

ACTION RESEARCH FOR ALL?

Doing action research on a shoestring in Monteverde, Costa Rica

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ABSTRACT

Environmental Education (EE) as it is widely practiced in schools today, focuses on developing a love of nature, in the belief that this love of the natural world will inspire the student to take care of it. Is this enough, as many EE programs claim, to ensure a sustainable future for planet earth and all who live on her? It is argued here that something more is needed, a broader vision and an understanding of the values that guide our decision making and our behaviour. We need to look at the whole picture, the way in which we live, the political and economic systems which dominate our lives, our social and cultural norms and customs. I will argue that Education for Sustainability (EFS) addresses these broader, interconnected issues, looking at them from a critical viewpoint, and also show the way in which EE fits under the umbrella of EFS, not discounting EE, but putting it in a different light.

I will establish how the methodology chosen for the fieldwork - action research (AR) - closely aligns with EFS in its ethical foundation. The literature offers many possible interpretations of EFS and AR, however, and in order to clearly express the ethical principles which inform my perspective and guide the field research, I refer to the Earth Charter (EC) which, I will argue, offers a suitable ethical guide to inform EFS and AR. The EC is a document that offers a set of internationally agreed upon principles, designed to open dialogue between people of all different cultures and nations, in order to bring about the peace and understanding needed as foundations upon which to build a sustainable future.

Taking this theory out into the field, I worked together with seven teachers from the Cloud Forest School (CFS) in Monteverde, Costa Rica to explore ways in which EFS could be understood by staff at the CFS, such that it could be fully integrated into the curriculum and culture of this environmental school. This was done in light of the existing EE program. This was an adventure into the unknown. The final chapter recounts the experience of the field researchers in relationship to the theory discussed in earlier chapters. It focuses on what each of us learned by participating in this process and the ways in which this learnig helped to answer my research question.

ACKNOWLEDGEMENTS

There are many people who have helped to make this work possible. Firstly, I would like to thank the staff at the Cloud Forest School where I did the fieldwork and in particular the following teachers who carried out action research projects, dedicating a great deal of time and effort to improving their own teaching practice while helping me to generate data for my research; Amy Cherwin, Bryan Street, Esperanza Mora, Kerri Blair, Luz Marina Brenes Sonia Ovares and Tiffany Fourment. Their dedication has been an inspiration to me and their learning a gift. The process has been fulfilling. Thanks especially to Alysan Croyden who, despite giving birth to her third child Ioan, on 20th March 2004, took the time to help me as my 'critical friend', meeting with me and reviewing my work. Also to Lillian Hertz, who patiently reviewed the final manuscript, pointing out inconsistencies and grammatical errors.

I was almost overwhelmed by the help received from other action researchers particularly via the www.actionresearch.net website. I was searching for materials on action research in Spanish. I sent an email message to Jack Whitehead and through his networking received helpful responses from over fifteen researchers. It was a confirmation of McNiff's claim that "The support of this networking is managed in a non-hierarchical, non-coercive way. It is a question of educational influence, a dialogue of equals". (McNiff 2002b, p.26)

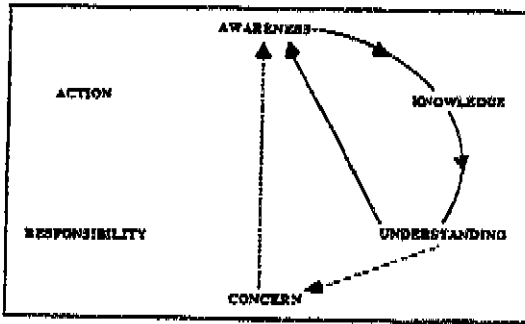
A very special thank you goes to Nicole Blum, Doctoral candidate at Sussex University, who lived in Monteverde from September 2002 to September 2003 doing the fieldwork for her thesis. During countless conversations over suppers, glasses of wine and cups of tea, she helped me to develop my ability to think critically while I was working on units 4-8. Some of this work has formed the foundation of this dissertation.

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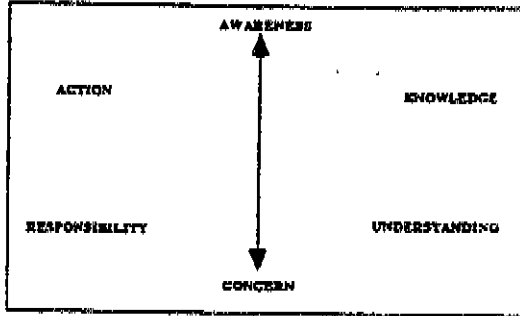
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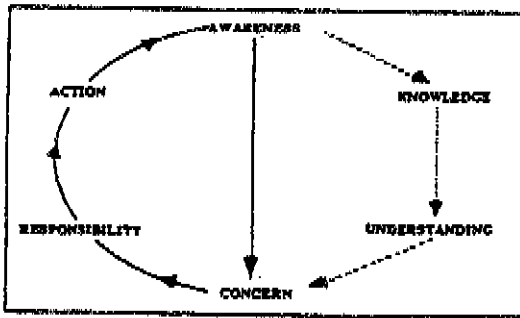
(i) Education About the Environment



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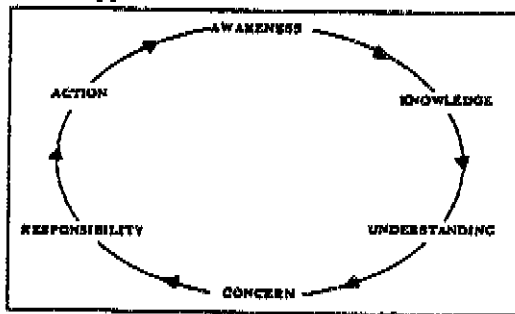


FIG. 2. Differing environmental education approaches (Tilbury, 1993).

I live in the community of Monteverde in Costa Rica. It is one of the most visited parts of the country, renowned for the splendour of its unique and ecologically diverse Cloud Forests. Successful conservation efforts in the area have led to the preservation of large tracts of these forests, which many people visit hoping to catch a glimpse of such wonders as the Resplendent Quetzal. Both tourism and the local population grew steadily during the late 1980's. Most residents, new and old, lacked the skills and experience required to work directly with the tourists however, particularly the ability to speak English. Local schools - which were becoming overcrowded - were unable to respond quickly to this need. As a result, a small group of residents started a private school in Monteverde in 1991, known as the Centro de Educación Creativa (CEC). The school set out to provide a child centred education with a focus on Environmental Education (EE), which was to be integrated into every aspect of its curriculum. The expectation was that the children would learn to love and appreciate their natural heritage, therefore being motivated to conserve and care for it. The children, mostly native Spanish speakers, were to receive the majority of classes in English.

Things have changed faster than anyone could have anticipated since 1991. While ever-increasing numbers of tourists come to experience the beauty of the Cloud Forests that surround the village, the residents live a different reality, particularly those in Santa Elena - the commercial centre of the community - which now faces a development crisis. The community is experiencing rapid unplanned and uncontrolled urban growth and is struggling to resolve problems such as waste management, supplying safe drinking water and managing traffic on inadequate (unpaved) roads with no pedestrian pavements. Jobs with higher paying salaries have provided higher standards of living for some but many residents are dependent on seasonal work as cooks, cleaners, gardeners or labourers in hotels and restaurants, and the gap between the wealthy and the poor is increasing. As Wignaraja says; "If the poor become the new exploiters as their incomes increase, or if on the other hand consumerism becomes rampant, particularly the purchase of imported consumer items unrelated to basic needs, then the development process will not be sustainable." (Wignaraja 1993, p.24) Greater wealth within the community has resulted in increased materialism, changing people's values and expectations. Five years ago many people had cement floors for example. Now, tiled floors are viewed as normal and only 'pobres' have cement floors. The rush to become 'modern' is evidenced in Monteverde by the explosion in construction and commerce, catering to both tourists and locals, and particularly the increase in the variety of consumer goods available. As Laszlo (1989) states, "The one fourth [of the worlds population] that lives in the developed world is proud to *be* modern and the three fourths that inhabit the developing world wish to *become* modern." (Laszlo, 1989, p40).

I moved to Monteverde in 1996, began working at the CEC as Assistant Director shortly thereafter, a position which I will shortly take on again after an absence of three years, during which time I have continued to be interested and involved in the school. Its EE program is focused on nature studies, in particular on how to save the cloud forest (appendix 1). While I agree that there is an ongoing need to actively support such conservation efforts, I believe there is also a need to focus on aspects of Development Education (DE) which address the social, political and economic problems in the community, and could help students understand how their lifestyles, and the values that underlie them, impact on their environment. To this end, I have a serious commitment to see Education for Sustainability (EfS) - which encompasses elements of both EE and DE - embraced by the school. I believe that the Earth Charter (EC), a document that presents a set of seventy-seven ethical principles designed to help stimulate debate and ideas for building a sustainable future (appendix 2, also see chapter 1.3), could be used to help achieve this goal. I was instrumental in introducing the EC to the CEC, as a possible aid to understanding the scope and underlying values of EfS, and have written four papers looking at different aspects of EfS at the school (Kennard 2001, 2003). I attempted to engage the schools administrators in the debate but felt disappointment with the results of my efforts. I wondered if using a 'bottom up'

approach might better enable me to get my message across by demonstrating, through practice, what I had been addressing in theory. My work had indicated a wide divergence in understanding of the term 'EE' among teachers at the CEC, as well as a great interest in finding opportunities for professional development, particularly in the area of EE. In response to this, the question that formed was; 'How could I, through my research, offer a professional development opportunity to staff at the CEC which would help to broaden their understanding of the EE / EfS debate?' I wanted to design and conduct a research project that would be concordant with my own values and those of the EC and of EfS, particularly democracy, equality, empowerment and justice. I decided that as action research (AR) is rooted in these values and takes a critical approach to educational research (McNiff 2002b, 2003), it would be the ideal methodology for my work. I could see clear links between the principles of the EC, EE, EfS and AR in theory (see chapter 1). I hoped to discover if the AR process could serve as a means to clarify the connections for others, through practice. My primary focus was reflected in my final research question:

How could I help teachers and administrators at the CEC to understand the way in which ecological concerns form only one part of the process of Education for Sustainability, in light of the schools present approach to Environmental Education?

