

UNDERSTANDING ENVIRONMENTAL EDUCATION: TEACHER THINKING AND PRACTICE IN CANADIAN ELEMENTARY SCHOOLS

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INTRODUCTION

In *The End of Education*, Neil Postman (1995) proposes several new narratives to animate the debate about the purposes of schooling. Narratives are needed, he says, that attend to students' social and emotional development. They must be capable of guiding and supporting young peoples' experience of participation and citizenship. One of those narratives which, according to Postman, has extraordinary potential is the story of human beings as stewards of 'The Spaceship Earth.' This story, he says, has the power to bind people, because it makes clear the interdependence of humans and of all living things on this small planet.

The purpose of this paper is to share the experiences and perspectives of a growing number of Canadian educators who appear to be living this narrative to some degree in their professional lives. For many teachers at the most recent conference of the Environmental Education Association of Southern Africa (EEASA) living this narrative will mean 'learning to change,' the theme of the conference. With major curriculum change imminent in many countries of southern Africa it is important to raise the level of debate about change as it relates to environmental education and the curriculum. There is always the concern among those committed to notions of stewardship that environmental education may be lost in the change as a cross-curricular vested interest. The hope for environmental educators is that the story has the power to bind and so sharing our stories across continents is important in times of change.

According to the EEASA conference material, change in environmental education involves changing school and society through new programmes and resources, new teaching practices and new educational policies. The challenge to educators is framed in terms of sustained and critical involvement in practical and political action. However, this kind of action involves close personal change. Learning to change in our personal and professional lives through constructive action in real local issues is an admirable goal, but how realistic is

it and what will make it happen? When you think about it, even some of the small changes which we attempt in our personal lives such as dieting or exercising or even as simple as squeezing the toothpaste tube at the bottom to avoid conflict with a spouse or roommate are extremely difficult. Imagine how much more complex the matter becomes when we consider even small changes to a necessarily conservative field such as formal education. Seemingly simple changes at the personal level of teaching such as adding an environmental emphasis become complicated by the requirements of the educational system.

Despite differences in context, environmental educators in North America and in southern Africa share some basic ideas about the need for change in education. For example, to build an ethic of environmental care and responsibility into educational systems requires a change in thinking about our educational purposes. However, we know very little about change whether at personal or societal levels. We do know that change is a very complex matter. My intent in what follows is to share our struggle, as educational researchers, to understand the environmental educational perspectives and experiences of Canadian teachers who exert such powerful influence on our children's thinking.

In our study of elementary school teachers we, as researchers, began by asking ourselves questions about the kinds of experiences that might motivate teachers to include environment-related activity into their school programme. We wanted to understand Canadian elementary school teachers' environmental education-related thought and practice. Although we are aware of the limitations of referring to this activity as environmental education, given the rhetoric associated with this field, teachers used the term quite freely and we have retained their language in our descriptions. Supported by a grant from the Social Sciences and Humanities Research Council of Canada¹, we² began talking to Canadian elementary school teachers about the nature of their environment-related practices. We spoke to many educators, mostly classroom teachers who worked

with children between the ages of about five and thirteen. They have been in teaching a few years, or thirty years; they live in big cities and small villages; their responsibilities are as teachers, principals, district consultants, curriculum developers and volunteer advisers. In this paper I describe how we learned to converse with these people about their environmental thinking and practices, how we tried to understand their stories, and how we learned to see their environment-related practices in terms of their personal thinking and their philosophy of education.

CONTEXT OF THE STUDY

In the wake of considerable international activity in the areas of environment and education during the 1980's, including the well publicised Brundtland Commission report *Our Common Future* (World Commission on Environment and Development, 1987), Canada's national and provincial governments supported several public initiatives such as *Canada's Green Plan* (Government of Canada, 1990) as well as national and provincial round tables on 'environment and the economy.' Whether or not those policy initiatives resulted in increased activity at the school level, the fact is that many environment-related topics are now recommended within new provincial curriculum guides. Despite a recent decrease in environment-related government policy activity at all levels, our experience in Canada in the 1990's has been that most children are exposed to some form of environment-related activity or environmental education as part of their elementary (primary) school experience. However, very little is known about the specific nature of this activity or about teacher thinking related to these practices. Our research task, as we saw it, was to examine this relationship, and we chose to begin our work by looking at environmental education from the teachers' point of view.

