtleties of the environment in the Mallee. Then coming down here and sitting on the verge of the Otways, coming from an environment like the Mallee to here, it's like suddenly being hit over the head with a sledge hammer. I mean, Mallee trees don't grow as big as the Otway trees and it's just a terrific environmental change. I felt that people in Colac generally didn't appreciate or understand or use the Otways at all and certainly when I was in Melbourne I would have given my eye teeth to have a resource like that on the doorstep.

Lyn, another staff member reflected on her excitement at being involved in environmental education activities at Elliminyt:

I became involved in EE [environmental education] at this school as the librarian, as a resource organiser—but also because I am very interested.

In some ways I suppose I came at it from a more childlike—new, exciting, different!!—point of view than for others who were very familiar with the area. The amount of information we received and the experiences we had were outstanding in my mind because everything was new to me!

Another reason for the environmental education curriculum development was the perceived apathy, by many of the local people, towards the region. This was alluded to by the Principal above and also by a number of other staff members. For example, in response to a question about the community's attitude towards environmental education at Elliminyt Lyn states:

I think that Colac doesn't have a very good record for environmental awareness to my way of thinking. Having come from Horsham, which has recycling of all garbage, which is a smaller place than here, and this place doesn't have any [recycling program] basically, not compulsory recycling for garbage. So what I would say is that there are people who are very positive about it, but there is a fair apathy too, not negative, just an apathy rather than a negative. Because we really only have one parent who wouldn't let their child go tree planting, so ...

And yet another staff member, Eunice commented on the 'community being far too apathetic' with respect to local environmental issues.

Although no written environmental education policy was in place at Elliminyt Primary School at the beginning of this study in many respects the development of an environmental education curriculum was well under way before a conscious decision was made to work towards an issues centred study across the school.

In the beginning

According to Ann, a teacher at Elliminyt:

Commencement of any new project requires interest, commitment and enthusiasm, combined with the realisation that from small or seemingly small beginnings, larger and on-going programs will result. Success of the program will be determined by commitment.

The beginning of the study of curriculum and professional development in environmental education at Elliminyt was formally marked with a meeting held at the school very early in 1992, two weeks after the long summer vacation. A colleague and I had arranged to meet with interested staff members after school hours at Elliminyt School. It appears that environmental education is characterised by gatherings of interested people, staff, students, members of the community, out of 'school time'.

It was with some excitement and trepidation that we approached the school. We had not met any of the staff nor had we visited the school before. Previous contact had been by phone and always with the same staff member. My expectation was an informal meeting with two or three staff where we would throw around some ideas. I was surprised that no less than 8 people, approximately 50% of staff, attended. The group comprised males and females, infant, middle and upper school classroom teachers, the Principal and Vice Principal as well as specialist teachers from library, music, art, physical education and science areas. This was a real testimony to the inclusiveness of environmental education. The following extract from my journal indicates what we experienced

'I am overwhelmed by the enthusiasm and commitment of the staff, including the Principal, of Elliminyt Primary School to environmental education'.

The staff see environmental education as permeating all traditional subject areas. The Principal summed up the feeling of the group. 'To put environmental education in a separate subject area would be ridiculous as it involves every aspect of our lives'. Because of a broad vision and commitment to environmental education the main problem of the meeting was to narrow the scope of the proposed

study to a manageable size. Some staff wanted to look at the big picture with a focus on the forthcoming camp. Others thought a narrower focus would be better and thought studying an issue such as the tip or water quality would be suitable.

Team work

Throughout the study it became apparent that a critical mass of interested and enthusiastic people is required to initiate and sustain environmental education development in schools. Although there is no magic number for this I am sure it is not one and it is likely to be closer to three as this was the effective number at Elliminyt. Eunice, one of the most enthusiastic and experienced teachers at the school (a teacher at Elliminyt, on and off, for the past 30 years) had been keen to develop environmental education at Elliminyt for the last eight years. Another staff member, Malcolm who was fairly new to the school had attempted some environmental awareness activities with his grade but found 'they never really got enthusiastic about it'. He realised a colleague was interested in promoting awareness of the Otways and decided to support her as she was having little success in getting a program started. The notion of 'critical mass' is highlighted by the Principal's response to a question seeking the origin of the environmental education development in the school thus far.

... it's very difficult to say where an idea exactly comes from. I don't believe it comes from any one person. I think I probably raised it, but I know it was in other people's minds as well. It's just not one person. Eunice had a gut feeling too ... Then you've got people like Malcolm who's got a special interest in that area. So I mean it's never one person's idea, it's always a group usually. I mean one person can have the idea and it'll never get going, you've got to have a team.

The coming together of interested staff was formalised in the establishment of the Otways Education Committee (OTEC) whose mission was to 'encourage awareness and appreciation of the Otways and the local environment'.

A critical approach—action research

Critical approaches to educational enquiry attempt to emancipate participants from habitual and traditional factors which shape educational settings, institutions and actions by the interplay of theory and practice. They acknowledge historical, social, and political aspects of action.