To find answers to this question, I invited teachers at the school to collaborate with me in carrying out an investigation, by enquiring into their own practice through action research. Together with the teacher / researchers, I wanted to explore the following areas:

- Could participation as researchers in short-term action research projects in the classroom, help teachers at the CEC to understand the basic principles of Education for Sustainability?
- Could the Earth Charter play a role in developing a conceptual framework for understanding EfS, and be used to give breadth to learning about EfS through action research?

In summary, my research has been driven by my genuine desire to play a part in improving the quality of life in Monteverde by promoting understanding and encouraging the implementation of EfS at the CEC. I have been guided by the following beliefs; that the 'environment' in EE needs to be the place in which we live and of which we are in integral part, be it urban or rural or a mix of both. We need to understand the complexity of our relationship to the environment if we are to sustain it and in the process sustain ourselves as healthy living beings on this planet. We need to be aware of the values that direct our behaviour and the consequences of our actions. If we are to achieve a sustainable future we need to be prepared to critically evaluate the way things are and to be open to change. The Earth charter sets out principles that could guide us. EfS could teach us a new way of thinking, doing and being. AR gives us a framework for evaluating how well we are doing. This is very challenging work; I would like to see the CEC take up this challenge. This dissertation explores one way of beginning the process.

CHAPTER 1: LITERATURE REVIEW

The literature review begins by giving an overview of Education for Sustainability (EfS), including a brief history and a definition. It goes on to discuss the relationship of EfS to the Costa Rican education system, the Earth Charter and finally the methodology chosen for my field work – action research. Reference to the research situation is made throughout.

1.1 Education for Sustainability

Education for Sustainability (EfS) is a relatively new concept. Debates on its definition relate closely to discourses on sustainability and education in their broader contexts. EfS encompasses elements of EE and Development Education (DE) while offering an umbrella for a variety of movements which emerged during the 1990's to promote the concept of education relevant to social change such as peace education, citizenship education, world studies, human rights education, anti-racist education and holistic education. (Sterling 1993) Of these adjectival "educations", EE has become the most widely established in both formal and informal educational settings and has received considerable attention at international conferences on sustainability since the early 1970's. Originally used as a term to encompass nature and field studies, the worldview of EE has broadened considerably. The goals of EE seen below, originally drawn up as objectives of the Belgrade Charter of 1975 and set out at the Tbilisi conference of 1977, reflect this broad view of EE:

1. To foster clear awareness of, and concern about, economic, social, political and ecological inter-dependence in urban and rural areas
2. To provide every person with opportunities to acquire the knowledge, values, attitudes, commitment and skills needed to protect and improve the environment
3. To create new patterns of behaviour of individuals, groups, and society as a whole, towards the environment

(UNESCO 1975 in Palmer 1998)

More conferences were held; in 1987 'Tbilisi Plus Ten' endorsed the goals above and the Bruntland Commission issued a report entitled '*Our Common Future*' which addressed the notion of a 'global agenda' and the need to reconcile environmental and developmental concerns. Little progress was made towards meeting the Tbilisi goals however, until the 1992 'Earth Summit', when Agenda 21 - a plan drawn up as a guide for achieving sustainability in the 21st century - was launched. Chapter 36 of Agenda 21 entitled 'Promoting Education, Public Awareness and Training' was widely adopted as a tool for learning about sustainability in educational, community and business settings. Fagan tells us that "Education appropriate to Agenda 21 is not neutral. It is steeped in the politics of justice and equality." (Fagan 1996 p.136). Despite this and other efforts to promote EE for sustainability, in 1996 Martin makes a comment which, I believe, remains relevant today: "For most people and most educators, outdoor experience of the natural world, an understanding of ecology and an awareness of environmental issues represent the basics of environmental education." (Martin 1996, p.45) Surveys conducted at the CEC demonstrate that this is the way most teachers at the school interpret the term EE (Kafarowski 2001, Kennard 2001, 2003). The term EfS gained international acceptance in 1997; The Declaration of Thessaloniki states: "EE as developed within the framework of the Tbilisi recommendations and as it has evolved since then, ... has also been dealt with as Education for Sustainability". (Scoullas 1997, p.80)

Meanwhile, debate about DE culminated in the following statement: "Development Education in the curriculum is about teaching and learning the knowledge and understanding skills, attitudes and values

that enable young people to become increasingly aware of issues related to development, environment and sustainability and to recognise and evaluate the personal, local, national and global significance of these issues." (DEA 1998). The similarities between this definition of DE and the EE goals set out by Tbilisi give strength to the case for dealing with them both under one umbrella. As yet, there is no clear agreement on what to we should call this area of study however. One term that has gained popularity is Education for Sustainable Development (ESD) (McKeown 1997, Tilbury 2003) but the concept of 'sustainable development' is highly contested. Many would argue that development - commonly understood as economic development or 'growth' - cannot be sustained. Becoming more materially prosperous requires the use of ever increasing amounts of natural resources, which are finite. Also, attempts to foist 'sustainable development' on Southern countries have failed miserably. Aid programmes are often imposed on 'target populations' who are not asked what *they* believe they need. Money is frequently channelled through governments which feel no accountability to their citizens. (Rahnema, 1998). Necessities such as clean water, adequate food staples, shelter and basic medical care remain beyond the reach of millions of people. Governments often become dependent on lending institutions and subject to agreements that are favourable only to those lending institutions and the economies that sustain them. In Costa Rica, for example, the two biggest income earners, high technology and tourism, fail to foster economic growth or generate government revenue due to the tax breaks they receive (Boddiger 2002).

Some would argue that it is confusing to invent new names for what is, essentially, the development of ideas within existing areas of study. Plant and Firth (1995) however, argue that EE, as it has evolved in recent years and become excepted into mainstream education, is based on a technocratic rationality which aims at managing and controlling the environment, using scientific and technological solutions which do not address the social, political, economic and cultural issues at the root of ecological problems. The term 'Education for Sustainability' clearly expresses my personal vision of education; its use clarifies that the area of study is 'sustainability' as opposed to just 'the environment' or 'development' and that it is *for* - not *about* - sustainability. Appendix 3, which we will revisit in chapter 2, illustrates the relevance of this terminology by looking at different educational paradigms in relationship to the desired learning outcomes of EE and DE, the principle components of EfS.

Interpretations of Agenda 21, mentioned above, range from 'weak' to 'strong' models of sustainability, which translate into 'weak' to 'strong' EfS (Huckle and Sterling 1999). Weak sustainability is viewed, essentially, as trying to 'help' the environment without significantly altering lifestyles. At the other end of the spectrum, strong sustainability advocates radical and far-reaching change as the way to achieve a truly sustainable lifestyle. The following illustrates some of the differences between weak and strong sustainability practices:

'Weak' sustainability practices might include:

- a) using natural resources more efficiently
- b) reducing waste
- c) controlling pollution
- d) recycling
- e) reforestation
- f) cultivating a love of and respect for nature

'Strong' sustainability practices include all of the above *plus*:

- f) adopting lifestyles consistent with sustainability; teaching and learning about the values and behaviours recognised as necessary for a sustainable future

- g) ensuring transparency; reforming existing power structures perpetuated by present forms of governance and economic management
- h) empowering people to actively participate in decision-making and democratic processes
- i) honouring local and traditional knowledge; seeking appropriate local solutions to local development challenges while maintaining an awareness and understanding of related national and global issues and influences
- j) challenging the emphasis on the consumerist way of life that dominates developed countries and is increasingly permeating and influencing most developing nations.
- k) actively seeking ways to eliminate poverty and ensure equality and human rights for all

A strong model of sustainability would translate into EfS defined as "a process that develops people's awareness, competence, attitudes and values, enabling them to be effectively involved in sustainable development at local, national and international levels, and helping them to work towards a more equitable and sustainable future. In particular, it enables people to integrate environmental and economic decision-making." (Huckle and Sterling, 1999, n/a). As Sterling points out; "This does not invalidate the early and still evolving traditions of nature studies and fieldwork, but puts them in a broader context." (Sterling 2001, p.29) Most EE/EfS programs are likely to take a position somewhere along the spectrum between weak and strong sustainability. I believe the CEC has embraced many strong sustainability practices but they go unrecognised as such because of the focus on EE as nature studies. We will return to this topic in chapter 2.

1.2 Education for Sustainability in the public school system in Costa Rica

1.2.1 A brief introduction to Costa Rica

Costa Rica is unique among developing countries, and in Central America, for its long-term commitment to peace and democracy. Its army was disbanded in 1949. Since that time, successive governments, elected democratically every four years, have invested heavily in developing and maintaining basic health care, social services and educational programs to which all citizens have access along with potable drinking water and electricity. The resulting high levels of life expectancy, literacy rates and stability have attracted foreign investment despite the fact that there are few extractable natural resources to exploit. Costa Rica is rich in a variety of tropical forests however, of which approximately 30% are presently protected jointly by national and private organisations. These conditions have encouraged the growth of a tourism industry, which has become the major source of income for many communities in Costa Rica, including Monteverde. Tourism is presently the primary foreign income earner in Costa Rica; call centres and light industry are taking a larger share of the market and the production of bananas and coffee continue to be of importance.

It is of particular note that despite the impressive percentage of forest under conservation in Costa Rica, it has one of the highest rates of deforestation in the world.¹

¹ This claim appears frequently in the Costa Rican press, I couldn't find an exact reference before submitting this work.

1.2.2 Public education in Costa Rica

Elementary education was made obligatory in Costa Rica under the constitution drawn up in 1949 and since 1992 has been recognised as a fundamental right of citizens. The adult population is largely 'literate' although many people are educated only up to sixth grade. There is a clear consensus that education is the ticket to opportunity and economic stability and even in rural areas, where access to secondary schooling is often difficult, larger numbers of families are making it a priority to have their children attend. There is a great deal of pressure for students to pass government mandated examinations taken at sixth and ninth grades, entry requirements to further education and job opportunities.