There are many ways to approach the problem of coming to understand, and of coming to help teachers understand, the relationship between peoples' thought and action. Different research methods are shaped by different purposes, values and standards as well as by different perspectives on reality and what counts as knowledge. We have based our inquiry methods on a view of knowledge as the interplay between personal practical theories, on the one hand, and a complex of social, cultural, and educational contexts, on the other. Thus, in our study we have focused on methods of inquiry which

include consideration of human consciousness and political action, and which are at least capable of responding to moral and social questions about teaching practices. In Grumet's (1991) terms, we have been working to devise forms of research in education that honour the spontaneity, complexity, and ambiguity of human experience. We have also been working with teachers to find ways for thoughtful people to help themselves by understanding their own thinking as it relates to teaching practice. And story is the form we have chosen for our work in this study.

STORY AS RESEARCH METHODOLOGY

We began by talking to teachers, that is, by engaging these people in conversations about their environment-related practices and the philosophy underlying these practices. They began by telling us stories. So we began to read the research literature which examined the value of story as method and which developed the methodological underpinnings of this form of inquiry into people's lives. Many researchers in the field of education, it seems, have begun to appreciate the value of stories in understanding people and their experience (Carter, 1993). If you want to 'find out' about teaching, say Schubert and Ayers (1992:v),

the secret ... is to be found in understanding the local detail and the everyday lives of teachers ... those who hope to understand teaching must turn at some point to teachers themselves.

It took us a while, but as we learned from experience how to engage in this kind of narrative inquiry we learned how to be better listeners, to 'hear' what people were trying to say, to 'see' the meaning in their words, to 'understand' some of what they say is going through their minds. We developed an appreciation of the value of story as a way of understanding teacher thinking. We also began to recognise and respect the complexity of our task. When we asked teachers to talk to us about their environment-related classroom experiences we had to develop enough trust to get beyond superficial reasons and penetrate the values in their personal practical point of view. This is a risky business for the teller and creates anxiety for the conscientious reporter. We were not bedazzled by the telling or the receiving so much as we were encouraged by its potential for personal reflection. The first person is closer to us than the third, says Grumet (1991), and viewed against the background of statistics and institutions, storytelling seems pretty authentic.

According to Lampert (1985) the way teachers view themselves and their work will only emerge as teachers present themselves in stories about their work. Coles (1989), in an autobiographical account of his psychiatric practice, claims that it is only through stories that we can fully enter another's life. Connelly and Clandinin (1988) describe storytelling as a key element in their description of narrative as the making of meaning from personal experience via a process of reflection. This notion of narrative knowing through stories is important, according to Seneca First Nations elder and biologist Henry Lickers (1995), because stories of elders represent situated naturalistic theory in narrative form. This is not merely a claim about intuitive understanding, but a claim that human beings think, perceive and take action according to narrative structures; that is, we live storied lives (Bruner, 1986). Extended to teaching, this represents an epistemological claim, that teachers' knowledge is ordered by story and can best be understood this way (Elbaz, 1991).

The methodological dilemma in narrative inquiry involves the struggle to engage people, as relative strangers, in genuine episodes of storytelling. How can researchers and practitioners come to know and trust each other in a professional relationship so that authentic stories of experience help us both to understand our assumptions and values, those predispositions that drive us to teach in certain ways? According to Florio-Ruane (1989, 1991) conversation as a research method is very likely to yield stories and stories provide insight into personal, practical theory with professional, cultural and autobiographical undertones. Stories are probably authentic expressions of teachers' values precisely because they are formed both in action and in intuitive perception, thus eliciting memories of stored knowledge through not only cognitive processes, but also through moral, spiritual and psychological ones.

The researchers' problem is how to 'see through' conversation as a communication process. Rather than a goal-oriented process in search of rigid categories of knowledge or truth we regarded conversation as a hermeneutic cycle - a process of continual questioning of received wisdom that contains space for wonder, mystery, uncertainty and the barely knowable as opposed to justified belief. Within this view of communication we can accept certain limitations of discourse such as logical consistency and partial coherency as a legitimate part

of our struggle, as researchers and teachers, for mutual understanding. Conversation gets closest to the heart of teachers' understanding precisely because it may be experienced as a method of friendly dialogue which characterises all phenomenological social science (Van Manen, 1977).