The OECD-CERI project overtly requires participating schools and support persons to adopt an action research perspective in their development of environmental education in their particular schools and in

'documentation of the challenge of co-ordinating and facilitating the project within their national context' (Elliott 1991, p. 19) respectively. The project anticipated that curriculum development in environmental education would include concurrent professional development in the form of action research. As the project was interested in documenting innovative environmental education curriculum development a major focus to bring about concrete changes in the environment, action research was deemed the most suitable way to proceed. According to Elliott (1991, p. 19) 'the development of action research [is] a way to bring about curriculum change'.

It was anticipated that both the researcher and participants would adopt an action research approach to their own involvement in the project.

Expectations

Historically some staff had been frustrated at aborted attempts to develop environmental education at Elliminyt. It is not surprising then that many of the key participants expressed the hope that the program would lead somewhere. For example:

Expectations? I was pretty open really ... a lot depended on the involvement of the teachers and enthusiasm ... was hoping it would go somewhere (Ann, teacher at Elliminyt).

I had no idea what the children would choose and I came with no fixed agenda myself, so I was quite happy with whatever their direction was (Lyn, teacher at Elliminyt).

From a research perspective I felt, particularly at the first two or three meetings, staff expected me to take on the role of curriculum developer and viewed my colleague and myself as the 'outside experts' in this particular field. Even after I explained that I saw our role as facilitators rather than directors of the project I felt that staff were still asking the 'Is that what **you** want?' type questions. It is unrealistic to expect 'outsiders' to come into an educational setting without changing the dynamics of the group. However, over time a realisation that the researchers were not the authority figures developed. Questions then moved into the 'What will we do?' category. This indicated a major shift in participants' conceptualisation of the process which then liberated them to engage in environmental education which was meaningful and useful to them.

This is consistent with my experiences in similar research projects (for example, the Environmental Education and Computer Conferences Project, Muhlebach & Robottom 1990) where I have found that it takes time for staff and researchers to get to know each other, to become familiar with the expectations of each other and to develop a way of

working. The length of time required varies for each case. However, 'getting to know you time' is a necessary part of the process of working towards participant-centered research which is a prerequisite for student centred, issues-centred, and community-based environmental education. For a socially critical form of environmental education to exist control of curriculum development must lie with the participants. In educational settings, where historically curriculum is predetermined by the authorities and handed over to teachers for implementation, it takes time to learn a new way of working and to free oneself from the traditional role model.

Action research

It is important to ensure that the innovation process in environmental education does not get blocked at a particular level of development, and this must be a priority for the next phase of the project. The major strategy for ensuring this must be a teacher training scheme for facilitating reflective practice or action research as a basis for development, both in schools and in the wider educational system (Elliott 1991, p. 25).

This research strongly supports the view that for good socially critical environmental education to develop then curriculum and professional development must be concurrent, school-based, and directed and conducted by the participants themselves. Theoretically, action research, with its emphasis on self reflective practices, is ideally suited as a model of professional and curriculum development in environmental education. However, in this program the practice of action research as a basis for curriculum and professional development in environmental education raised a number of concerns.

This section discusses tensions between the theory and practice of action research in environmental education and gives evidence which supports the claim of Elliott, above, that providing for teacher development which facilitates reflective practice is critical to the continuation of the innovation process in environmental education.

Action research: Some concerns

Action research is a form of self-reflective enquiry undertaken by participants in social situations in order to improve the rationality and justice of their own practices, their understandings of these practices, and the situations in which the practices are carried out (Carr & Kemmis 1983, p. 162).

Although theoretical, academic definitions and discussions on action

research in general (for example, Carr & Kemmis 1983), and environmental education in particular, acknowledge that 'teaching, and educational practice in general, is complex, problematic and uncertain, and takes place in a context which is equally complex, changeable and politically shaped' (Robottom 1987, p. 109), it still prescribes definite phases (planning, action, monitoring and reflection) which need to be adhered to in recurrent cycles. It assumes the practitioner, the teacher and curriculum developer, innately 'know' how to work within an action research framework. It also assumes, erroneously, that teachers work in an environment that is conducive to such thoughtful and overtly reflective practices. It appears, both in this case study and other similar studies (Muhlebach & Robottom 1990), that the principles of action research and its underlying assumptions do not account for the fact that, in the main, teachers work and have worked within a technocratic framework informed by an empiricist view of knowledge and a positivist view of educational enquiry since their initiation into the educational institutions (for many, preschool at the age of 4 years). To make the quantitative, and qualitative, leap to an action research approach, guided by views of knowledge and education which are the antithesis of that within which practitioners find themselves, without some intermediary acclimatisation or transition phase, is unrealistic. This idea parallels Suchman's (1960) claim that students need to learn how to work within an enquiry framework. That is, teachers need to learn how to work and develop within an action research framework.

Teachers obviously think about their own teaching and reflect on the process and outcomes of their practice but this does not constitute action research. According to Kemmis and McTaggart (1988, p. 21) 'Action research is more systematic [than thinking about their own teaching] and collaborative in collecting evidence on which to base rigorous group reflection'.