Despite statistics indicating a high level of education in Costa Rica, a 1994 UN study gave grounds for growing criticism of schools, which many blame on budget cuts enforced under structural adjustment in the 1980's. While the population grew by over 29% in the 1980's per capita spending on public education dropped by 35%. (Biezanz 1999) Against a backdrop of frequent strikes, it is not unusual for students to loose up to a month of class time in an academic year. This is undoubtedly a contributing factor to the recent alarmingly high levels of exam failure and has prompted calls for a radical revision of the national education system; the development of a completely new vision and attitude toward education. (Editorial, November 2003, *Gólcher* 21 March 2004)

1.2.3 EE, EfS and public education

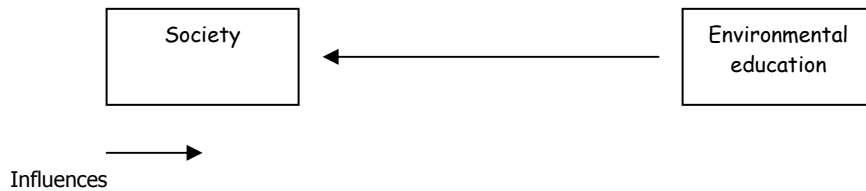
Given the ongoing financial restraints on the Ministry of Public Education (MEP), it is to their credit that they continue to have an EE department that is influential in educational thinking and curriculum planning for public education in Costa Rica. There is pressure on teachers to find ways to immerse EE throughout the curriculum; the MEP is presently working on the implementation of "temas transversales" or trans-disciplinary themes (San Lee Campos 2003), designed to include sustainability concepts in all subjects presently taught in public schools. This move is consistent with thinking on EE since the 1970's; that it should not be a subject on the curriculum, but a program to be woven throughout all areas of study. As the NAAE writes in 1976 "It is not suggested that a specific subject should be established for this area of study ... but that environmental education should involve the children's total learning." (Palmer 1998, p.14). The MEP acknowledge that integration of the temas transversales will be far from easy to achieve however, in the context of an education that continues to be taught traditionally and evaluated by subjects, as well as by national and international standards (Magendzo, 2002). A document published by the MEP last year on the immersion of EE in the school curriculum, makes frequent reference to sustainability (Jiménez and Villalobos 2003) but the term EfS has not been adopted. Much of the document indicates an alignment with strong EfS, although notably absent is any discourse about the need to challenge present forms of governance – not surprising, given that it is a government document and the education system based on the Western model.

According to Plant and Firth (1995), any discussion of a reconceptualisation of EE should analyse the influence of the dominant social paradigm on education and values formation. As Giro states; "public education is shaped, bent, and moved by wider economic, political and social concerns." (Giroux 1989, pp.108-109) At a time in which neo-liberalism dominates the global political and economic scene, Trainer

(1990) warns that the path to sustainability will not be easy, as those who are in control of politics and the economy are not motivated to invest in meeting the needs of the planet or populations inhabiting it. A recent article in the daily newspaper La Nación (Churnside, 2003), addresses this issue by questioning whose interests public education in Costa Rica really serves; arguing that the system is controlled and directed by the "elite" who run the economy, the Government and the Church, putting their interests above those of the majority. As a result, the curriculum and pedagogical and evaluation systems in the public schools at present remain entrenched in a neoclassical or vocational paradigm (appendix 3).

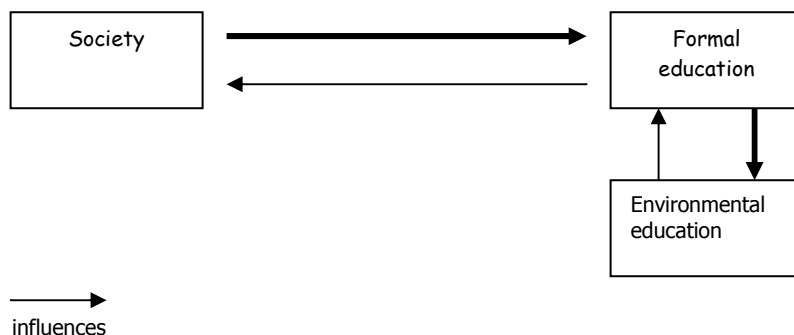
Many people assume that EE will have a positive influence on society for change as illustrated below: (Sterling 1993 p.73)

Figure 1. The effect of environmental education on society as commonly assumed



Sterling (1993 p.73) demonstrates how, in reality, society has a profound influence on EE such that it often serves as an agent for social *reproduction* rather than social change.

Figure 2. The predominant effect of society on environmental education

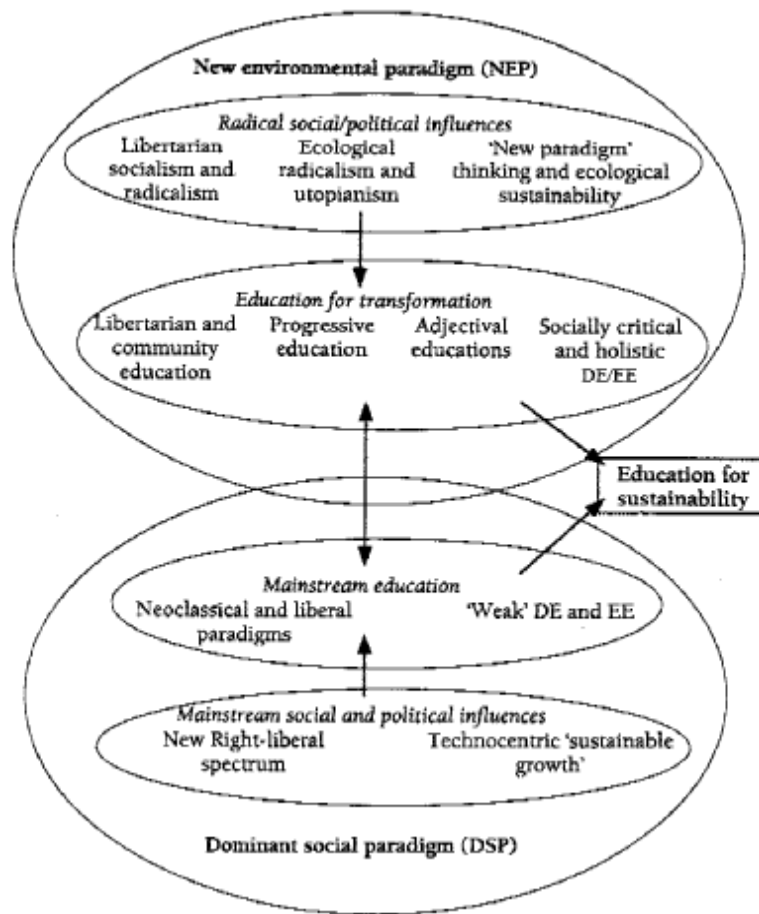


EfS is one result of the reconceptualisation of EE. EfS takes a socially critical stance, proposing a new environmental paradigm. This invites controversy but as Symons states: "By avoiding controversial issues, we reinforce the predominant values and perceptions currently held by our society, which are not leading to a sustainable future and may be perpetuating inequality and injustice." (Symons 1996 p.58). Figure 3 illustrates some of the social and political influences on EfS.

EfS encourages "The development of pupils ability to express their own views and listen to those of others, form reasoned opinions, work co-operatively, make decisions and take action for the environment [which] is related to the teaching and learning styles adopted for environmental work". (Dorian 1993, p.222) While most teachers continue to be trained in a vocational tradition (appendix 3), adopting this approach to teaching and learning will be hard to accomplish. McNiff (2002) claims that the lasting effect of conventional teaching methodologies is that people learn to accept what they are taught and not to question what they are told; education is used to control thinking. As Porritt comments: "the formal education system today seems hopelessly ill-equipped to respond [to the call for educational change towards EfS]. Battered by one ideological shoot-out after another, under-resourced schools, demotivated teachers and stripped down local authorities hardly provide the most conducive context for the kind of transformation that ... [EfS] appears to be signalling." (Porritt 1996, p.xii) These comments

easily translate to the Costa Rican context. For example, the MEP initiated a 'Relaunching of Education' project in October 2003. The project proposes using IT as a tool to diminish the gap between opportunities in urban and rural communities, in and out of the classroom, and to promote social equity, as a way of combating poverty. As of March 2004 however, local newspaper *La Nación* found that few teachers know anything about the project despite claims to the contrary by Manuel Antonio Bolaños, the Minister of Education. Bolaños stated that, apart from technological innovation in some rural schools, as part of the plan subjects such as values, drug use and sex education would be included in the curriculum. He stated that 'all of the MEP staff' would be responsible for implementation of the plan and when asked if any training would be given answered "One would suppose so". (Gólcher 1 March 2004).

Figure 3: Influences on Education for Sustainability



(Sterling 1996, p.20)

Documentation demonstrates clearly that some of the policy makers at the MEP are well versed in present academic dialogues about EfS and there is a strong commitment to focus on values education as a foundation to sustainability. The upcoming document "Los Valores y su Importancia para el Desarrollo Sostenible", although as yet, it is unavailable for review. The gap between theory and classroom practice is extremely wide however. Little has changed since 1987 when Costa Rican educational critic Humberto Pérez stated:

"Learning to learn: this is rarely taught in our schools. We often see primary, secondary, or university students copying information from a notebook or an encyclopaedia, only to repeat it

later in an exam without analysis or question. It is believed that to read books *about* biology or history is to study biology or history."

(Pérez 1987, p.56)

1.3 EfS and The Earth Charter

Many Costa Ricans have been inspired by the Earth Charter (EC) (appendix 2); perhaps because the Earth Charter Initiative (ECI) is based in the capital city, San José, giving this international enterprise a local feeling. The MEP has endorsed the EC and been actively involved in promoting its use since the mid 1990's. Represented by the EE department, they have participated in the 'Grupo Costarricense de la Carta de la Tierra' since its initiation in 1998. The Municipality of San José has endorsed the EC and 80% of its 2,000 staff has attended workshops, designed to allow them to formulate their own vision of the EC and enable them to integrate the resulting ethical principles and values into everyday work activities. Other Municipalities are now following suit. It has been a subject of study by Costa Rican university students (Bowyer E and Carazo B, 2000). Local musicians have participated by giving free concerts to promote dialogue about the EC in the arts and in the community (Ortega 2003). Mackey (2000) describes the Earth Charter as "a declaration of fundamental principles for building a just, sustainable and peaceful global society" and Rockefeller as "a declaration of global interdependence and universal responsibility." (Rockefeller 2002, p.3). The original idea of drawing up a Charter was to promote the implementation of Agenda 21 but the project got off to a slow start. The Earth Charter Commission, formed in 1997 (appendix 4), decided to draw up a "peoples treaty" as it was considered unlikely that an intergovernmental body would produce a 'strong' document reflecting the strong ethical commitments the commission believed necessary to achieve sustainability. Consequently, the EC was designed by civil society, through dialogue, using an open and participatory process, which actively sought ideas and commentary from as wide an audience as possible. The Earth Charter Initiative (ECI) carried out extensive research in the areas of the new scientific worldview, religions of the world, ethics and international law and on environmental conservation and sustainable development during 1995/6 (ECI 2000). They claim that the ideas and values in the EC reflect this wide spectrum of concerns, aspirations and influences.