From our perspective conversation was an attractive way to transcend status differences that can inhibit discourse between teachers and researchers. Elbaz (1991) believes that conversation as method has the advantage over narrative or autobiography because it is less linear and prescribed, is without the authority of an omniscient or oppressive narrator and involves a more collaborative interactive relationship. Conversation has an advantage over hermeneutical dialogue because it can provide the possibility of raising a critical consciousness in both researcher and teacher - a critically reflective quality of values testing within a nonthreatening environment. Our struggle to achieve this kind of authentic conversation is worthwhile, according to Elbaz (1991), because although teachers' ways of knowing and thinking may have an intuitive, nonlinear, tacit and incomplete nature, these thoughts and understandings appear to be at the centre of practice and therefore should be a major focus in teacher research. In fact, the importance of conversation is the struggle to articulate differences between experience and theory, to become more conscious of contradictions and a lack of congruency between what we say and do (Hollingsworth, Dybdal & Minarik, 1993).

METHOD

Within our project we have had many conversations with teachers about their environment-related experiences in Canada's elementary schools. We were introduced to teachers from every region of the country who voluntarily participated in conversations about the nature of and reasons for their work in environmental education. They spoke to us willingly, often passionately about their experiences and often thanked us for the opportunity to engage in conversations that afforded them the opportunity to think critically about their teaching practices. Frequently they invited us to see their classrooms or to revisit the conversation when they had spent some time thinking about the issues raised in conversation. When we returned our written accounts of their stories, the teachers often added to

their initial thinking, having had time to reflect on their reasons for involvement in environmental activity.

Educational research involving conversation as method is deceptively complex. It has a reciprocal quality which helps to address unspoken status and role assumptions. But each situation was unique and the simplicity of a truly natural interaction was not always easy to achieve. Teachers are seldom asked to articulate and elaborate on what it is that they do and take for granted in their everyday professional lives. They rarely have to make explicit their theories of practice used daily to conceptualise their own teaching. They have developed their thoughts through experience and so thinking about why they teach environmental education is sometimes elusive. The reasons for teachers' actions are often unconscious and are so intuitive and spontaneous that conversation which asks us to articulate our taken-for-granted assumptions about teaching in some coherent oral or written form is a struggle. As Grumet (1991) says, teachers who are asked for their story may feel very young, for that may be the last time anyone asked them to tell it. As researchers our challenge was to find a way to engage in genuine conversations every time we talked, because each relationship and setting was unique; that is, to create conditions to engage teachers in ways that rendered the ordinary, familiar things more important and meaningful, as personal practical theories that were crucial to making sense of classroom practice.

We found these teachers to be very dedicated professionals who were so busy with their work that they barely had time to think about anything other than what was 'in their face' at the moment or 'next on their agenda'. We felt privileged if they agreed to spend some time, even an hour, with us. We found many of these teachers somewhat surprised that anyone would be interested in their thoughts and practices. Their own ideas or theories about teaching have been devalued for so long that they did not regard themselves or what they do as 'special' or even that interesting. In their words, what they do is what teachers *do*, those who really care about children, and those who care about where we are all going in this life and world. I have selected three teachers' stories as illustrations of what is on their minds as they engage children in environment-related school activities. What teachers think, what they believe and what they do in classrooms ultimately shapes the kind of learning experienced by my children and by yours.

Three Stories

Marcia

Great Plains School is a K-8 (age 5-14) school with about 450 students and twenty teachers located in a small city in the heart of one of Canada's most prosperous prairie agricultural areas. According to Marcia, students in the school represent a socioeconomic mix ranging from welfare - to professional families. Marcia has been teaching for over 20 years and currently teaches grade two. In her classroom she tries to integrate environmental education into all aspects of her educational programme. For example, she reads stories about endangered species and about the rainforest. She tries to emphasize the importance of all living creatures. If a child brings an insect to school, she uses it as a teachable moment and talks about how the insect is important in nature. Each spring Marcia engages her pupils in a large environmental education unit. There is a natural flowing spring near the school which her students visit in each of the seasons of the year so that they can see how the plants and animals change with the seasons.

Marcia is the driving force behind Great Plains' environmental club. The club has been operating for four years and is for students in grades two to four. At one point 75 students and four teachers were involved in the club. Membership and involvement tends to come and go over the years depending on student interest and what else is going on in the school. This year the club has 40 students and two teacher advisors. Club activities include the following:

- * Raising money to send to the World Wildlife Fund (WWF) to help protect endangered species. This year the fund-raising activity was a used toy sale. Every year the students have raised at least \$100. One year, instead of sending money to WWF, the club used it to adopt an animal at the local zoo.
- * Last year, club members visited a tree nursery, bought a tree and planted it in the schoolyard. The children watch this tree and have a protective interest in it.
- * At various times the club goes on walks up a nearby hill, looking at all the plants and animals along the way.