Kemmis and McTaggart go on to identify seventeen key points about action research. The next section will use these key points as a framework in which to identify the discrepancies between the theoretical and actual manifestations of action research within the context of the Elliminyt Primary School study.

In many instances action research needs an external researcher who is committed to the research and its methodology. In this situation I set what I perceived to be an environment which was conducive to action research. However, although participants made moves towards what may be considered an action research methodology, it fell short of a conscious employment of cycles of self-reflective spirals.

As a participant in this study I feel that in using action research as a model for curriculum and professional development I incorrectly assumed that:

- teachers are aware of action research

- teachers 'know' how to participate in action research
- teachers want to participate in action research.

It took several months before some participants in the study started to reflect on their practice and theorise the changes that were occurring. Some participants felt that they should reflect on their own practice but 'never quite got around to it'. Others didn't appear to attempt a self reflective spiral at all. It also took many months before participants recognised for themselves the need to keep a written account of their work. When this occurred it was designated the responsibility of one person in the group and tended to be descriptive rather than a reflective account of the project. Towards the end of the study teachers were given time (by funding Emergency Teacheres to release them from teaching commitments) to write individual and collective reflective accounts of their participation in the study. Teachers had difficulty in doing this without some guidance, hence I provided an outline of possible points to consider in their writings. Teachers produced written accounts of various quantities, and degree of reflection and analysis. Nevertheless, these writings proved to be rich sources of data for this case study.

Further to the problems alluded to above, this study uncovered the following problems with respect to action research in the primary classroom.

- Teachers devalue their own and their colleagues' knowledge, skills and experience: 'anyone can do that ...'
- Classrooms are insular units. The physical structure of traditional schools with many discrete classroom units, leads to pedagogical isolation and teachers don't see their personal story as relevant to others.
- There is little time for collaborative reflection.
- Teachers are the product of a traditional social and educational environment where teaching and learning is didactic, knowledge based, and textbook orientated where the role of education is seen to be reproductive rather than reconstructive.

Teachers need the opportunity to discover there are social and educational frameworks other than the one in which they find themselves. To foster a critical action research approach to curriculum and professional development teachers need to be in situations which are conducive to discovering the assumptions underlying their actions, that there are other ways of knowing and doing, and that their 'stories' are valid and valued professional experiences. Under these circumstances teachers may then have the desire and confidence to explore new ways of educating *for* the environment.

Teacher development and action research

Despite the fact that a number of preservice and inservice programs, or

parts of programs, exist which 'train' teachers to conduct action research, the majority of teachers in the field have little or no experience with participating in action research programs. It is evident from this research that the ability to act within an action research framework is not spontaneous and that teachers need to be assisted in developing the awareness and skills necessary for effective educational action research with a view to bringing about curriculum change.

The limited extent to which action research acted as a basis for curriculum and professional development was observed in many other case studies conducted within the OECD project. For example, Elliott (1991, p. 20) reports that 'the quality of the documentation varied: there was a tendency for teachers to provide surface rather than in-depth descriptions of the project'. The Austrian case study was considered by Elliott to be of a high quality with strong evidence of action research as a basis for curriculum development in the field of environmental education: he explained (Elliott 1991, p. 20) that this was probably due to:

the fact that the national co-ordinator and participating teachers had access to the project consultant at the University of Klagenfurt, where over the past decade he has been involved in developing action research for resolving the theory/practice problem in education. Participating teachers also received some inservice training in the methodology of action research.

Working with teachers at Elliminyt Primary School I came to realise the limitations of using action research as a model for curriculum and professional development. I also came to the view that some exposure to, and experience of critical, self reflective practice is required before researchers can expect teachers to work within an action research framework. The difficulty with this requirement, that is, exposure to action research, may lie in the reasons why teachers agree to work with researchers and vice versa. As it is a privilege for researchers to be accepted as participants in the day-to-day operations of teachers' workplaces the researcher must respect the process by which teachers are prepared to work. It may well be that participants have different expectations, concerns and questions. If self reflection and revelation is not on teachers' agenda then we could question the appropriateness for researchers expecting that they do so.

In this study the invitation to work with teachers was not in terms of developing action research skills but more specifically in developing an environmental education program. Under these conditions I felt uncomfortable promoting the formal adoption of an action research perspective by asking teachers to keep journals and other documentation that they would otherwise not concern themselves with.

Conclusion

Although action research is purported to be ideally suited as a model for curriculum and professional development in environmental education, the Elliminyt study identifies a mismatch between teachers current circumstances and practice, which is historically, socially and culturally embedded, and the circumstances in which critical self reflective practice can take place.

Continuation of the innovative process in environmental education requires researchers to address the discrepancy between action research ideology and reality as a way towards social and educational reconstruction. Researchers need to provide the opportunity for teachers to learn how to work within a socially critical framework.

Notes

- ¹ OECD- Organisation for Economic Co-operation and Development, CERI- Centre for Educational Research and Innovation, ENSI- Environment and Schools Initiative project.

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