The EC was officially launched in June 2000 at the Peace Palace in The Hague. At present, most of the information about it can be found on the ECI web site (www.earthcharter.org), although journal articles and a comprehensive module for teaching about the EC at the community level (Brenes 2002) have been written. Understandably, this information is all pro-Earth Charter. It has received criticism from some religious groups on the grounds that it uses a blatantly "pantheistic language". "Pantheism is the pagan belief that nature and the cosmos are god" one article clarifies (discerningtoday.org 1999). A further claim is that the EC is prescriptive: "this global contract points to a mandatory "choice" that differs radically from the Christian position" (Crossroads 2002), "the Earth Charter evolves around "sustainable development," a phrase that is nearly impossible to grasp, but is essentially a new way to advocate Marxism" states the Eagle Forum (2002). The above criticisms appear to be based on fear, by certain extreme religious groups, of a change in the status quo and an intolerance of pluralistic, liberal or socialist perspectives. Many religious groups support the EC; when Mikhail Gorbachev presented the EC in Italy in July 2001, for example, the Vatican sent the Pontiffs official greetings and congratulations on a job well done (Sandri 2001).

There appears to be widespread agreement that the EC's "77 principles constitute an explicit template for exploring in depth the meaning and implications of the sustainability agenda" (ECI 2004). The UNESCO General Conference plenary, for example, has approved a resolution in support of the Earth Charter, which will be used in their plans for the upcoming Decade for Sustainability (2005 - 2015). The University of Aberdeen is hosting a conference on 'Global Ethics, Development, Environment and the Earth Charter' organised by the IUCN Ethics Specialist Group and the International Development Ethics Association in April 2004. They state that the EC's "ethical vision" recognizes the interdependence and indivisibility of human rights, environmental protection, equitable human development and peace, providing

a "framework for thinking about and addressing these issues." (Dower 2003). Many other such examples can be found on the web pages, which the ECI uses to promote the EC as a tool for teaching about sustainability in a variety of settings, including schools. The EC principles align closely with strong sustainability practices, as illustrated by the following chart (Figure 4). Weak sustainability practices, which form the basis of the EE program at the CEC (appendix 5), correspond exclusively to the area of the EC that addresses ecological integrity. The chart demonstrates clearly the way in which this approach fails to encompass the areas of social and economic justice, democracy, non-violence and peace that form an integral part of EfS.

To begin educating for sustainability we need to make changes which, Sterling (2001) argues, depend on three bases:

- vision; a philosophy and direction,
- image; the core values and ideas upon which discussion can be based and
- design; which allows the image to be realised.

Various international conferences have been held to discuss and develop a vision; Agenda 21 is one example of the results of these meetings. Designs have been offered, for example, Sterling's 'P' model of EE (Sterling 1993, p.92) but it is not clear on what image such designs are based. The image is far more difficult to draw up in a global age; how could the divergent views of the earth's human population possibly be represented? If everyone bases their discussions on a different set of core values and ideas how could consensus be reached? What would be the basis for international or intercultural discussion? I believe that the EC, having been drawn up through a lengthy process by global civil society, offers an 'image' which addresses the above questions and leaves people free to 'design' educational curricula or development plans at a local level, according to their specific needs.

EfS seeks to transform educational systems but if we are to begin changing attitudes for sustainability in the near future, we are faced with the problem of how to integrate EfS concepts into the existing system - what Sterling would call 'accommodation'. The EC principles offer a framework for doing just that; they offer the 'image' upon which a 'design' can be built immediately. As Fien (2003) has emphasised: "teaching for a charter of values is the professionally ethical thing to do. To teach using the Earth Charter means accessing an internationally agreed, cross-cultural, cross-religious, cross-political set of values". (Tree 2003)

1.4 EfS and Action Research

While the Earth Charter principles offer an image upon which to build a design for sustainability, action research (AR) could be employed as a methodology for evaluating the change process toward sustainability and for teaching and learning how to educate for sustainability. According to Masters (2000) the origins of AR are 'cloudy' but Kurt Lewin is widely credited with first using the term and developing the basic methodology (see chapter 4) in the 1940's and Stephen Corey with developing the idea of educational AR in the early 1950's. Lewin, a psychologist and social reformer practicing in N. America, believed that change processes should be empowering and emancipatory for participants. He advocated problem solving through interaction, discussion and collaboration in group situations, where ideas and techniques are shared and mutual support systems built. Due to the political climate at the time, AR in N. America rapidly became institutionalised and the tradition that remains in the USA focuses on the systematic collection of information used to inform decision making for change. The popularity of AR dwindled but upon its resurgence in Britain in the 1970's, it was widely adopted in the field of education, focusing on self-reflective enquiry and the improvement of practice (Smith 1996). Many different approaches and schools of thought have evolved within the AR movement. Some of these align closely with a technocratic view, others lean towards a critical approach to research as illustrated in Appendix 6. The relationship between different approaches to AR and different educational paradigms, and ways of practicing EE and DE, becomes apparent when comparing this chart with Appendix 3. Technical AR aligns closely with a vocational educational paradigm and education *about* the environment and development. This would translate into a focus on weak sustainability practices. Collaborative or practical AR relates more closely to a liberal paradigm or education *in* the environment. Participatory AR (PAR) aligns closely with a socially critical approach to education and strong sustainability practices advocating social change, emancipation and empowerment or education *for* the environment. In Britain, the tradition that evolved was influenced by the works of many authors including Lawrence Stenhouse and John Elliot, and widely disseminated within and beyond the UK by the establishment of the Collaborative Action Research Network (CARN) in 1976, as well as the Action Research Network spearheaded by Jack Whitehead at University of Bath.

"Behind action research lays a philosophical tradition which legitimises and spurs change for the betterment of humanity." (Webb 1996, p.139). As discussed earlier, this focus on change is also fundamental to EfS. AR, much like EfS, seeks to change frequently used models of practice in teaching and curriculum development, typically designed by theorists, not by practitioners. Such models have a tendency to reproduce prevailing injustices and inequalities in society, reinforce passive and dependent thinking and restrict personal development by fostering narrow and limited conceptions of human ability and potential (Elliot 1991). AR involves practitioners actively in constructing theory and in designing and implementing change themselves, according to their specific needs and circumstances. It operates on a "micro" level where change is 'owned' by the practitioner, and far more likely to be sustainable than policy or change developed at a bureaucratic or "macro" level and simply handed down to the practitioner (Kemmis 1993). Elliot explains how AR could be adopted by bureaucracy as a strategy in which teachers are taught how to improve pupils performance in order to meet criteria set by national curricula and examinations; it could easily become "highjacked in the service of technical rationality". (Elliot 1991, p.52) If AR becomes 'owned' by technological knowledge, it could become "a set of techniques to be applied to practice rather than a way of life which constitutes practice." (McNiff 2002b, p.60). Taking AR outside of the classroom, McNiff points out that this methodology could be used to explore such questions as "How could I improve my practice as a murderer?" AR can be applied with no ethical dimension. As Grundy states: It is not in the methodologies that the three modes of action research differ, but rather in the underlying assumptions and worldviews of the participants that cause the variations in the application of the methodology (Grundy 1982, p.363).

AR has increasingly been adopted as the methodology for developing an understanding of how to teach for sustainability. The UNESCO project 'Learning for a Sustainable Environment: Innovations in Teacher Education Project' is one such example, involving educators from around 30 countries in South East Asia and the Pacific. The University of Bath offers an MSc in Responsibility and Business Practice which explores social and ecological responsibility in business through AR, Daniela Tilbury recently directed a project entitled *Action Research for Change in Education for Sustainability* sponsored by Environment Australia, the Commonwealth Government and Macquarie University (2002-2003) and continues to teach and do research which connects AR with learning for sustainability. The focus on change for the betterment of society, based on values such as those outlined in the EC principles, and the socially critical stance that both EfS and AR - specifically PAR - take, offer compelling arguments for a 'marriage' of the two, particularly for developing an understanding of EfS at a grass roots level. This is the area my field research will explore.

To conclude the literature review; there are many views of EE, EfS and AR, terms open to misinterpretation if the perspective of the speaker is not clearly stated or understood. People from all political and philosophical persuasions could claim to be supportive of change 'for' sustainability. They could be interested in sustaining the future of the planet and the right of all forms living upon it to exist and have their basic needs met, or in the continued growth of some personal interest which may only be 'sustainable' for a limited time, until finite resources are exhausted. Being critical is essential if we are to understand what is going on below the surface, as is having some way of understanding the values that inform our perspective. For this reason, I believe the EC is a document whose time has come. If one can demonstrate that they stand for EfS or AR based on the principles of the EC, the philosophy and values that underlie their point of view become clear. The EC itself may evolve with time, but for the moment it offers the only democratically drawn up, internationally agreed upon document which outlines well defined principles for sustainability. It facilitates debate about, and understanding of, the values which inform our perspective and guide our thinking. I, personally, endorse the principles of the Earth Charter; they inform this work.

I conducted my field research at the Cloud Forest School, known locally as the *Centro de Educación Creativa* (Creative Learning Centre) or *CEC*, located in the community of Monteverde, Costa Rica. The founders of the *CEC* started a private, bilingual school with incredible vision. They encouraged families from all walks of life, resident in the local community, to allow their children the opportunity to experience an experimental model of education focused on developing a love of, and concern for, the natural environment using a child-centred approach to learning. To this end, the school enjoys an idyllic setting on 42 hectares of land, which includes trails through an extensive area of cloud forest and large organic gardens and greenhouses. The children enjoy the use of this natural environment daily for both academic and recreational pursuits. The school is open to children from any economic, ethnic or religious background without prejudice. To facilitate this, over half of the families receive grants to help with tuition payments. The school is a not-for-profit organisation and receives funding from a 'sister' organisation in the USA known as the Cloud Forest School Foundation. It presently has an enrolment of 212 students from pre-kinder to 11th grade (lower 6th form) comprising 95% native Spanish speakers.