- * Art activities with an environmental theme are always popular.
- * The club has guest speakers whenever possible, although it is often difficult to get speakers who are willing to come at noon, when the club meets.

The school, through the leadership provided by the environmental club, participates in the SEEDS programme (an Edmonton, Alberta-based non-profit organization - Society, Energy and Environment Development Series) and earned its 'Green School' designation last year (individual, class, and school environment-related projects, described by student participants, add up to schools being designated as bronze, silver, gold, green, jade, emerald and earth schools. Hundreds of Canadian schools participate.). The school also 'does' aluminum can recycling. Marcia looks after this activity. Recently, she decided to reduce the number of containers in the school for these cans because they were being used as garbage bins. All schools in the city now do paper recycling. It is a school division policy.

Marcia says that she sees a huge need for environmental education.

All around us the environment is being damaged and destroyed. On a smaller scale, the junk that kids leave on the playground is evidence of a real lack of concern.

Marcia believes that the route to change is by reaching the children, because children can influence their parents. This is the way that she developed her own interest in environmental education. Her child at school encouraged her to set up recycling in their home ...

Stuart

Stuart teaches grade six-seven (age 12 to 14 years) in what he describes as a middle class area in a large western Canadian city. He says that his class is very difficult to motivate and parents are uninvolved. He views himself as locked into a curriculum, preparing students for transition to secondary school, that discourages finding alternatives to address the challenges of his teaching situation. For, example, he would like to get his students out of the school and into the community to widen their horizons and help develop their understanding of themselves as citizens of a wider community. Empathy and responsibility are not concepts these children come to school with,

Stuart says. In what follows, Stuart describes how he sees environmental education in the school curriculum in terms of his own philosophy of education.

Being in environmental education over the past five years has brought enormous satisfactions and challenges. It has opened doors, given me insights into politics, and it's been frustrating too. Environmental education is not just science or social studies, or just projects, it is fundamental to education. It incorporates all systems. It is community dealing with change. Kids need to learn experientially, to make mistakes, to try different routes, to be responsive to a challenge, to take responsibility and accept the consequences of their decisions. For example, planting a garden involves learning about soil and plant care-some plants die and the children learn from their mistakes, some live and they can be proud of their success. In other words, we're preparing children for the real world. Learning to problem solve and to think critically, that's being educated. Children need the freedom to try and to reflect on their efforts and the consequences of their efforts.

The time and resources for environmental education are sadly lacking. The emphasis (in the curriculum) is on wrote learning and teaching to tests or entrance exams. Environmental education involves a study of whole systems, not just a garden or vandalism in schools. It needs to be a dialogue about the whole system, raising questions about the way we do things-a social critique. This dialogue should be going on all the time but it's not. There is very little questioning in schools.

Stuart has also been involved in environmental education beyond the school level.

A provincial government document called Environmental Education/Sustainable Societies: A Conceptual Framework was released recently. I was part of the process. The document stated clearly that environmental education should be incorporated in all curriculum areas. That's a powerful statement but nothing is in place to support educators or encourage them to use the document. The process produced a draft document. But the process was never completed. The document went to a select few for suggestions but was never released to the users. I've written to the ministry about that and received an encouraging reply. But generally I think teachers have a sense

of powerlessness or lack of control. It is very difficult to get information or support for environmental education. There is energy among the teachers and a desire to do more environmental education. They do some projects with a focus on the natural environment. That's good but there is not enough activity to take the next steps to examine ethical issues and to take actions. I don't think teachers appreciate how important policy is. We, as teachers, have to learn to legitimise what we're doing to have the power to bring about change. Environmental education is about educational change.