The Environmental Education Program at the *CEC*

The school set out to offer a curriculum that would teach pupils how to achieve sustainable lifestyles (Appendices 7 and 8) by integrating EE concepts throughout the curriculum. Although it is now in its eleventh year of operation, it still struggles to adequately define its vision of EE and to establish a curriculum into which sustainability concepts are fully integrated. EE is treated as environmental or nature studies relating to the richly diverse ecology of the area, encouraging a love for the environment and fostering a desire for, and recognition of, the necessity for conserving it. Since its foundation, the school has had a commitment to a liberal, child-centred educational approach; a bias towards education 'in' the environment (Appendix 7) while encouraging activism (Appendix 8) which aligns more closely with a socially critical paradigm and education 'for' the environment. The parents, however, have demonstrated that their concern is having their children learn English (Kafarowski 2001, Kennard 2001) and pass government mandated examinations, earning the entry tickets needed for job and / or further educational opportunities in Costa Rica. Before the school was accredited, they simply took their children out of the school at grade six to prepare them for these examinations in the public schools. Their interest aligns with a vocational or neo classical educational paradigm. The chart in appendix 3, previously reviewed in chapter 1.4, provides a brief overview of how EE and DE, the principal components of EfS, relate to these three educational paradigms. Tilbury (1995) proposes a three-fold approach to EE, encompassing all three paradigms (Figure 5). This approach fails to acknowledge any potential conflict between the philosophical standpoints of each paradigm however, or of their distinct desired learning outcomes. It is this conflict of interests that teachers – especially in the upper grades at the *CEC* - are confronting. They are required to prepare pupils to pass the national examinations, which demand a high level of academic work and rote learning on specified topics, while integrating poorly defined EE concepts throughout the curriculum using a child-centred approach to learning (Appendix 9) and fostering critical thought and a spirit of activism.

The broad vision of the schools founders is reflected in the document 'Commitment to Self, Earth and Society' (Appendix 7). Reviewing this document in terms of EC principles as seen in Figure 6, demonstrates how it covers ground which goes well beyond that of weak

sustainability practices, as illustrated in Figure 4. The present focus of the EE program on ecology and nature studies could well be a reflection of the influence, interests and leanings of the majority of school Board members over the past few years, many of whom are biologists and conservationists living in the community. School Directors, understandably, have tended to be teacher / administrators and none so far have had a background in EE / EfS. It is notable that issues of social and economic justice are not addressed in the 'Commitment' document and that these relate more to DE. The schools policy of actively seeking funds to provide the opportunity for all children in the community, without prejudice, to attend the school demonstrates a clear commitment to these issues however. Over 60% of the children receive financial assistance. Indeed, many activities at the CEC fall under the umbrella of EfS. The school no longer addresses 'discipline problems' but rather practices 'conflict resolution'. The present Director has made great efforts to include teachers and parents in decision making, soliciting their opinions through questionnaires. A recent document explaining the concept of child centred education at the CEC states that 'children [should] have a lot of authentic say in what goes on in the classroom, such as making rules, deciding policy in class meetings, and effecting curriculum decisions'. (Appendix 9) The school has recently adopted the Earth Charter, having decided that its principles are in line with its own. What seems to be missing is any thread to link these elements together or recognition of how they relate to EfS. Surveys indicate that teachers understanding of the scope of EE varies tremendously (Kennard 2001, 2003, Kafarowski 2001, Fourment 2003). The majority view EE as being based in the sciences and focused on the outdoors, some see connections to society and lifestyles through EE and most feel inadequate to the task of teaching it or integrating it into regular classroom teaching. According to Ali Khan (1995), in order to become effective 'environmentally educated teachers', staff require training and ongoing support in EfS, educational ideology and methodology; they need to understand and embrace EfS concepts themselves before they can adequately facilitate teaching and learning about sustainability. In a discussion about supporting teachers who want to educate for sustainability, Symons states that; 'Teachers are often afraid that they do not know the answers to all the questions that may arise, but defining the questions and thinking of strategies to find possible answers is part of the educational process.' (Symons 1996 p.69). As she mentions, teaching for sustainability is largely uncharted territory and offers an opportunity for teachers and pupils to explore different solutions to problems together.

The CEC's new mission statement, recently approved by its Board of Directors, demonstrates it's grounding in a weak view of sustainability. One of the objectives is:

"To cultivate an understanding of, concern for, and stewardship of the natural world by incorporating environmental education into every segment of the curriculum."

and one of it's operating values:

"To demonstrate sustainable living, i.e., living within the long-term constraints of our environment, is possible and should be a goal of every human being, by reducing, reusing, and recycling."

(Appendix 10)

One way the school might better address the concepts and conflicts discussed above would be to adopt the term EfS with reference to the overarching goals of the school and continue to use the term EE to refer to the nature studies program, thus clarifying the way in which EE is a fundamental part of learning about sustainability but does not encompass the whole.

Although the CEC is a private school, the student demographic is almost equal to that of the public schools. The school is accredited by the MEP and faces many of the same challenges as the public schools with regards teaching EE/EfS, but has the flexibility to resolve them more rapidly and creatively, as it is not burdened by such an extensive bureaucracy. It is also blessed with staff that actively *wants* to make a difference. As pupils at the CEC take the national exams, I believe the school is in a strong position work towards building examples of curriculum design and classroom practice that fall within the recommendations set out by the MEP, embrace EfS and could, through a process of accommodation (Sterling 2001), be used in public schools in Costa Rica. This research project has been designed in such a way that it could also be carried out in other schools to achieve similar goals.

In choosing to do action research I hoped that the teachers would have an opportunity to develop professionally by adopting a 'research orientation' to their classroom practice. (Nunan 1992). I did not want them to come to regard me as an "expert" who would impart knowledge or tell them what to do. I certainly didn't feel like one; we were embarking on this adventure together. I wanted them to see how they could use their own wisdom to better their professional, and personal, lives through the investigation of their practice. At the same time, I wanted the results of their efforts to stand up to the scrutiny of colleagues and school governors or other interested parties. "It is no excuse at all to claim that rigour is unnecessary because the research is practitioner-oriented, small-scale or used solely to improve individual practice. If a change in strategy is to be made, then that decision needs to be based on reliable data." (Hopkins 2002, p.53) One well established way of generating data is through academic or scientific research grounded in fixed designs, which depend upon setting up a controlled situation and manipulating a set of variables within it to produce quantitative data, frequently presented in the form of numbers. This 'positivist' or experimental approach to research does not lend itself well to social situations, however. The behaviour of people can be, and frequently is, unpredictable. Social or 'real life' research tends to use flexible design, which has three principal traditions; grounded theory, ethnography and case study research. All of these focus on the use of qualitative data (although not necessarily to the exclusion of quantitative data) which is 'interpreted' to give a descriptive report. The "aim is to come up with a final set of questions which are relevant to the purposes of the study, ... show a clear linkage to theory ... and for which ... the data ... collected and analysed provide[s] answers to those questions." (Robson 2002, p.83) My interest was specifically in educational research which would be empowering for teachers. I was more interested in process and participation than outcome. I felt that a 'critical' approach, through action research, would better suit my purposes. According to Robson (2002), action research has close affinities with flexible, qualitative strategy. Schofield states that: Typically, flexible design evolves throughout the research period and the researcher needs to remain open to having his/her expectations 'disconfirmed' (Schofield 1993). This is certainly the case in AR where failure to solve an issue or achieve a 'result' does not constitute bad research. Elliot states; "The fundamental aim of action research is to improve practice rather than to produce knowledge." (Elliot 1991, p.49) According to McNiff et al (2003) being able to demonstrate clearly, through the evidence derived from the data, how you have developed your thinking and that you have learned, is enough. Carr and Kemmis claim that both positivist and interpretive research in education "embody some notion of bringing practitioners' practices in line with theorist' theories or administrators' policies, [whereas] critical science does not." (Carr and Kemmis 1986, p.220) The chart in Figure 7 gives an overview of these research paradigms in relationship to educational enquiry and in relationship to appendices 3 and 6.

Having decided on the methodology I felt best suited my goals, I needed to find teachers interested in participating. I thought that there would be more lasting benefits to the school if at least half of the participants were permanent residents in Monteverde.² The director had indicated that this was important to her also, in agreeing to allow me to

Figure 7: Educational Research Paradigms:

	POSITIVIST	INTERPRETIVE	CRITICAL
view of education	sees events and practices as 'phenomena' susceptible to 'objective' treatment	a lived experience for those involved in the educational processes and institutions	an ideologically formed historical process

² The school requires native English speaking teachers in order to offer a fully bilingual program. Most of them are hired from abroad (primarily the USA) and stay an average of two years

form of reasoning	technical, translates into hierarchical and bureaucratic control	practical; aims to transform the consciousness of practitioners	practical and critical, emancipatory; seeks transformation to achieve justice for all
view of policy	prescriptive	sceptical - trusts the wisdom of practitioners	critical
view of reform	managerial	liberal and educative	emancipatory
values	value free	driven by human interests	seeks equality, justice and democracy
role of researcher	independent observer	sympathetic and understanding of those being studied	committed to action for change through research
relationship to teachers	'about' teachers	'about' teachers 'in' educational contexts	'for' teachers

Sources: Carr and Kemmis (1986) and Coleman and Lumby (1999)

conduct my research at the CEC. She was concerned that teachers might not be willing to commit to such a time consuming project given their heavy workload. (Appendix 11, sections 2 and 3) To my relief, I had no trouble in finding eight volunteers; an equal number of native Spanish and English speakers, who were both long and short-term teachers. Each researcher signed an agreement explaining the nature of the commitment and ethical considerations in undertaking research (Appendix 12). Of the original eight participants, three dropped out along the way due to family commitments and time constraints.

As facilitator, I planned to guide the teacher/researchers through the AR process using the following steps:

- focusing on an analysis of the present situation in each of their classrooms and drawing up relevant lines of enquiry and research design, (diagnosis and planning)
- carrying out the research (observation and action) and
- analysing and reporting on data collected (evaluation and reflection)

such that they could develop the skills, through practice, to continue using AR once my involvement ended. Stuart (1997 p.130) illustrates this basic process with a simple diagram of action research 'cycles':

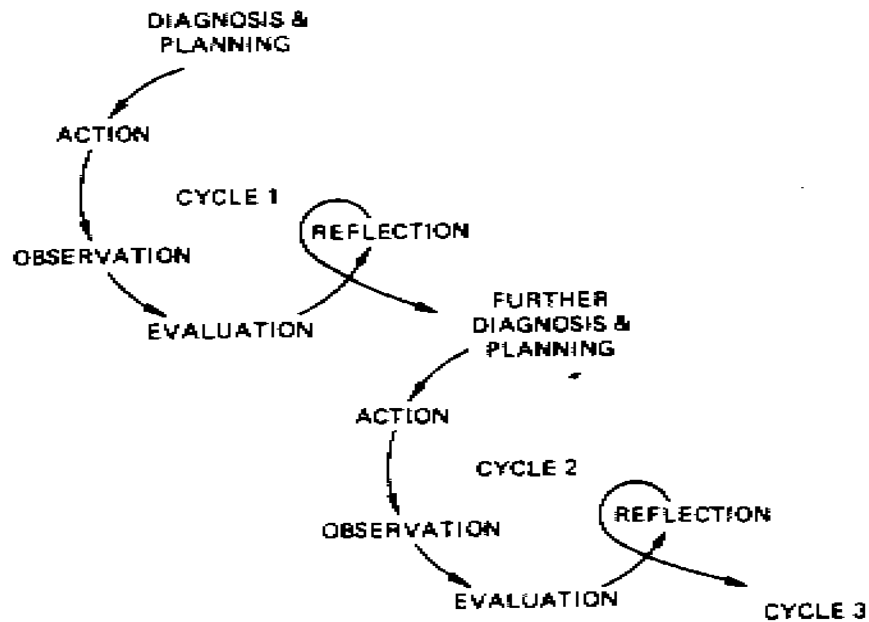


Figure 8: Action Research cycles

In addition to understanding the principles and theory of AR through my reading, I needed to find literature that would guide me through this process. I shared Hopkins (2000) concern that although it is useful to have a guide for AR, it is important to find one which is not prescriptive. Stringer (1999) comments that models can serve as a helpful starting point but can also trap researchers in the interpretation of the reality of the individual who designed the model. "Highly prescriptive plans provide little opportunity for practitioners to adapt and adjust their work to the realities of the particular environments in which they operate" (Stringer 1999, p.148). After an extensive review of the literature, I concluded that the work of Jean McNiff - writing in collaboration with Pamela Lomax and Jack Whitehead - offered a suitably comprehensive guide to my project. I was somewhat concerned about relying so extensively on one source for practical guidance but believed my background reading had given me a sufficiently broad perspective of different views of AR to maintain a critical view of any advice given by McNiff. Her work is solidly grounded in theory (McNiff 2002b) while explaining in everyday language how to put the theory to practice. (McNiff 2002a, 2003)

One dilemma I faced was how to ensure that the Spanish and English speakers had equal opportunities for success in learning through AR. I had been so focused on the literature review in English while in England that I had overlooked the necessity of finding information for the Spanish speakers. I did not have access to texts in Spanish in Monteverde, so I began a search for information via the Internet. Although invaluable support received via www.actionresearch.net helped me to uncover sufficient basic materials, I was unable to find a copy of any suitable AR report in Spanish for the Spanish-speaking teachers. Most AR - theory and practice - is being reported in English. Despite my best efforts, I never felt that the two groups had equal access to literary resources. I tried to compensate for this by allowing time to explain, discuss and evaluate the process in detail with the Spanish speakers throughout the research period, and by translating as much relevant written material as possible. The Spanish speakers asked if I would meet with their group apart from the English speakers, to facilitate the free flow of conversation without the interruption of continual translations. The whole research team agreed to this.

During these early meetings I discussed the importance of ethical integrity with all the researchers, particularly with regards to conducting research with minors. Together we drew up a letter in Spanish, which was sent to inform the parents of children involved in the research in any way, of our activities.

METHODS CHOSEN

Social research using flexible design has come under considerable criticism as not being 'scientific' or reliable enough. Reliability and validity are harder to establish in flexible than fixed design research as it involves demonstrating to others that the work has been conducted with carefulness, honesty and thoroughness. Rigorous documentation of all activities undertaken in the research process is essential. In addition, the extensive use of qualitative data - analysed by individuals whose values and beliefs inevitably influence the findings - increases the possibility of bias less likely to appear in quantitative data. Winter explains that the practical problem in AR is not so much: "How can we ensure that our findings are valid?" but rather: "How can we ensure that our procedures are rigorous?" (Winter 1989, p.36). McKernan, however, claims that "The more rigorous the evaluation through multiple investigators, methods and theories, the more reliable the observations and results." (McKernan 1991, p.188). In accordance with McKernan, I was collaborating with seven investigators and including the whole staff in the process by inviting them to participate in validation groups and/or as 'critical friends' to the researchers (McNiff 2003). I continued to consult a variety of authors on the theory of AR throughout the process. In order to further establish the validity and reliability of my research I used three different methods to collect information thus triangulating the data, as described below.

The bulk of my data has come from taped discussions that I held with the teacher/researchers throughout the research period. These discussions lasted from thirty minutes to two hours. This was where the learning of each participant and the usefulness of the collaboration between them, and with others, were clearly stated. As McNiff says: "Evidence about the quality of your influence exists in data generated about others." (McNiff 2003, p.103). I wanted to allow the participants to speak for themselves as much as possible and taping the conversations allowed me to do this. Copies of all transcripts were given to the teachers throughout the process to ensure ethical integrity and encourage further discussion and reflection. (Fielding 2001) I also kept an active diary throughout the research period, partly as a companion, largely as a place to record my observations and insights about the process as it was taking place. This information helped me to pinpoint areas where action was needed as the project progressed. At the end of the second observation period, I asked all researchers to answer a questionnaire (Appendix 13). The questions were mostly open ended, designed to encourage reflection on the research process while allowing me to make some direct comparisons between the perceptions of each researcher on specific topics. In this way I hoped to make some generalisations about the researchers' experiences and assess whether I had answered my research question.

As each of the teacher/researchers projects focused on evaluating one specific situation, establishing external generalisability; the applicability of findings to other situations, (Robson 2000), was not a goal of this research project. It is hoped, however, that this report could be of interest to the MEP, who recently addressed the importance of helping teachers to develop an investigative and critical stance to their practice in a document about teacher training in Costa Rica (Orozco 2002). It is my intention to translate this dissertation and make it available to them. The Earth Charter Institute in San José have expressed interest in posting this paper on their website to inform others interested in adopting the EC as a framework for EfS

In summary, by choosing action research, I hoped - in addition to answering my research question - that teachers would learn how to build upon the competences they already possessed to develop confidence in their ability to make changes in their own practice. To do this, they would use their own observations and make recommendations in consultation and collaboration with colleagues. I hoped that they would find this process empowering. I wanted it to be a sharing of equals, each of us teaching and learning from the other and hoped that the researchers would see how this concept is transferable to the teacher / pupil relationship in the classroom. I also wanted the researchers to be aware of the way in which the values that they hold play a critical role in guiding their practice. One particular reason for choosing this research methodology is that "the basis of action research is its ethical commitment to creating democratic relationships" (Arhar and Buck 2000, pp.336,337). This commitment to democracy is also consistent with the principles of the EC and the values underlying EfS.

As the project progressed, and the teachers began their first round of observations, I found myself reflecting on my role and what kind of research I was doing. As Dadds comments: 'To gain respect as research it is important that enquiry be a conscious, ordered process, one in which the enquirer is critically reflective about the work.' (Dadds 1995, p.118). It was clear that the teacher/researchers would be following an AR 'process' for which I had given them quite specific information to guide their thinking and a time frame within which to complete each phase of the project. (see appendix 14) I was facilitating the process but was *I* doing AR? What was I doing? I was not employed at the school and not focused on my own 'practice', although I was definitely interested in my own personal growth and learning. I consulted my tutor who advised:

'You don't have to "categorize" your methodology (no need of "labels"). You have to define it as it unfolds, in the process of applying it and in the process of criticising it.'

This seemed to align closely with Dadds statement and is what I have attempted to do, although it felt scary to embark on this adventure without clear guidelines to follow myself.

I needed to decide which categories I would select for reporting and analysing the findings, and to ensure they related to the theory discussed in this paper and my original question. I had generated enough data to write several reports; it was hard to stay on track. I decided to focus primarily on the ways in which I had been able to answer my research question and secondarily on the ways in which I had been able to demonstrate the positive effects of my influence on the researchers and their work through this process. The following discussion addresses these two areas by presenting some of the data collected and explaining how it serves as evidence to back up my claims. Although all participants gave permission for their names to be used, I have not specified who is speaking to avoid any possible conflict of interest, but used letters in place of names. As the majority of participants were female, I have simply referred to all as such. This makes a very personal account sound rather cold to me; I hope it doesn't strike the reader as such. I have referred to some of the learning that took place for various participants throughout. This analytical discussion illustrates the ways in which AR is not a linear process.

a) In what ways have I been able to answer my research question through this process?

I was able to answer my own research question (see introduction) in two ways. The first was through interaction and discussion with the researchers and other staff at the school as described below. Appendix 15 lists the main meetings and events held throughout the research period.