I started teaching in my 30's. Before that I travelled and worked in construction. My mother was an influence-a radical reformer and I listened to her as I grew up. So, I was both informed and critical. I brought issues with me to teaching that were formed from my own experiences of school-what I loved as a kid. I remembered which experiences were lonely and alienating, experiences which caused self doubt and those where I didn't receive the help I needed. And I think, altruistically, that I can use these ideas to help kids, to provide better experiences for them. For example, I want my ideas around the whole concept of civility to be heard. I really get ticked off when kids show a lack of respect by snapping the head off a flower-their attitude. I mean they do not understand how what they do has effects. I want to see more humane behaviour, and a stronger sense of community. Kids need to examine ethical issues-how to make things better. These are values and standards that inform my work. Environmental education is not about indoctrinating but can guide kids to understand the consequences of their actions-to understand different points of view so they can make ethical choices.

Kelly

North Beach Elementary School sits on a peninsula that is almost surrounded by ocean. Kelly teaches grade seven in a rural school where largely Caucasian children come from upper income well educated families. During one conversation I noticed a robin's nest with four babies situated at children's eye level right behind Kelly's desk out in the courtyard. It was a sunny Friday afternoon following a class expedition on bicycles to a wetland area - an area that Kelly helped to write a resource book about. In her classroom were paper maché figures of wetland creatures, wonderfully shaped and coloured. Kelly's background is in art and literature and she

uses it with abundance to bring environmental education alive. She is self-taught in science, fascinated by it and interested in any resources she can get to feed her curiosity.

She talks about her environment-related experiences with a passion.

I am a wetlands 'freak'. I have such a love of that area. There is so much for children to learn about nature and the world there. I am opening a window for children on the unity of all life. The wetlands is a beautiful illustration of how all things are interconnected. We have living proof of that in this place. I hope the children will be awed by their experiences in the area, that they will want to protect it, and that they will see the beauty in this natural area. I want them to 'see' spiritually. I also want children to see that they are beautiful and hope they will want to protect one another. I think that if these children are centred in that understanding, they might see themselves as all interconnected, part of one another, as people who will stick up for one another, and who won't tolerate put downs. I think we have developed here an atmosphere of warmth and trust. I want them to understand that each one of them is a miracle, to understand that to see richness in others is to enrich oneself. I try to foster an attitude of respect by responding respectfully to them. If I request something of them they have a right to know why. I pay close attention to feelings. The key for me is authenticity. We pay attention to each other and come from the heart. I try to give children the message that I believe in the, that they can do it.

Environmental education is about respect, respecting life, love for one another, seeing the interconnectedness in everything. It is different peoples and cultures, to see clearly without prejudice. I use children's literature to help develop empathy for others. I'm not interested in proselytising. I don't want to represent one side of an issue. Politics is not of interest to me. I want children to learn to think critically and to be proactive. For example, I asked my students to do a research project on something that really interested them - a caring from the heart. To my pleasant surprise most chose an environmental or human rights issue. They had to formulate careful questions about their topic, explain why the question was important and what they wanted to find out as a result. They gathered information, developed opinions, based on their knowledge and experience; on the state of the issue and what

needed to happen. For example two girls who had read a novel about homeless people then inquired about homeless people in their community and eventually initiated a school - wide food drive for the food bank here.

I have always known that environmental education is important and what I should do. I have always understood the truth of our interconnectedness, since I was a young child. And I knew that I needed to share things with others. I love nature and spend much time in that spiritual place. It is a gift I can offer.

It was interesting to each of the researchers in our team that so many deeply committed people could be found in almost any school district in the country. Obviously, something has happened to transform their thinking or at least to channel that thinking toward a particular world view - an ecophilosophical view. I have tried to capture the teacher's voice in these accounts of our conversations. In what follows, I have elected to intersperse teacher talk with an interpretation of the meaning that we think we were able to understand from more than 200 of these conversations.

Early Images of Teacher Thinking about Their Environmental Education-Related Teaching Practices

In our study of the environment-related practices and thinking of Canadian elementary school teachers like Marcia, Stuart, and Kelly we have been privileged to hear stories like these from many dedicated people who spoke unreservedly, often passionately about their reasons for engaging children in environmental education. Looking back on one episode of a salmon project, one teacher was struck by its deeper meaning.

One year we were doing the salmon project and doing lots of reading and writing around it and I put this song together called "Song of the Kokanee." We were doing our release of salmon fry into the creek on Earth Day and there were a lot of people from the community there and the image I have is of the children singing this song to the salmon as one by one they would go forward and scoop up some of the fry and release them into the creek. It was very unselfconscious. They were caught up in what they were doing and there was just a flow

between the singing and the releasing. It was very beautiful.