Embarking on this project, I was clear that my personal values were the driving force behind my work and that I had a message I wanted to convey but I did not want to *impose* my views or beliefs. Here Jean McNiff's advice was useful: "Look on your project as an opportunity to develop your own thinking and practice as you try to influence others." (McNiff 2003, p.67) As I had a long association with the school, most of the researchers already knew about my long-term commitment to 'EE' and sustainability. I talked to them about EfS, the Earth Charter and action research during our meetings in September, and gave them reading materials in all three areas. (Appendix 13) I encouraged them to reflect upon the extent to

which they were - or were not - integrating EfS concepts into their classroom practice. I began meeting with them on a regular basis in late October, to help each of them decide on an area of research and to develop their research questions. After one such meeting on 23rd October, I note that the researchers were 'surprised when I said that the question doesn't have to be related to the garden, forest or trails.' Despite the reading and discussions, the researchers seemed to be focused on EE as practiced at the school i.e. relating to the 'outdoors'. As we continued our conversations and I deepened my theoretical understanding of AR through literature, I became increasingly convinced that the focus of their work should be to understand more about the practical problems they were facing in their daily practice and to find effective ways of dealing with them. I began to wonder if by directing the area of research (i.e. have teachers focus on EE / EfS / EC in their practice) I might be doing two things I wished to avoid: a) having them research my specific area of interest rather than allowing them the freedom to work on an area of their practice that *they* felt was in need of change or improvement and b) setting myself up in the role of 'expert' rather than mentor and equal partner in the research process.

This was truly a 'grass roots' project; we had no funds or material resources and the school administration had allotted no time to help the researchers cope with the extra workload. I felt very strongly that the process needed to be of direct benefit to the teachers and that my experience of AR was so limited that attempting to 'direct' a project based on my interests would be difficult. I was also concerned that I would be embarking on a "technical" AR project while my values align more closely with "participatory" AR, as described in chapter 1.4 (Appendix 6). In order to honour my beliefs, I decided to invite each of the teachers to look for an area within their own practice that *they* felt needed attention, regardless of any obvious connection to EfS or the EC. I was aware that I might have far more difficulty answering my own research question in doing so, but believed this was a more democratic approach; one that would improve motivation levels throughout the process and might be more empowering for the teacher/researchers.

I believe I made the right decision in changing the focus of the teacher's research questions but the specific data I have to offer as evidence of what was happening at the time is sketchy. I found I was committing an error against which all of the literature warns; not taking effective notes, not recording data in a systematic manner. On 21st October I began keeping a journal of which the first entry says 'I have finally become convinced of the vital necessity of keeping a diary. Reading McNiff made me see how much important data I have already lost by not doing this from the outset – luckily I am still embarking on my work at the school but will need to recall past interviews and review past communications.' A few days later, during a very lively and free-flowing discussion with D on 24th October, I noted: '.. this is when I realised I need to use a tape recorder; I am missing so much of what D says'. On 28th October I noted in my diary "Very productive meeting yesterday but I really see a problem in terms of data generation – I do not seem to be able to take notes effectively and 'engage' with people at the same time. I have the tape recorder out and tested – now I have to start using it." The following day, in a meeting with M, I plucked up courage to ask her if I could record our conversation. She had no problem with that, nor did any of the participants throughout the research process. As of this date, I can say with certainty that all evidence presented comes from well-recorded and carefully noted data.

My notes from a meeting with the Spanish speakers on 27th October state: "There was great excitement at being able to choose their own area of interest or concern." I wondered if the researchers would see that in choosing their own research area instead of focusing on mine, the process had become more democratic and, therefore, consistent with the values underlying EfS, the EC and AR that we were discussing during our meetings. I thought that if I could establish such a link had been made, I could claim that their view of EE had been broadened, taking it beyond the sphere of natural sciences. To try to find out, I included the following questions in the final questionnaire (Appendix 13):

1. What did you expect to be investigating when you first agreed to do your project?
2. What was your final research question?
3. What are the reasons for the difference (if there is one) between what you initially expected to investigate and the area you eventually chose?

Six researchers responded to question three as follows: (also see appendix 16 for responses to all three questions)

- “Once I started to look at it, I realized that a) classroom communication was more on my mind; b) reforestation was a relatively small part of my week, and; c) classroom communication fit just as well as reforestation into a broader definition of education for sustainability/environmental education as defined by the earth charter.”
- “During a rambling conversation between me and Virginia, Virginia sensed the latter question was something I could really benefit from investigating”
- “There is a great difference because upon studying the Earth Charter one realises that EE is much broader and we had the opportunity to choose whatever we felt most interested in researching”
- “Actually yes, the first was how to do it and at the end of the project it was focusing on what had been accomplished” (I don't think the question had been understood clearly)
- “None” (this was the EE Coordinators' response; her focus remained in the area of EE)
- “Not applicable”

Two of the above responses demonstrate specifically how the researchers were beginning to broaden their understanding of the scope of EE. Also demonstrated is the way in which the open ended questions were interpreted differently by each individual. I decided to abandon my hope of simply being able to review the questionnaires and draw comparisons or conclusions, based on the answers of each researcher to the same questions. What I was looking for specifically showed up unexpectedly however, in response to a different question where D responds:

“yes, I believe action research is meant to accord with the principles of EfS and the EC such as respect for ourselves and others and democracy (e.g. we were allowed to decide what areas we wanted to investigate ourselves).

It is of particular interest that D made this connection between theory and practice, as she was unable to complete her research and did not participate in any of the conversations we had on this specific topic.

I believe that I was able to influence the researchers by clearly expressing my opinions about, and personal commitment to, sustainability without imposing my views. The following comment made on a questionnaire substantiates my claim:

“Virginia was very helpful as a mentor. Always available and always enthusiastic to share her own ideas and thinking, stimulating us to think about things while not leading us into anything.”

The following two excerpts from transcripts illustrate the point. The first conversation, which took place on 13th November, continues from a point at which C was sharing the difficulties she was having collecting data for her research:

A – nobody is doing EE this theme and everybody is doing culture and the other thing would be in our classes what we are trying to do is do more EE stuff³

Virginia – I'm just going to chip in here briefly to say that from my perspective, culture is very much a part of EfS

³ The curriculum is designed around six-week themes. This comment illustrates how such a design can reinforce the view of EE as being 'compartmentalised'; a view also expressed by other teachers

A – that’s just the thing, with the EE program as it is at the school right now; its kind of viewed more like ‘what is our EE time?’

B – do most of the teachers do that now, do they have time that they do stuff – what would you call it, outside time, forest time? – we have reforestation time

A – we do stuff like what we consider the agricultural component

The next example comes from a taped conversation on 12th December with two teachers who had participated in one of the validation groups but were not directly involved in the research:

G – I’m a huge proponent of EE, outdoor Ed; it seems to me like there’s almost hostility towards it in some circles

Virginia – I think there’s such a divergence of opinion as to what EE is (offer my views as expressed throughout this paper). I think that most people are comfortable with the idea of outdoor Ed but maybe not with the challenge of EfS

G – I believe that to change attitudes about the environment it’s necessary to foster a love of the outdoors by being there but what you’re saying makes sense too – I guess what you’re saying is that it’s something that can happen in the classroom

Virginia – definitely, in a variety of settings

In addition to answering my research question by sharing my views with the researchers as described above, the data revealed that the participation of the EE coordinator helped significantly. Her research question was:

“How can I improve the level of understanding of the CEC staff in relation to the goals of environmental and sustainability education?”

To answer this question she conducted two workshops on the EC, one shortly before and one during the research period, conducted interviews with teachers and held team meetings. She also carried out a survey to get a clearer picture of the teachers’ understanding about EE/EfS, and to establish whether the EC had helped them to better understand sustainability concepts. Throughout the project and in the questionnaire, she repeatedly referred to time limitations impacting her research, for example:

“ .. I do think that the lack of time, both allotment for the work and my own time limitations, kept me from engaging and getting a full understanding of the process.”

Despite this, there is clear evidence of her influence through participation in the project. She mentions how one teacher comments;

“... you’d be proud of me – I’m now using the EC in planning my themes. I went through it and picked out three principles that matched this theme.”

Even if C wasn’t able to make the impact she had hoped for with the staff as a whole, B made the following comment, which clearly demonstrates C’s influence within the research group, and how that helped me to address my question:

“C’s overview of the Earth Charter had given me a theoretical understanding of it, but not one I knew how to activate. Our conversations during the action research made me aware of what EfS is, how it is different from EE, and how the Earth Charter supports it. It was mainly Virginia’s and C’s continual comments about how people don’t understand EE, how it’s so much more than what we do outdoors, people are so limited in their vision of it, etc. etc. I reflected back on C’s workshop and better understood how it played out in the classroom and how the Earth Charter validates what I was already doing. It was also Virginia’s recognition that her research was changing because of the interests and needs of the researchers, and that our interest in communication fit well within the boundaries of EfS and the EC.”

The Spanish speaking researchers participated in C’s workshops and we engaged in the EfS / EC debate throughout the process. The following quotes demonstrate some of their learning as a result:

in response to the final question on the questionnaire (Appendix 13):

“these concepts are related and they make us value ourselves as people within our families and community, encouraging us to create a healthy and happy environment and [help us to see] that we are capable of changing bad habits if we want to. I believe that only through participating in this work, learning a little about each of these concepts, have I been able to see the connections.”

during a meeting on 26th February:

“... if I hadn’t done this work with you I wouldn’t have understood [about the EC and the scope of EfS]. ... Natalia [her daughter] told me that, as a [7th grade] student [at the CEC] she was the same as me at the beginning of the project, thinking that the ‘environment’ is limited to plants and animals. This questionnaire really opened up my thinking. I know Natalia is only one student out of 200 but I said to her ‘that’s all there is to the environment?’ and she said ‘from what I have learned at the school, yes’.”

(see appendix 17 for whole transcript)

I have included, as appendix 16, the answers of all the teachers to part 3 of the questionnaire which was specifically designed to allow me to evaluate whether I could offer an answer to the research question or not. They were asked to define EE, EfS, the EC and AR as well as comment on any connections they could see between them as a result of doing the research. The huge diversity in answers which, presumably, indicates levels of understanding, coming from the few individuals who had participated in the same process over the same period of time, was a revelation for me. It has helped me to see just how complex the task of educating for sustainability is, and how weak an education system that attempts to teach everybody the same material by the same method, assessed by the same criteria. It was also notable that the level of participation and contribution during our meetings does not necessarily correlate to responses to the questionnaire. One researcher in particular, who made a very valuable contribution throughout the research process and clearly demonstrated learning in the meetings, has interpreted each of the questions in a way that, frankly, makes little sense to me. Another has produced an excellent AR report but not demonstrated a grasp of the concepts above in the way I had hoped. Only one participant

demonstrated all aspects of the learning I had hoped to see in the way I had hoped to see it but this is reflected throughout the data, not in response to part 3 of the questionnaire.

I believe I have presented ample evidence to claim that through AR and with the help of the EC, the researchers have reached an understanding of the way in which EE, as practiced at the school, forms an integral part of the broader process of EfS. My interest in the process we had embarked on had broadened however leading me to ask:

b) How can I demonstrate any positive effects my influence has had on researchers and their work?

This question was not one I had conceptualised at the beginning of the project, when I was more focused on my own area of research, but became increasingly important to me as we carried out the fieldwork. The following quotes come from the transcripts of our meetings and illustrate how very different the learning was for three of the participants:

“I discovered things that I was definitely doing wrong. For example, I was investigating interrelations between the different cultural groups and upon making observations I realised that I hardly ever spoke to the other teacher [in my classroom] when the children were around. It was like she was in her corner and I was in mine; the children always saw us apart. As a result of this, Suzy and I have built a friendship sometimes we sit next to each other over lunch and just chat and the children are watching.”

(see appendix 17)

“I’ve noted here that actually [the students] worked really well; I don’t know what I did, I think that I was stressed out thinking about the problem which, in reality, isn’t so bad. I’m the one who is stressed out; I feel as if I’m not a good teacher, that the children will go to 3rd grade without learning all the material – they are all at such different levels - it’s very challenging. I’ve never taken the time to reflect about myself like this before Virginia, and so I am really happy with this work and the truth is the problem isn’t as bad as I thought.”

A – “I’m just interested; why did you choose this group?”

B – “I had five that came up in my notes ... names of kids who apparently were not responding to me, tuning out a lot. Two of them were X and Y and when I looked at that I said ‘well they are special, not like typical students and I thought well X, in a way it doesn’t matter because he’s so smart and Y is a real special case and what I did because of that is I made plans for them – yeh, so it’s not part of the research. It’s something I’ve had in my mind all year and I’ve finally set my intern up to do it in a more formal way so that came out of the research for sure.”

I believe that the above quotations clearly illustrate how my influence had a positive effect on the other researchers who, in turn, were able to make changes in their practice for their own benefit as well as that of their students and co-workers. The third quote clearly demonstrates how, through the research, the learning experience of two pupils in B’s class improved. Another clear example is A’s report, too long to insert here but included as appendix 18. As McNiff states: “In education research it is not how to demonstrate that one set of conditions leads to specific outcomes; it is how to show one’s educative influence such that one child’s quality of learning was improved.” (McNiff 2002b p.138).

CONCLUSIONS

This project was grass roots. It was carried out by ordinary teachers, albeit with extraordinary dedication to their jobs, going about their everyday teaching practice. It was done on a shoestring; the researchers received only very basic materials (notebooks, pens and information sheets) and no allocation of time was made for the extra workload. As mentor, I was the only person preparing a report for assessment by an outside body. The other participants were (are) simply well motivated, caring professionals, prepared to dedicate their own time to improving their teaching practice. The level of academic preparation of the researchers varied from a grade 5 to Masters degree (Appendix 19), but there was no evidence to suggest that this affected anyone's ability to fully engage in, or learn from, the AR process. Most AR reports describe well-financed projects, organised on a comparatively grand scale or being carried out as part of an award-bearing program, and my reading indicates that most action researchers hold a university degree. If AR were really intended to be empowering for 'ordinary' teachers, particularly in the developing world, I would argue that it needs to be done by ordinary teachers. This research project establishes that this is possible. The questionnaires indicate that in order to do AR, in the opinion of the group that worked with me, there needs to be:

- someone on hand who has appropriate experience and the time to work with researchers, supporting them and facilitating the process.
- support from administration in the form of encouragement, recognition and time.

and that:

- more than three week blocks of observation time is needed to be able to see results
- resources such as a video camera would be a plus.
- this is not a process that should be 'forced' upon or 'required' of teachers, it needs to come from a genuine commitment to self-evaluation and improving practice by teachers who can realistically dedicate the time to the research.

To illustrate this last point, the biggest surprise for me was D's 'rejection' of the process. She decided not to continue with the research in January. Although she explained that lack of time was an issue for her, she also expressed discomfort and uncertainty about the validity of the process:

"... it just seems like trying to make it sound scientific when it is really just a matter of intuition - I don't know if I trust these scientific research projects when really all it is is just reflection ..."

My conversations with her, and the group discussions in which she participated, demonstrated very clearly that she is a deeply reflexive person and dedicated teacher (Appendix 20). Perhaps AR methodology is not suitable for all, but only for certain personality types, or perhaps a more varied approach is called for. I believe this bears further investigation and felt disappointment in not being able to keep D engaged in the process. Five researchers did complete the project; from the data they provided, I have selected one questionnaire and one report to submit as appendices (Appendices 18 and 23). They are chosen because in very different ways, they demonstrate the learning that took place through the research for these two individuals. Throughout the appendices there are examples of the ways in which all of the researchers learned by participating in this process but they do not adequately reflect the challenges and difficulties we all faced at times. It is not a task to be taken on lightly however; as Nunan (1992, n/a) remarks:

"action research is difficult, messy, problematic, and, in some cases, inconclusive. It consumes a great deal of time, and often strains the goodwill of the teachers involved, as well as those with whom they work."

I will conclude by describing a situation that allows me to summarise some of my learning. When reviewing the transcripts, two pieces of data caught my attention. In a conversation with one of the school administrators, M on 29/10, she stated (my italics):

“[Au] does bring in [to her lessons] environmental topics but we really don’t with S and T and *I would actually encourage them not to* because they have such limited time.” (Appendix 11)

At a meeting on 10th February, C expressed concern about a party, held by a teacher at the school, in which the children indulged in eating a variety of junk foods. A responded:

“I’m confused as to why this party has you so stressed I don’t think the teachers brought that stuff – the kids did right?” (Appendix 21)

The data above seems to indicate that M, while professing a commitment to integrate EE throughout the curriculum, (appendix 10) was recommending that certain teachers *should not* address environmental topics. It also indicates that A believes, while teachers should teach the pupils about healthy eating, there is nothing wrong with allowing them to bring junk food to a party at the school. This appeared to be strong evidence that two senior members of staff at this environmental school were not seriously committed to the program. ‘Slippage’ - a difference that often occurs between policy and its implementation in practice - is not uncommon in educational institutions (Blenkin et al 1999). However, discovering that an administrator who advocates a fully integrated EE curriculum, does so only for selected teachers, or a teacher gives instruction ‘about’ healthy eating but, apparently, does not see the necessity for modelling the behaviour, could be of a serious concern to many members of the school community. How should I address this data? I recognised my personal bias toward helping the school achieve its goals and feared that revealing this information might be detrimental to this cause. I felt compromised.

I revisited all of the data and a different picture emerged. In the same conversation with M she says:

“If we’re talking about how could you integrate it [EE] into writing and that writing is empowerment, writing is being able to express themselves which is all part of being – which is part of EE when you look at the big picture - being able to write a letter complaining about the grey water or something”

and in an earlier meeting A says:

“I would say that actions speak louder than words – I could come up to you and say bla bla bla EfS, bla bla bla the Earth Charter [laughter all round], people might spout all this stuff but when you get down to what are you doing in your classroom, to getting the kids on board with all these things I think that’s the most important issue.” (Appendix 22)

Now what I could see was that M, early on in our conversation, had been clear that EE, for her, is nature studies which is not easy to integrate into all learning situations. Later during the same conversation, she demonstrated a clear understanding of how being literate can empower people to take action for the environment and how that could also be considered EE; a part of EE that can more easily be integrated into the curriculum. A had simply made two contradictory statements, an indication perhaps, of the need for continual analysis and evaluation of self and practice.

I conclude with this for several reasons. Firstly, I believe it illustrates how easily, in social inquiry, the researcher can reach conclusions based on his or her own point of view or expectations, or manipulate data to paint a desired picture. Ethical integrity is paramount. I might have argued that these two people did not care about, or understand, the fundamentals of EE, questioning their credibility, and I had the data to back this up. Secondly, it demonstrates the importance of taking a critical approach to learning such as I have advocated throughout this dissertation. Rather than criticise these two individuals, I chose to critically evaluate the data revealing evidence previously overlooked. Thirdly, I believe this situation demonstrates two of the particular strengths of AR. The AR cycles facilitate a process of enquiry in which the observations are evaluated to stimulate reflection and further investigation rather than used to cast judgement (Figure 8). I am interested in finding ways of exploring the questions these conversations have raised for me and will have the opportunity to do so through participation and interaction as a member of the General Assembly of the school. Also, because I was an 'insider', interested specifically in enhancing understanding about EfS at the school and encouraging its implementation, not in developing or defending a theoretical standpoint, I questioned my findings and took the time to revisit the data. This is unique to AR; most research, both fixed and flexible design is conducted by 'outsiders', 'experts' in their field, who may engage with those being researched temporarily, but seldom have a long-term commitment to them or to improving the research situation.

Lastly, this evidence gives strong support to my recommendation that the school embrace EfS to fulfil its stated vision of 'Working to create a sustainable future'. (Appendix 10) As M has noted, it is not convenient to integrate 'nature studies' per se into all parts of the curriculum whereas concepts such as empowerment, equality, democracy, human rights and justice – all elements of EfS - can be. Moreover, they can be part of the hidden curriculum, for example in the way the school is administered, as an ethical guide to the behaviours teachers are expected to model for students and in the development of the physical structure of the school. The CEC already promotes the use of conflict resolution as a means of resolving differences of opinion or dealing with behaviours that are not in line with the values of the school, and practices equality of opportunity through its enrolment policy. It is becoming more democratic in its approach to management by soliciting the opinions of different members of the school community before making decisions. I believe it might be helpful to this community to recognise the important part such political decisions play in achieving sustainability at a local and global level. The majority of staff view EE as ecological or nature studies. It could remain as such; a crucial element under the umbrella of EfS. It may then be easier for staff to understand, with the help of the EC principles, the breadth of EfS, the way in which EE is a part of that whole, and the extent to which they are, or are not, truly educating for a sustainable future. I believe this research project has demonstrated that AR could well serve as a useful methodology to achieve this goal.