We encountered many unassuming, humble teachers who regard what they do as ordinary rather than special, and as a natural part of their responsibility as adults educating children not so much about subject matter as about life in the world.

What sustains me in this stressful profession is to be absolutely immersed in teaching from my value position. This environmental education is my passion. I believe in the capacity of human nature to be caring and those expressions of positive caring action can be nurtured through environmental education.

These people tend not to give themselves credit for their own thinking. They tend to take their own value positions for granted. Most of their talk is directly related to their concerns for their pupils and the future of these young people. They told us repeatedly that environmental education is an essential part of this basic education. It begins with the individual, with an understanding of one's values and how one's behaviours impact on the local environment and on the world. This understanding is best developed when educational experiences include time to be in, to learn from and to reflect on nature.

** People have to be in nature to understand and appreciate it, to want to save it.*

** Experiences in nature promote confidence and communication and problem-solving. We should put more value in public education on those experiences outside the classroom.*

How teachers convey these ideas varies. Teachers may model certain behaviors such as recycling, schoolyard improvement or litter control. For example, a program is implemented by a primary school teacher to encourage families to provide their children with litter-free lunches - everything is reusable or recyclable. An entire school is involved in a study of the stream behind the school and builds a model to illustrate the variables affecting water quality.

In January, I began a big two month cross-grade unit in the school. We studied our river, the Nechako, from many perspectives. We studied its history, geological structure, its value for agriculture and for industry. I believe

if we go through all this together they will be able to relate what they learn here to other issues. They can use their skills of observing and analysing, of looking at issues from many points of view. In short they will become better citizens.

Other classes look further afield: they examine human impact on the environment through the ages; compare daily consumption patterns of people in their region; or research and debate different perspectives on local environmental issues and then take appropriate action.

We worked in the community. We planted in community flower beds, built planters. We could see, and we collected the garbage in the streams. ... At the end of the year we did a presentation. The students organized the whole thing. They phoned parents and other community people. They did a presentation and showed what they had learned. They showed base line data about the stream, they had photos. It was a wonderful celebration. That's environmental education!

Beyond Reasons

Beyond individual awareness is an understanding and concern for others, a connection to other people, other living things, to the environment, to the world. These connections are based on a foundation of ecological interdependence, and that requires that each person learns how to be a responsible and caring participant within this interdependent system.

Local knowledge is most important. I want them to be aware of their surroundings right here. Every chance we get we are outdoors. They learn to recognize species. They begin to understand the need for wild space. They learn the life cycles, the interdependence among living things.

Whether teachers provided environment-related experiences that fostered understanding of local environments, or concern and commitment to doing some things to improve the quality of people's lives in other places, they expressed the notion that children need to learn these universal virtues of respect and responsibility.

** Always I have the kids involved. They help write the grants, make the decisions about what we want to do, where we want to plant. If you develop things with the kids, then they realise*

how to protect the environment. They feel a sense of responsibility, and learn how to problem solve.

** Poetry may be the best way to open students' senses to the environment. It provides the opportunity to make a personal response - to respond to the feel and smell and touch of our natural surroundings. Hopefully it leads to more respect for the environment and subsequent caring behaviours.*

We have tried to make sense of our conversations in terms of the teachers' thoughts about their environment-related practices, their reasons, their personal practical theories, as well as the deeper beliefs and values that guide their teaching practices (Brown & MacIntyre, 1986; Noddings, 1987). As illustrated by the stories and comments presented above it was important for our inquiry to get beyond the superficial belt of standard curriculum-based reasons for teaching certain material, to some deeper teacher values and beliefs about children, society and environment. Teachers teach about the environment because they believe that children need to understand their interconnectedness with all living things and their responsibility to be positive and healthy contributors within those connections.

My thinking about environmental education has evolved over time. In the beginning I thought that experiences in the outdoors were enough. I would take my kids out into nature and we would play and study and observe. My focus now is broader and really infuses everything I do. I want the kids to understand we have an integral connection with the natural world. We are all one entity. Every way I can I bring that in. In our reading, the subjects they write about, songs, poetry, in science and social studies. Always I am looking for ways to have them understand that connection.

It was interesting that teachers associated a number of these environment-related values and beliefs with fundamental personal and societal values. Teachers apparently saw no difference in helping children develop respect and caring for themselves, for others, for their property or that of others, for living things, for environment, or for the world. Respect is respect whatever the scale. Caring is caring whether for others or for environment. Environmental responsibility was viewed as a logical extension of the more basic value of responsibility. No special

the more basic value of responsibility. No special subject matter background is required. This places environmental education in a different conceptual category, than, for example, science education. Science is taught as subject matter and its objectivity eschews values and value-ladenness. Thus, the connection between environment and self is part of a very basic value position. Including the environmental ethic in teaching seems to be a natural extension of teaching children very basic values of respect and responsibility. The old maxim is probably true. "If it is important to the teacher it will get taught."

** I am hoping to instill long term attitudes that we are part of the earth, of the world and not apart from it.*

** I want kids to realize ... that in our human psyche there is a loss whenever there is damage to the environment.*

** I want them to know about the environment in their bones!*

Despite a growing number of committed teachers it appears that teacher knowledge and use of environmental education resources within Canadian elementary schools is often quite serendipitous. Teachers tend to glean environment-related activities from a wide variety of sources, print materials and casual conversations, perhaps a brochure in the staffroom or an announcement of an inservice workshop. The corollary seems to be that most teachers are not 'doing environmental education' as described in documents which describe the characteristics or components of environmental education, for example the new standards document developed in the United States.

Our sense, from teachers across Canada, is that environmental education is generally not a priority within a crowded curriculum. There is no direct curriculum mandate for environmental education and those who seem to have developed a personal ethic or philosophy relating to environment are the real drivers behind environmental education in elementary schools.

The District does not support environmental education. Teachers doing it are in isolated pockets all over the District. We are all re-inventing the wheel.

Demands on teachers have increased in the last ten years as new curricula are being implemented in many Canadian provinces, coupled with new pressures for accountability in areas such as evaluation, multiculturalism and special needs children.

We need to buy time for teachers. Many of them lack confidence in how to go about environmental education, how to lead an exploration outside the classroom, what activities to use. The biggest need is for teacher support.

Teachers continue to feel quite isolated in their classrooms and look outside the main education system for encouragement and materials to sustain their commitment. They do not feel strong positive support from their school district administrators, although most teachers indicated that these people in general support what they do.

I just took hold of the project and began. I had absolutely no support from the school. This is a very conservative area and no one is encouraged to 'change' anything. I just had to keep going because I believed in what I was doing. I went after grant money since I wasn't going to get monies from the school or the district.

I began to burn out. I felt so alone. There was an opportunity for some grant money that would require a lot of school effort. I went to the principal and pretty well had a tantrum. I was in tears telling him how frustrated I was. I had been doing so much work and there had been no recognition. I was not going to get into another project without support, but that meant the kids lost out. I was so frustrated and angry. After that, things began to turn around.

However, those that are committed tend to remain committed, those who have "environmental education in their bones" believe what they are doing is absolutely necessary for the future health of our planet. They wish to provide their students with a sense of hope and efficacy although they have a hard time sustaining these feelings themselves at times.

There is more support for environmental education in this area now. It is easier to do the activities I do. The population knows it is

worthwhile. There seems to be a more educated awareness. And the whole culture of the school supports it so there is encouragement for kids throughout the community to keep on behaving in responsible ways.

CONCLUSION

My purpose in writing this article was to sketch, from the vantage point of Canadian elementary school teachers, a perspective on teacher thinking and practice in environmental education and how particular forms of inquiry such as narrative, story, and conversation can inform our understanding of this thought and activity. It was an attempt to explore the relationship between teacher and researcher understanding; that is between a particular form of inquiry and professional development.

My initial images of this experience have convinced me that the analysis of conversation and story is vitally important in understanding teacher thinking and practice and for addressing issues of meaning and interpretation in educational research. The teachers whose perspectives and experiences guide environmental education activity within Canadian schools are fascinating people. What they do in their schools and classrooms is a reflection of their perspective or world view, their personal practical theory, their beliefs, and their values. What our children experience as a result of these personal convictions is very important to us as parents. It is important to attempt to learn how to understand and to help teachers understand the basis of these motives.

We have attempted to understand teacher thinking and practice from the teachers' point of view, as a beginning. In this sense we regard our initial images and impressions as interesting but tentative. We are aware of many pitfalls in adding dimensions such as context, character, history and complexity to a tradition of inquiry within the field of education which has intentionally decontextualised and depoliticised such issues in the name of objectivity and generalisability.

In our conversations with teachers we have interacted with dedicated and committed environmental educators who care deeply for children and their future. We have tried to make sense and to help these teachers make sense of their stories as fragments of much deeper beliefs and value positions. Their stories are powerful and have

the potential to direct and change our lives (Noddings, 1991). We have just begun to learn how to construct a process of inquiry which is capable of engaging relative strangers in meaningful conversation. We have much to learn about conversation and narrative as collaborative, participatory research. As we end the first phase of this project we feel as though we must begin once again.

Despite some obvious limitations in human communication and inconsistency and incoherence our own thinking as well as the thoughts of our teacher colleagues, we have achieved some understandings about teachers' presentation of self in the everyday life of classrooms and schools as well as some understandings about our ability as researchers to use conversation as a legitimate research method. As one of our research associates wrote,

It was a great privilege and pleasure to talk with so many dedicated and knowledgeable educators who are clearly making a positive difference in the lives of children, families and communities! They spoke with clarity and conviction about the need for awareness, appreciation and knowledge of the environment. Some called this environment 'nature'; others called it 'the planet and all its systems'. Listening to their descriptions of their work, and their reflections on what it meant to them, I came away hopeful that the consequences of their commitment would be a healthier planet. I hope I have done justice to their offerings. I join with them in encouraging action toward loving and responsible interdependence among all peoples (McPhie, 1996:2).

In our struggle to become more conscious about issues involved in narrative and story such as interpretation, authenticity, veracity and narrative value, we have been encouraged by the power of the relationships we have developed - a cooperative relationship among kindred spirits who share a common world view and whether in research method or classroom action are trying to construct a framework for educational change.

REFERENCES

- Brown, S. & McIntyre, D. 1986. How do teachers Think about their craft? In M. Ben-Peretz; R. Bromme & R. Halkes (Eds), *Advances of Research on Teacher*

Thinking. Swets & Zeitlinger, The Netherlands.

Bruner, J. 1986. *Actual Minds, Possible Worlds*. Harvard University, Cambridge.

Carter, K. 1993. The place of story in the study of teaching and teacher education. *Educational Researcher*, 22(1), 5-12, 18.

Coles, R. 1989. *The Call of Stories: Teaching and the Moral Imagination*. Houghton Mifflin, Boston.

Connelly, F. & Clandinin, D. 1988. Narrative meaning: Focus on teacher education. *Elements*, 19(2), 15-18.

Elbaz, F. 1991. Research on teacher's knowledge: The evolution of a discourse. *Journal of Curriculum Studies*, 23(1), 1-19.

Florio-Ruane, S. 1989. Social organization of classes and schools. In M. Reynolds (Ed.), *Knowledge Base for the Beginning Teacher*. Pergamon, New York.

Florio-Ruane, S. 1991. In C. Witherell & N. Noddings (Eds), *Stories Lives Tell: Narrative and dialogue in Education*. Teachers College, New York.

Government of Canada. 1990. *Canada's Green Plan*. Minister of Supply and Services, Canada.

Grumet, M. 1991. The politics of personal knowledge. In C. Witherell & N. Noddings (Eds), *Stories Lives Tell: Narrative and Dialogue in Education*. Teachers College, New York.

Hollingsworth, S.; Dybdahl, M. & Minarik, L. 1993. By chart and chance and passion: The importance of relational knowing in learning to teach. *Curriculum Inquiry*, 23(1), 5-35.

NOTES:

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² I worked with six research assistants; each was assigned to a different region of the country.

Lampert, M. 1985. How do teachers manage to teach? Perspectives on problems in practice. *Harvard Education Review*, 55(2), 178-194.

Lickers, H. 1995. Paper presented at the Conference of the Canadian Network for Environmental Education and Communication (EECOM). Frost Centre, Ontario.

McPhie, J. 1996. *Teacher Thinking in Environmental Education in British Columbia*. Re-Search, Vancouver.

Noddings, N. 1987. Fidelity in teaching, teacher education, and research for teaching. *Harvard Educational Review*, 56(4), 496-510.

Postman, N. 1995. *The End of Education*. Knopf, New York.

Schubert, W. & Ayers, W. (Eds) 1992. *Teacher Lore: Learning From Our Own Experience*. Longman, New York.

Van Manen, M. 1977. Linking ways of knowing with ways of being practical. *Curriculum Inquiry*, 6, 205-228.

World Commission on Environment and Development. 1987. *Our Common Future*. Oxford University, New York.